Sustainable Food Systems Vol. 3

Tjaša Rednak

Quality of Life: Application of the Concept and the Questionnaire for Evaluations in Food Systems

A first approximation

kassel university press

Sustainable Food Systems
Nachhaltige Lebensmittel-und Ernährungssysteme
Vol. 3
Band 3

Tjaša Rednak

Quality of Life:
Application of the Concept and the Questionnaire for Evaluations in Food Systems

kassel
university
press

Masterarbeit im Fachgebiet Ökologische Lebensmittelqualität und Ernährungskultur
Betreuerin: Dr. Lilliana Stefanovic

Bibliographic information published by Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data is available in the Internet at http://dnb.dnb.de.

ISBN: 978-3-7376-1010-0
DOI: https://doi.org/doi:10.17170/kobra-202201065379

https://kup.uni-kassel.de

Cover layout: Jörg Batschi, Tübingen
Printing Shop: Print Management Logistik Service, Kassel

Printed in Germany

Acknowledgements

Throughout the process of writing this thesis, I received a great deal of support and assistance. I would first like to thank my supervisors, Lilliana Stefanovic and Prof. Dr. Barbara Freytag-Leyer whose expertise and guidance were invaluable. I am extremely grateful.

Further, I'd like to acknowledge the assistance of Maria Micha and Gunilla Jägeberg who provided support with the translations between Swedish and English and with conducting the survey in Sweden. This thesis would not have been possible without them and all the people who participated in the survey.

Finally, I would like to express my very profound gratitude to my family and friends for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis.

Table of Content

List of Abbreviations

FAO	Food and Agriculture Organization
FIES	Food Insecurity Experience Scale
FWB	Food well-being
GDP	Gross Domestic Product
HR-QOL	Health-related quality of life
KNHANES	Korea National Health and Nutrition Examination Survey
NHANES Survey	National Health and Nutrition Examination
OECD	The Organisation for Economic Co-operation and Development
OWB	Objective well-being
Q	Question
QOL	Quality of life
SD	Standard deviation
SDGs	Sustainable Development Goals
SF-12	Short Form 12
SF-36	Short Form 36
SPSS	Statistical Package for the Social Sciences
SWB	Subjective well-being
WB	Well-being
WHO	World Health Organization

List of Figures

List of Tables

Abstract

The concept of quality of life has become more and more important over the past years and has been broadly used in different scientific fields and realms of life. Quality of life is a subjective and multidimensional concept which includes the individuals' perception of their well-being. Researchers focus on the development of instruments to measure quality of life. Various questionnaires including different domains are used for assessment. Food is produced and consumed in systems. For a better understanding of the different food system interactions and their environmental and societal impacts, a holistic approach is necessary. The aim of this thesis is to find out whether the concept of quality of life can be applied to food systems and whether it can help to evaluate the different dimensions of a specific food system by using a more person-centred approach instead of technocratic parameters. A questionnaire combining quality of life and food system aspects was developed. Primary research was carried out with an organic municipality in Södertälje, Sweden. The results of the questionnaire-based survey indicate a high quality of life for the target population. However, a high quality of life cannot directly be associated with a specific food system. For a comprehensive evaluation of food systems, additional factors should be assessed.

1 Introduction

This chapter is a short introduction about the concept of quality of life and its application in various fields as well as its implication in the food system context. Moreover, the concerns regarding the current food system and its impact on consumers are described. Besides, a short overview of the problem statement is given. Additionally, the research question, the aim and the objectives of this thesis as well as the thesis structure are presented.

1.1 Background

In recent years, the interest in research about quality of life has increased. Quality of life (from here onwards QOL) is a subjective and multidimensional concept which includes positive and negative features of life. However, there is no universally accepted definition (Atanasova and Karashtranova 2016, p. 711). The most common definition found in recent literature is given by the World Health Organization (WHO). The WHO defines QOL as “the individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person’s physical health, psychological state, level of independence, social relationships and the relationship to salient features of the environment” (WHOQOL Group 1993, p. 153). According to Schalock (2004), the concept of QOL has three different applications. Firstly, it gives a sense of reference and guidance from an individual’s point of view. The focus is put on the individual and its environment. Secondly, the concept is used as the main principle when striving for a change. It is regarded as common language and systematic framework for the management of present and future undertakings in consequently

improving the well-being of an individual. Lastly, it provides a framework for the conceptualization, use and measurement of the QOL concept (ibid, p. 205).

The concept of QOL is applied in different fields such as health, justice, economy and environment. In the health context, the concept becomes more and more relevant due to scientific development and technological changes in the illness progress. Apart from that, it also aims to defend human rights which has been an important concern particularly after the Second World War. Nowadays, people generally live longer, but not necessarily better. The concept is studied with the intention to examine patients' well-being and the effects of their conditions on their QOL (Pinto et al. 2017, p. 6f). More recently, economists have shown an interest in explaining life satisfaction outcomes regarding the impact of subjective well-being on individual outputs. They mainly focused on the comparison of QOLs between countries and the relationships between absolute and relative levels of subjective well-being (Böhnke 2005, p. 6). Instead of using indicators like material conditions (income, wealth, jobs, housing), QOL uses a more quality-based approach to assess well-being. In this approach, a higher QOL means more than just a higher Gross Domestic Product (from here onwards, GDP) (OECD 2017, p. 22). On the other hand, sociologists are more interested in the role of social status, education, employment patterns and social relationships when it comes to evaluate overall living conditions. They mainly focus on the question, "What has a greater influence on subjective well-being: personality and genetics or socio-demographic factors?" (Böhnke 2005, p. 6).

Since the creation of the QOL concept, researchers in various fields have been worked on finding methods for measurement. Many questionnaires were developed using different approaches. It is

assumed that individuals are the best judges of their conditions. Therefore, the link between objective living conditions and their subjective perception needs to be assessed for an adequate evaluation of the QOL (Böhnke 2005, p. 3). Hence, not only objective indicators of well-being but also subjective dimensions of QOL should be considered (Stiglitz et al. 2009, p. 41ff).

1.2 Problem statement

Nowadays, food systems are affected by different challenges like climate change, population growth and deficiency of natural resources. Consequently, to ensure food and nutrition security in the long term, a sustainable food system is necessary. Furthermore, the food and drink industry have an important role in the health and well-being of citizens (European Commission 2016, p. 4ff). Ensuring healthy lives, promoting well-being for all citizens and consumers along with helping them to adopt sustainable and healthy diets for good health and well-being is an important global goal for the future (European Commission 2017, p. 9). Since the capacities of the natural ecosystem are limited, informed customers care about the integrated implementation of sustainable production and consumption with respect to nature and its natural capital. Consumers choose certain types of products based on production processes, producer and place of origin. These developments play a leading role in the orientation of food production and transformation of food systems (Lappo et al. 2015, p. 10). The consumers' interest in the sustainable production of foods will continue to grow. Therefore, it is important to consider the impact of the individual's QOL on this consumer-driven trend.

Even though the concept of QOL is often applied in the field of sustainability (D'Anna and Cascini 2016; Kuckartz and Rheingans-Heintze 2006, p. 76ff; Nadimi et al. 2017; Oberrauch et al. 2016, p.

225ff), there is not much research about QOL in food systems. There is a growing need to transform our food systems to meet future demands of food as well as the QOL for present and future generations (Westhoek et al. 2016, p. 16). Thus, it is crucial to be able to assess and evaluate the QOL of society as well as of the individual actors in the food systems. This will help to give a better idea of the benefits a food system can bring to an individual's life as well as of the direction of the transformation. Subsequently, this thesis will contribute to a better understanding of the importance of QOL and its measurement in a food system's context which could have potential implications for food system assessments.

1.3 Research question, aim and objectives

The research question of this thesis is: "Can the questionnaire to measure QOL be applied for the food system evaluation?". It will be determined whether the concept of QOL can be applied to the food system context and whether it can help to evaluate various aspects (dimensions) of a specific food system by using a more person-centred approach instead of technocratic parameters. As the main purpose of the food system is providing food products and services which are essential to humanity (European Commission 2016, p. 5), people should be put into focus when it comes to food system assessment and evaluation. The aim of this thesis is to contribute to a better understanding of the relation between QOL and food systems, to evaluate how individuals affect and are affected by it as well as to assess the potential contribution of a person-centred approach in the food system evaluation.

To answer the research question and to achieve the aim of the thesis, it is important to first review the recent literature regarding the concept of QOL and its application to different fields. Apart from the systematic literature review about the concept of QOL, a

literature review on food systems will be conducted and presented in a separate chapter. Additionally, different questionnaires to measure QOL will be evaluated. Based on these, an adjusted QOL questionnaire adapted to food systems will be developed. Afterwards, a survey using the questionnaire (online and paper-based) will be conducted. The target groups are actors of an organic municipality in Södertälje, Sweden. The food system of Södertälje is a model of a sustainable food system. It pursues the vision of building a sustainable future with a high QOL for its citizens as well as sharing the gained knowledge with other cities (Södertälje Municipality 2018, p. 4). A large part of the food is produced and sold locally. A consistent demand for biodynamic and organic products is made by private and public consumers (Larsson 2012, p. 175). Present QOLs of different food system actors will be assessed and evaluated in the context. Healthy dietary patterns have been associated with better QOLs in one or more domains (Govindarajuand et al. 2018, p. 973). Besides, specific diets have been indicated to maintain or improve the individual's perception of health and well-being (Plaisted et al. 1999, p. 88). Sustainable diets have a low environmental impact. They contribute to food and nutrition security as well as to a healthy life for present and future generations (Rahmann et al. 2017, p. 186). It is assumed that the QOL of the target group is high as the consumers perceive local and organic food as healthier and more environmentally friendly than conventionally produced food (Rahmann et al. 2017, p. 180).

In conclusion, the findings of the secondary and primary research will be presented. Besides, the potential of the application of the concept of QOL in the food system's assessments and its significance will be evaluated. The idea behind the QOL concept transferred to a food system evaluation offers the potential to provide a more person-centred approach and deeper insights into a

food system. Therefore, answering the research question of this thesis will show whether the concept of QOL could potentially be applied as an evaluation benchmark to assess the individual and societal well-being (as opposed to technocratic parameters). Furthermore, the thesis will shed light on the potential of QOL indicators as a benchmark for evaluating the transformation process towards sustainable food systems.

1.4 Thesis structure

This thesis is divided into seven chapters. Background, problem statement, research question, aim and objectives as well as thesis structure are presented in the introduction (Chapter 1). Research methods for this thesis are a systematic literature review on QOL, a literature review on food systems and a questionnaire-based survey. The secondary research is divided into two chapters due to the implementation of two types of literature review. The systematic literature review on QOL will be implemented as a separate research method. Therefore, Chapter 2 will be further divided into four subchapters: introduction, systematic review process, synthesis of the results and conclusions. In Chapter 3, a literature review on food systems will be included. At this point, secondary research will be completed. Primary research of this thesis will be done by conducting a questionnaire-based survey on QOL and food system aspects. The methodology and results from the survey will be presented in Chapter 4. The results from secondary and primary research will be interpreted in Chapter 5. Besides, research findings will be presented. Additionally, the research question will be answered, potential biases will be addressed. In Chapter 6, conclusions will be drawn. Lastly, the content of the whole thesis will be summarized in Chapter 7.

2 Systematic Literature Review

In this chapter, the systematic literature review (from here onwards SLR) will be presented. A SLR is a type of secondary research. It is a separate research method which follows standardized reporting requirements. This provides transparency during the review process and replicability of the research (Rader et al. 2014, p. 98f). Accordingly, this chapter will be divided into four subchapters: introduction, systematic review process, synthesis of the results and summary of the SLR.

2.1 Introduction

Before starting research, conducting a SLR is essential to study previous works and provide globally made progress in a specific scientific research topic (Koutsos et al. 2019, p. 107). The SLR in this thesis was conducted on the topic of QOL. The purpose of this SLR was to find and review the recent literature regarding the QOL concept and its application in different fields. Different QOL concepts and their dimensions will be assessed. Additionally, the instruments which are used to measure QOL will be identified and evaluated. All this will provide a better understanding of the concept. It will allow conclusions on whether the QOL concept can be applied to food systems and whether it can help to evaluate various aspects of a specific food system by using a more person-centred approach instead of technocratic parameters.

2.2 Systematic review process

As stated above, to provide transparency and replicability of the research, the whole process was documented and will be described in the following chapter.

2.2.1 Search process and studies' selection

A systematic review process was conducted following the framework proposed by Koutsos et al. (2019, p. 108ff). The steps for performing the systematic review in this framework are scoping, planning, identification, screening, eligibility/assessment and presentation (see Figure 1).

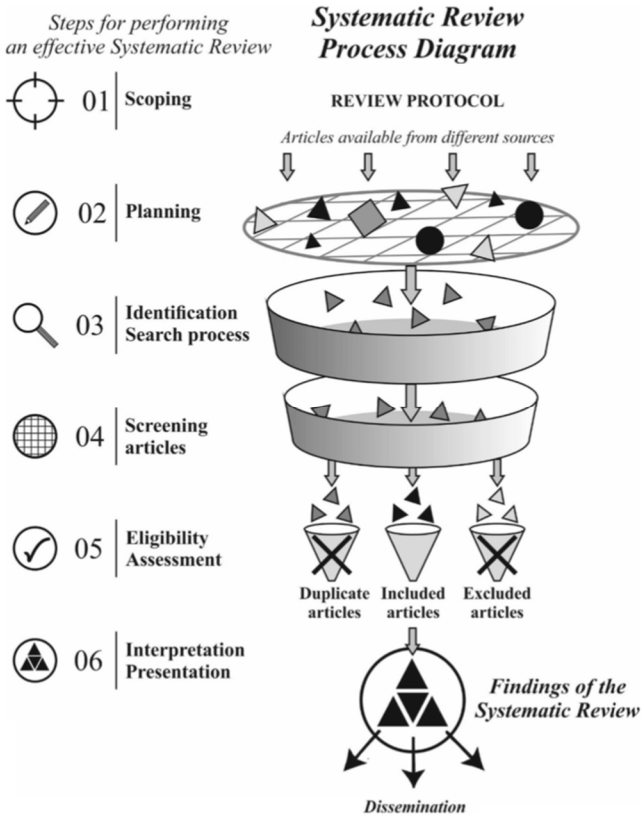

Figure 1: Steps for performing a systematic review (Source: Koutsos et al. 2019, p. 109)

The first step was to develop a review protocol focused on the research question and the study design. Further, few relevant studies were selected for a pilot review study and to help to identify three relevant fields for the topic of QOL (health science, social science and environmental studies). It was also searched for potential previous systematic reviews on this topic, but no reviews were found.

The next step was planning the systematic review. To locate relevant articles, three databases (Sciencedirect, Web of Science and Springer) were used. The following search terms, their synonyms and their combinations were used to find articles about the concept of QOL: “quality of life”, “wellbeing”, “well-being” and “concept”. Both terms, QOL and wellbeing, were used because they have been used interchangeably in the literature. The following structure of Boolean operators was implemented: TI=(((food OR nutrition* OR consumption) AND (“quality of life” OR wellbeing OR “well-being”)) OR ((agriculture OR farming) AND (“quality of life” OR wellbeing OR “well-being”))). To limit the number of results, these terms were only searched for in publication titles. All search terms were used in singular. However, next to the term “nutrition”, the symbol asterisk (*) was used to look for other spelling possibilities. Further, the search was limited to English language articles with open access which were published between 2008 and 2019. This time period was used due to general requirements in the study field and to understand the evolvement of the QOL concept in recent years and current trends in QOL research. In the overview table (Table 1) below, the search criteria were gathered for clearer presentation.

Table 1: Search strategy for systematic literature review (Source: own data)

Search criteria	
Databases	ScienceDirect, Web of Science, Springer
Publication years	2008-2019
Language	English
Search (title, abstract, topic)	Title
Search terms	((food OR nutrition* OR consumption) AND (“quality of life” OR wellbeing OR “well-being”)) OR ((agriculture OR farming) AND (“quality of life” OR wellbeing OR “well-being”))
Fields	health science, social science, environmental studies
Subfields	sustainability, agriculture, food and nutrition
Eligibility criteria	Open access (full text available) Subjective WB, considering person’s individual perception

In the next step, the pre-defined search strategy was implemented. The search was conducted between 10th and 17th April 2019. It yielded a total of 1,857 records searching the three databases with selected keywords (506 from ScienceDirect, 632 from Web of Science and 719 from Springer). Due to numerous search results, additional limits and filters within particular databases were applied to only search in the specific fields. Based on the pilot review study, three relevant fields for this topic were chosen: health science, social science and environmental studies. Other areas of interest

were sustainability, agriculture, food and nutrition. One additional source was identified through another source in prior research and included in the review.

With these additional criteria, records were further filtered based on these relevant fields. 233 articles were selected. Continuing with the screening stage, the search results were downloaded and transferred into a reference management software (Zotero, version 5.0.69) to provide a better overview, management and exclusion of duplicates.

Afterwards, 144 articles were excluded based on the title. Only articles which regard the QOL concept as subjective well-being and consider a person's individual perception were used (for example articles considering children well-being (from here onwards WB) and animal WB were excluded). Abstracts of the remaining 89 articles were assessed for eligibility. In case of uncertainty, the article was skimmed. Articles which did not meet the inclusion criteria after reading the abstracts, were excluded. Additional eight articles were excluded because the papers only included abstracts of the studies (from journal Value in Health). At this point, it was determined whether the article is relevant and should be included in the SLR. The selection process was completed, 49 articles were chosen for review. The whole process of selecting the eligible articles is presented as a flowchart in Figure 2.

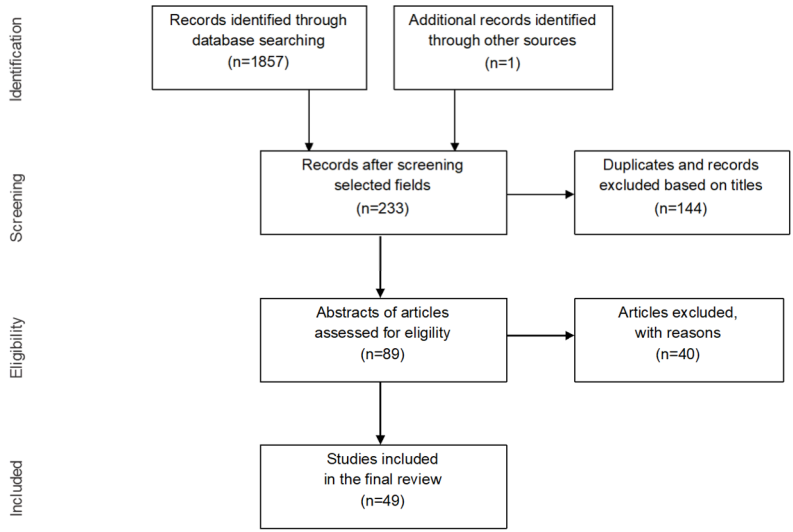

Figure 2: Systematic review flowchart (Source: adapted from Moher et al. 2009, p. 3)

2.2.2 Presentation of the results

After the final study selection, the results were presented. The articles were transferred into an overview table and arranged in a chronological order (from oldest to most recent). Besides, a review matrix was created. The distribution of the studies across publication years can be seen in Figure 3.

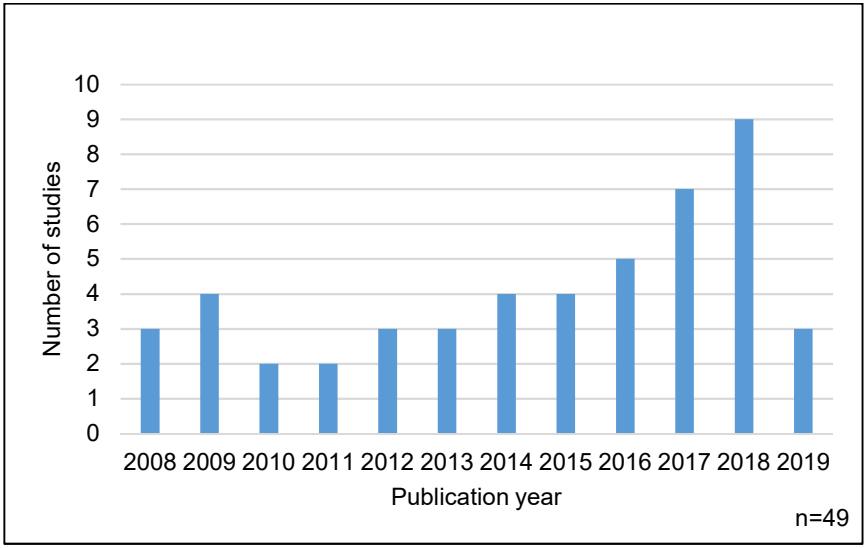

Figure 3: Distribution of studies across publication years (Source: own data)

Further, the distribution of the studies across the countries in which they were conducted and published is displayed in Figure 4. Even though 49 studies were included in the SLR, 51 records are considered because one study (Kim and Joo 2014a) was conducted in three different countries (South Korea, Japan and China). For clearer presentation of the studies' origin, Figure 5 presents the number of studies per continent.

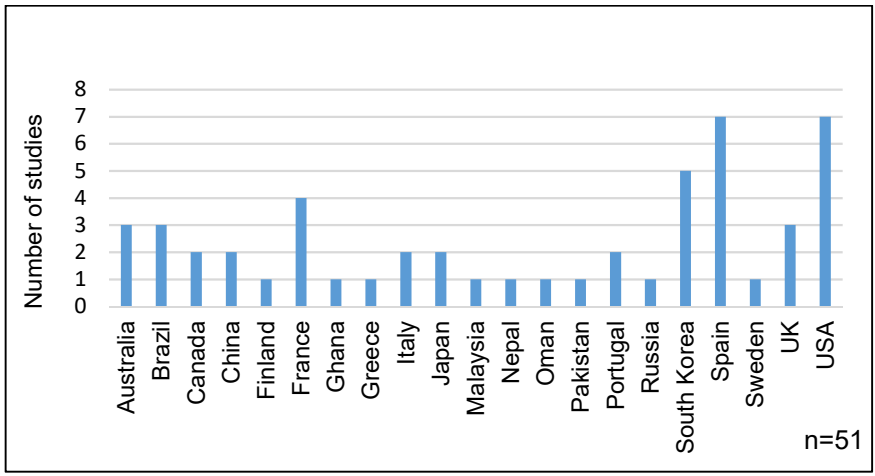

Figure 4: Distribution of studies across countries (Source: own data)

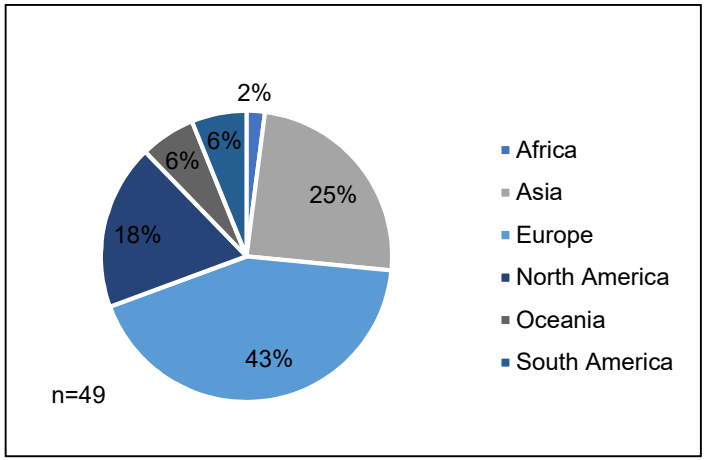

Figure 5: Distribution of studies across continents (Source: own data)

After the full texts of the papers were read and examined, the column topics were chosen: article number, publication year, author(s), title, country of origin, application field of the concept, target group, purpose, methodological design, questionnaire to measure the QOL with OQL, QOL definition, QOL dimensions,

relevance and comments. The column topics “country of origin”, “QOL definition” and “comments” were removed from the final review matrix to avoid an overfilled table and to allow a clear and comprehensive data presentation.

2.3 Synthesis of the results

In this section, the synthesis and interpretation of the literature review’s findings will be presented.

2.3.1 Definition of QOL and its application in different fields

The concept of QOL has long been a question of great interest in a wide range of fields. Based on the inclusion criteria mentioned above, the fields of interest for this SLR were health science, social science and environmental studies. Most of the studies included in the SLR come from health science (33 articles). 20 of these articles were related to nutrition. Further, eight articles from social science, four articles from environmental studies and two from both fields combined are included in the SLR. One article covers all three selected fields.

The studies included in the SLR were published between 2008 and 2019 (based on defined search criteria). Most studies have been published in the last three years (see Figure 3). This implies that the interest in this topic has been growing and gaining on importance, especially in environmental science. The year 2019 could not be considered as the SLR was conducted in April 2019. However, if the trend continues, an increasing number of studies will be conducted in the following years.

Furthermore, the distribution of the studies across the countries (see Figure 4) and continents (see Figure 5) in which they were conducted and published shows that most of them were published

in Europe (43 %), followed by Asia (25 %) and North America (18 %). Most studies on QOL were published in Spain and the United States of America, followed by South Korea and France. There is a tendency that more studies about QOL are published in developed countries than in developing countries.

The concept of QOL reflects ongoing responses to life events (Yamaguchi 2014, p. 2). It can also be defined as a joined outcome of current living conditions, personal resources, individual's values and control of the environment (Artacho et al. 2014, p. 192). All references consider the concept of QOL as a multi-dimensional construct. However, there are slight differences in the interpretation and number of dimensions. Different dimensions correspond to different QOL definitions and instruments to measure QOL which will be discussed in the following section. In the reviewed studies, the most frequently used definition of QOL is the one given by the WHO. The WHO defines QOL as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, and their relationship to salient features of their environment" (WHOQOL Group 1993, p. 153). The concept QOL is characterized by three fundamental features: subjectivity, multidimensionality (including social, psychological and physical domains), and bipolarity (both negative and positive) (Damião et al. 2017, p. 1).

According to Yamaguchi (2014, p. 2), QOL comprises physical, psychological, social, spiritual and economic aspects of human life. The economic aspect is not often included in the QOL definition as it is an objective measure which only provides a very general idea of QOL. Subjective measures acknowledge all those aspects which

an individual considers important. They consider values from different cultural settings and thereby provide a better refection of reality. By researching various aspects of an individual's life, a better understanding of subjective dimensions can be gained (Fillion et al. 2009, p. 122).

In most sources, the terms QOL and well-being are used interchangeably and refer to the same concept. However, some researchers propose different definitions (Estoque et al. 2018, p. 619ff). Like the concept of QOL, well-being is also a multidimensional and complex concept which refers to a psychological and physical state involving emotional, social, spiritual and intellectual aspects. Well-being is the result of the presence of positive feelings and emotions and the absence of negative feelings and emotions, self-fulfilment, life satisfaction and positive functioning (Guillemin et al. 2016, p. 333f). The term subjective well-being relates to one of the dimensions through which a person experiences QOL. It also includes forming opinions and making comparisons with other people, ideals, desires and individuals' past experiences (Frongillo et al. 2017, p. 680). It means much more than wealth and material standards of living (Gonzalez et al. 2016, p. 1158). The standard of living considers the general level of economic and financial resources which are available to people. It also regards levels of poverty and the extent to which basic needs are met (Maridal 2016, p. 6).

2.3.1.1 Health science

In the field of health science, the concept of QOL is referred to as health-related quality of life (from here onwards HR-QOL) which represents an individual's subjective perception of his own health status and daily functioning along with physical and mental health, social functioning and role limitations (Kwon et al. 2017, p.2;

D'Souza et al. 2013, p.1f). Moreover, the HR-QOL is defined by the way in which illness (as a source of pain, discomfort and physical dysfunction) causes limitations or adjustments of the everyday behaviour, social activities and psychological well-being (Wanden-Berghe et al. 2009, p.950). Globally, the population ages and it is a general concern to obtain a higher HR-QOL (Ruano et al. 2011, p.1). Hence, elders were a target group of nine studies (18.8 %) included in the SLR. QOL assessment is an important instrument for studying the impact of disease, drawing up indicators of disease severity and course as well as predicting efficiency of a specific treatment. Therefore, the patients' QOL is often measured at two different points of time, usually before and after a treatment or as soon as other changes occur as it is likely that these influence the health and consequently the QOL (Borges et al. 2010, p. 751). The assessment of QOL provides a holistic dimension to the burden of a clinical condition or to the reaction after the operation (Wanden-Berghe et al. 2009, p. 950). Moreover, in clinical studies, the HR-QOL has been accepted as a clinical measure. The focus is put on a more balanced approach which incorporates subjective perceptions of the participants. In addition, it can be used as an independent measure which monitors changes in the subjective perception even when clinical improvements are not observed (Bowden et al. 2008, p. 150).

There are several known factors which have an influence on the HR-QOL: age, gender, socio-economic status, functional status, medical conditions and psychomotor impairment. However, the interactions between factors are often complex and difficult to assess individually (Kwon et al. 2017, p.2). Based on the examined target population with various medical conditions, studies indicate different degrees of impacts on the HR-QOL. A better QOL was

observed in healthy populations rather than in patients with chronic diseases (de Carvalho et al. 2017, p. 924).

Twenty articles in the SLR evaluate the QOL by the nutritional status. Food intake is a basic human need which is accompanied by sensations of pleasure and despondency. Some of the pleasurable sensations are related to taste and social interactions in which food is consumed. Negative sensations of food intake can be weight gain, problems related to indigestion or other digestive disorders. All these sensations have an impact on the individual's QOL and may be influenced by different food compositions and nutritional value (Schünemann et al. 2010, p. 1). Patient-reported outcomes such as HR-QOL become more and more necessary and relevant in the field of nutrition. It is established that nutrition influences these outcomes in patients with diverse illnesses (Guyonnet et al. 2008, p. 1163). A poor nutritional status can lead to a decrease in physiological function, increases the risk of complications and septic death and alters muscular, immune and cognitive functions. An improvement of nutrition is also an influencing factor in the improvement of psychological function. Therefore, the measurement of the general and specific HR-QOL have a great importance in the investigation of the relationship between nutritional and health status (Wanden-Berghe et al. 2009, p.950). To evaluate the HR-QOL, different tools and instruments were developed and will be discussed in the following chapter.

The possibility and effectiveness of nutritional changes depend on whether potential negative impacts on the QOL can be avoided. Nutritional changes with a capacity for positive QOL outcomes should be more promoted and adopted. Health and well-being improvements have a great significance, especially when it comes to dietary interventions and the development of new food products. Measuring QOL with regard to nutrition can also be used to predict

whether specific dietary interventions will be beneficial (Schünemann et al. 2010, p. 1f). Apart from promoting a healthy nutrition, higher physical activity should also be encouraged as it has a beneficial effect on the QOL. Besides, it can significantly reduce the burden of disease. Nevertheless, nutrition and physical activity differ depending on the socioeconomic status. People with a better socioeconomic position may have better health and lower rates of illness and consequently a higher QOL compared to socioeconomically disadvantaged people (McNaughton et al. 2012, p. 1f).

Furthermore, another concept for a more positive and holistic understanding of the role of food in the overall well-being was introduced. It is called the concept of food well-being (from here onwards, FWB) and is defined as “a positive psychological, physical, emotional and social relationship with food at both individual and societal levels” (Block et al. 2011, p. 6). The FWB is influenced by the environmental, cultural and legal factors control people’s food attitudes and behaviours. Food is understood as a key contributor to an individual and societal well-being. This framework was developed to understand how the consumers’ FWB can be transformed by their own choices, by marketers’ practices as well as by policy initiatives (Block et al. 2011, p. 5ff).

2.3.1.2 Social science

In the field of social science, concepts of QOL, well-being and happiness are often used interchangeably. However, in academic studies, two different approaches to well-being can be found: the subjective and objective approach. Subjective well-being (from here onwards SWB) is viewed as a result of natural causes which can be studied and accurately predicted based on an individual’s profile and a society’s objective liveability. SWB is often measured by self-

reports in which people can express their experiences. Components of objective well-being (from here onwards OWB) do not measure how people feel. OWB is specified by an objective list of well-being components which philosophers, politicians and religious leaders tend to discuss. These components identify people's capabilities, values and commodities and determine QOL by quantitative economic or social variables (Maridal 2016, p. 2f). In this thesis, the focus is put on the SWB and its measurements from the individual's perspective. Therefore, the OWB will not be thoroughly discussed.
Across social science disciplines, the social progress is generally associated with economic macro-indicators such as the gross domestic product (from here onwards GDP). Although, GDP was originally designed as a measure of economic activity, it is now widely used by economists and politicians as a measure of social progress or well-being. However, GDP should not be used as a single measure of well-being due to its potential misuse. Besides, it hinders people's welfare. For a complete evaluation of social progress, income indicators should be complemented with additional indicators focusing on other social and environmental dimensions. Eight proposed dimensions of QOL are material living conditions, health, education, environment, economic and physical safety, social interaction, governance and political voice and personal activities (Gonzalez et al. 2016, p. 1157ff).

Further, well-being involves domains that cannot be traded in markets but make life worth living, reflect society's ideals and are much more significant than wealth and material standards of living. Considering the progress and development of society should be the ultimate aim of public policy decision making, the QOL should be measured. All indicators should be taken into consideration. QOL measures compile information about many different dimensions of life which contribute to human development, welfare and

sustainable growth. Additionally, it is important to note that human development positively impacts economic growth, whereas economic growth does not always correspond to higher well-being (Gonzalez et al. 2016, p. 1157ff). This is known as an Easterlin paradox in which the relation between measures of overall subjective well-being and income is observed. In the year 1974, Richard Easterlin (cited in Michalos 2014, p. 1754) first noted that even though higher incomes are associated with higher levels of happiness within a country, average levels of happiness do not gradually increase with average income growth.

Contrary to health science in which the individuals' QOL is put into focus, in social science the QOL of countries is often used as the preferred unit for analysis (Gonzalez et al. 2016, p. 1158). Measurements of the QOL should include a comprehensive cross-country comparison of QOL which reduces the selection bias and complement existing approaches and economic metrics. Moreover, it should be applicable across the individual, temporal and cultural scales (Maridal 2016, p. 2f). In the 1990s, the United Nations developed the Human Development Index that complements the economic metric (GDP) with additional measures of health and education. The intention was to follow the social progress in developing and underdeveloped countries. The academic interest in the QOL quickly expanded in the following years. Further institutions such as the Organisation for Economic Co-operation and Development (from here onwards OECD) as well as the European Commission became interested and started developing statistical tools for the QOL assessments in their respective domains (Gonzalez et al. 2016, p. 1158).

The well-being framework developed by OECD, is an analytic and diagnostic tool which assesses the conditions of people and communities. This framework defines current well-being as a

combination of QOL and material conditions. Moreover, QOL includes eight immaterial dimensions: health status, work-life balance, education and skills, social connections, civic engagement and governance, environmental quality, personal security and subjective well-being. Dimensions included in material conditions are income and wealth, jobs and earnings, and housing. However, people are put into focus in the assessment as their life circumstances and experiences of well-being are evaluated. The approach to measure the current well-being, emphasizes well-being outcomes rather than inputs and outputs which could be used to result in outcomes. Well-being outcomes are aspects of life which are directly significant to people. As an example, in the education dimension, the achieved skills (outcome) are measured instead of the money spent on schools (input). The outcomes can be both, objective and subjective. The difference is that objective outcomes can be observed by a third party, subjective outcomes can only be reported by the person concerned. Another important aspect to consider is that the distribution of well-being outcomes throughout the population shapes the well-being of societies including differences in gender, age, education and income. Therefore, it is crucial to consider not only the countries' average well-being but also the well-being across all groups in society to prevent inequity of certain vulnerable groups (OECD 2017, p. 22ff).

Another concept which also came across the social science field is a food well-being approach. It connects aspects from social wellbeing, food sovereignty and food security. Social wellbeing is ''a state of being with others which arises where human needs are met, where one can act meaningfully to pursue one's goals and where one can enjoy a satisfactory quality of life" (McGregor, as cited in Gartaula et al. 2016, p. 576). Food security is an important element of human development and wellbeing and needs to be protected

and sustained by individuals, communities and nations. The main focus of food security is physical and economic access to food as well as the biological and bodily utilization of food as opposed to the cultural and social factors that form food preferences and food accessibility. Hence, FWB is a state in which food production, preference and consumption are socially, culturally and ecologically appropriate and also nutritionally, calorically and subjectively satisfying (Gartaula et al. 2016, p. 573ff). The need for food is one of the basic human needs as food maintains physical and mental health, permits to live and work and ultimately enables human's existence (Morozova et al. 2016, p. 171).

Research also associates the concept of QOL with the term food insecurity. Food insecurity is defined as the inability to acquire a sufficient amount and quality of food due to lack of money or other resources. It is an important aspect of living conditions which has an impact on QOL and SWB. Food insecurity is present globally. It is crucial to identify strategies that help countries and global organization to improve food insecurity, target resources and create political commitments and priorities. The Food Insecurity
Experience Scale (from here onwards FIES) has been created by the FAO. It was implemented in 147 countries as part of the 2014 Gallup World Poll. It has allowed a new opportunity for the understanding of determinants and consequences of global food insecurity. Food insecurity was globally associated with SWB on the national level. By using the data of the Gallup World Poll, two indicators were specified which have the biggest impact on well-being. These two indicators were "going hungry" and "having insufficient money to buy food". Consequently, countries with a higher occurrence of these indicators had a lower life satisfaction as well as a lower SWB. The FIES has a strong potential to become a global reference measurement. It allows to compare food insecurity

across countries, regions and specific population groups. Thus, it also provides a better understanding of food insecurity in relation to SWB and its variations within different cultures and settings (Frongillo et al. 2017, p. 680f).

Furthermore, the connection between well-being and the concept of food literacy was discussed as well. Food literacy is a set of functional, social and critical skills which are required to choose and prepare food in a perspective of enhanced well-being. The individuals' skills and abilities not only obtain health enhancement but also contribute to a sustainable agriculture development as well as to achieving social equity. Raising awareness for food literacy is a beneficial approach to examine the interactions between social, economic, political and environmental aspects of several food-related challenges (Palumbo 2016, p. 99ff). Widener and Karides (as cited in Palumbo 2016, p. 102) proposed a broader concept of food literacy which is referred to as "food system literacy". It suggests a whole understanding of the food system and its social, economic and environmental issues.

2.3.1.3 Environmental science

In environmental science, the concept of QOL is mainly connected to the concept of sustainable development. A sustainable development is a development which meets the needs of the present generations in a way to enable future generations to meet their own needs without compromising their QOL. Various organisations, industries and governments adopted the concept of sustainable development as a basis for an integrative approach to economic policy (Kazana and Kazaklis 2009, p. 209). In recent years, several global initiatives for sustainable development were established to promote sustainability, improve the human QOL and at the same time, preserve the natural environment, encourage low

carbon development and adapt to global climate change. Nowadays, global environment change represents one of the biggest and most important challenges. Besides affecting the ecological and social components of the social-ecological system, it also affects the QOL and human well-being in several ways. Moreover, ecosystem services such as food and clean water, fresh air, wood and plants, for instance, have an important impact on the QOL and well-being because people can directly feel and experience changes which are made to them. Thus, to keep these services sustainable, the concept of sustainable development, which is crucial to the QOL, must be observed and implemented (Estoque et al. 2018, p. 619ff).

To measure and implement sustainable development at all levels in practice, an action plan called Agenda 21 has been designed and promoted by the United Nations. Its objective was to achieve global sustainable development by the implementation of sustainable development at local levels (with the Local Agenda 21) as well as encourage joint responsibility for actions (Kazana and Kazaklis 2009, p. 209). Subsequently, the 2030 Agenda for Sustainable Development was adopted in the year 2015. It includes the 17 Sustainable Development Goals (from here onwards, SDGs) (United Nations 2015, p. 7) which are closely linked to progress in well-being measurements. The SDGs and OECD's well-being framework (mentioned in the previous chapter) cover equivalent dimensions. However, some differences in the objectives and measurement approach can be observed. In Table 2, the comparison between the SGDs and the different dimensions of OECD's well-being framework is presented. Two dimensions from OECD's well-being framework which are not included in SDGs are "social connections" and "subjective well-being". However,

“promoting well-being for all at all ages” is a part of SDG 3 about health (OECD 2017, p. 24ff).

Table 2: Comparison of SDGs and OECD WB framework (adapted from OECD 2017, p. 26)

	OECD well-being framework	**SDGs**
Current well-being	Income and wealth	Poverty (SDG 1) and food (SDG 2)
	Jobs and earnings	Decent work and economy (SDG 8)
	Housing	Cities (SDG 11)
	Health status	Health (SDG 3)
	Work-life balance	Decent work and economy (SDG 8)
	Education and skills	Education (SDG 4)
	Civic engagement and governance	Institutions (SDG 16)
	Environmental quality	Water (SDG 6) and cities (SDG 11)
	Personal security	Institutions (SDG 16)

	OECD well-being framework	SDGs
Inequalities in current WB		Women (SDG 5), inequality (SDG 10) and poverty (SDG 13)
Resources for future WB	Natural capital	Sustainable production (SDG 12), climate (SDG 13), oceans (SDG 14) and biodiversity (SDG 15)
	Economic capital	Energy (SDG 7), decent work and economy (SDG 8), infrastructure (SDG 9) and sustainable production (SDG 12)
	Human capital	Health (SDG 3) and education (SDG 4)
	Social capital	Institutions (SDG 16)
OECD dimensions not covered by SDGs	Subjective WB	
	Social connections	

	OECD well-being framework	SDGs
Elements of SDGs not covered by the OECD		Implementation (SDG 17) "Global contribution, trans-boundary effects and international efforts"

The quality and quantity of present and future ecosystem services depend on human actions in the past and today (Estoque et al. 2018, p. 621). Food sustainability leads towards environmental sustainability which impacts people's well-being (Fabiola and Dalila 2016, p. 739). Sustainability of food systems can be ensured by the recognition of possible threats to the ecosystem which affect local foods. Some of the ecosystem threats which affect food systems are the erosion of biodiversity, deforestation and over-exploitation of forest resources, water shortages and pollution, soil erosion and deterioration as well as global climate change. Traditional food sustainability can locally exist as long as the ecosystem supplies resources and contributes to the preservation and longevity of the species or varieties in the natural environment. For example, crops are harvested in a way in which resources are not exhausted and can regenerate after harvesting. Organic agriculture does not use chemicals and biological contaminants which may pollute lands, water or air. It represents an optimal food system sustainability. Additionally, farmers possess great knowledge about the land and consequently have a close connection to it. Close attention to local

food systems improves the community awareness and understanding of sustainability. Further, it results in improved nutrition and local food use in local diets. Different strategies are necessary for different cultures, communities and ecosystems. However, efforts are mostly focused on the growth of local food consumption (Kuhnlein 2014, p. 2416ff). Moreover, urban agriculture provides opportunities for the improvement of the citizens' well-being and also helps to ensure food security. Therefore, it is an important element of a city's foodscape. Apart from that, the connection to the natural world typically has benefits on the individual's well-being and predicts pro-environmental behaviours. However, as most people live in cities, food production is often no longer a part of their relationship to food and consequently to nature (Uhlmann et al. 2018, p. 1f).

Food systems are affected by various factors of environmental, social, cultural and economic change. These factors and their interactions are very complex. Therefore, they should be considered holistically by policymakers at all levels. Encouragement for a better understanding of sustainable food systems can improve global consciousness as well as everyone's lives. Sustainable food systems provide food which has beneficial effects on the health and well-being of people (Kuhnlein 2014, p. 2421). In general, well-being or QOL indicate to what degree human needs are met. Furthermore, they give information about the extent to which individuals or groups perceive satisfaction or dissatisfaction in different domains of their lives. These life domains are health, family, education, financial situation, social relations, leisure, environment and place of residence. The link between QOL and sustainability is evident. The indicators for the evaluation of sustainability initiatives measuring QOL are most interesting at the local level. Most of the QOL indicators are relevant to national or global scales. Nevertheless, if

QOL indicators are to be used in sustainable development decision-making, their development has to be first, “an integrative and meaningful at different spatial scales process where environmental, social and economic factors will be considered simultaneously”, second, a system approach and third, an open communication in various ways (Kazana and Kazaklis 2009, p. 210).

In the context of sustainable rural development, QOL represents an important role because of the continuous change in the economic structure of many rural areas. Market-based activities, for instance farming, livestock, forestry and manufacturing are providing access to non-market natural resource-based activities and environmental and recreational services. In the planning and management of sustainable development, the objective and subjective measures included in the QOL assessments are not sufficient. Besides, the assessments should include the method approach (top-down or bottom-up) which is used to identify and evaluate these measures. QOL is a combination of the level of human needs met and the degree to which individuals or groups are satisfied with this level (Kazana and Kazaklis 2009, p. 210f). A more detailed review of the QOL assessments will be presented in the next section.

2.3.2 QOL measurements

As the concept is not easy to define, many different definitions of the concept of QOL exist. Apart from that, it is also difficult to measure and assess QOL. Researchers take different approaches and measurements. The big challenge which researchers face during the assessment and examination of the concept, is to achieve clarity of the conceptualization and theoretical construct. Differences in meaning can result in severe differences in outcomes for empirical foundations, research and application (Yamaguchi 2014, p. 2).

The majority of QOL measurements are based on a domain structure in which life is broken down into sub-sections. Domains are defined as aspects of life which can be differentiated from other areas. Both most common used questionnaires in this review are based on the domain structure. Questionnaire Short Form 36 (from here onwards SF-36) breaks HR-QOL into eight health concepts: physical functioning, role limitations caused by physical health problems, bodily pain, general health, vitality, social functioning, role limitations caused by emotional problems and mental health. In contrast, the WHOQOL-BREF questionnaire divides QOL into four domains: physical, psychological, social relationships and environment. The various domains which are included in the QOL measures are designed with the intention to be statistically relatively independent. They consist of items which correlate highly with one another, but not with the items outside of their factor. Thus, many QOL measurements' designs specify statistically distinct domains (Martin 2011, p. 95f).

The SF-36 questionnaire is a generic instrument which measures HRQOL by assessing the eight different dimensions mentioned above. It comprises of 36 items which are divided between dimensions as follows: physical functioning (ten items), role limitations caused by physical health problems (four items), bodily pain (two items), general health perceptions (six items), vitality (four items), social functioning (two items), role limitation caused by emotional problems (three items), and mental health (five items). The items are scored. Raw scores are transformed into subscales which can range from zero to 100. A high score is associated with a high level of functioning in the specific dimension (Bowden et al. 2008, p. 153; Silva et al. 2008, p. 131). SF-12 is a short-form version of the SF-36 questionnaire and comprises of 12 items obtained from the eight dimensions. Two component summaries result from these

eight dimensions: the mental component summary (MCS) and the physical component summary (PCS) (Zaragoza-Martí et al. 2017, p. 2). One big advantage of SF-12 in comparison to SF-36 is the reduced administrative workload (Sanchez-Aguadero et al. 2016, p. 1).

WHOQOL-BREF is a shorter version of WHOQOL-100. It comprises of 26 questions which are grouped into the four domains mentioned above and two general questions about the overall QOL and health status. The answers are given on a five-point Likert scale (from strongly disagree (1) to strongly agree (5)). After, they are converted into scores ranging from 0-100. Higher scores are associated with a higher QOL (Ali and Malik 2015, 2107; Borges et al. 2010, p. 747).

Another questionnaire to measure QOL is called EQ-5D or EuroQoL-5D which is a standardized non-disease-specific instrument for describing and valuing HR-QOL (Jiménez-Redondo et al. 2014, p.2). It is composed of five dimensions which are mobility, daily life, social activities, pain/discomfort and depression as well as three levels for assessment (no problem, some problem and severe problem). The participants need to choose one level for each dimension. The values are calculated and translated into the score of EQ-5D ranging from 0 (health status which is no better than death) to 1 (perfect health). As well as in the other described instruments, higher values show a higher QOL (Kwon et al. 2017, p.2; Song et al. 2018, p. 2).

From the 48 articles included in the SLR, 35 studies used different instruments to measure the QOL. Questionnaires were the most used instrument. Most common questionnaires were SF-36 (used in 8 studies) (Azupogo et al. 2018; Bowden et al. 2008; D'Souza et al. 2013; Guyonnet et al. 2008; McNaughton et al. 2012; Ruano et al. 2011; Schünemann et al. 2010; Silva et al. 2008) and WHOQOL-

BREF (6 studies) (Ali and Malik 2015; Artacho et al. 2014; Borges et al. 2010; de Carvalho et al. 2017; Damião et al. 2018; Fillion et al. 2009). Other less commonly used questionnaires are EuroQoL-5D (Jiménez-Redondo et al. 2014; Kwon et al. 2017; Song et al. 2018) used in three studies and Short Form Healthy Survey - SF-12 (MARK Group 2016; Zaragoza-Martí et al. 2018) used in two studies. Questionnaire SF-12 is a short version of SF-36 which includes 12 questions instead of the original 36.

The following questionnaires were used in one study each: QOL in Dementia - QOL-D (Carrier et al. 2009), Well-BFQ (Guillemin et al. 2013), Korean version of the obesity-related Quality of Life scale - KOQOL (Lee et al. 2013), AQoL-8D (Zarnowiecki et al. 2016), General Health Questionnaire - GHQ-12 (Ocean et al. 2019), China Health and Nutrition Survey - CHNS (Lee et al. 2018), National Health and Nutrition Examination Survey - NHANES (Baernholdt et al. 2012), Korea National Health and Nutrition Examination Survey - KNHANES (Song et al. 2018) and Warwicke Edinburgh Mental Well-being Scale - WEMWBS (Johnson et al. 2017). Other self-reported questionnaires were developed specifically for the individual studies, i. e. questionnaire for singles' dietary life and QOL (Kim and Joo, 2014). Some existing questionnaires are condition- or disease-specific and mainly focus on symptoms. They are validated in health science. However, they are not sensitive enough in general populations which are not ill and perceived as healthy (Guillemin et al. 2016, p. 334).

2.4 Summary of SLR

The concept of QOL has gained importance in recent years, but more research is required to be able to form a better perception of the individual's and societal QOL. Since the fields in which the QOL is applied to are often intertwined, it was difficult to assign individual

studies into a specific field as they often related to more areas of research. Particularly, articles about sustainable development are close to the social and environmental field. Most studies focused on QOL in terms of social services and health care, but there was not much research on food which is vital to human health and well-being. The studies considering food were mostly assessing the nutritional status and dietary changes in sick people. However, the QOL of healthy people should be regularly assessed as it could contribute to improvements in all aspects of life.

The QOL questionnaires became an efficient way of gathering data about people's functioning and their well-being. Therefore, they play a key role in QOL measurements and assessments. The selection of the instrument to measure QOL depends on the type of QOL and suitable scales for the studied target group.

The methods used in the studies differentiate strongly from each other. Therefore, only qualitative synthesis was possible as not all aspects were available for examination. Methodologically diverse studies are hard to directly compare as the information across qualitative and quantitative studies had to be reinterpreted. However, the relation between studies was not always present. Due to the limited number of articles which consider QOL in food systems, an additional literature review on food system was conducted for better understanding of the concept and its possible application in the evaluations of food systems.

3 Literature review - Food System

In this chapter, the findings from the literature review on food systems will be presented. The concept of food system, food security and food environments will be described in detail. Additionally, alternative food systems and their significance will be explained. A summary of the literature review on food system will be closing this chapter.

3.1 Food system

Food is produced and consumed in systems (Brunori et al. 2013, p. 3). Therefore, to understand the global environmental change and food system interactions, a holistic approach is needed which considers environmental and socioeconomic feedbacks, interactions among drivers and multiple outcomes. Food system outcomes contribute to food security, environmental security and social welfare. According to this approach, ecosystems are managed (directly and indirectly) to benefit humans. The goals may conflict when it comes to choosing emphasized activities which consequentially lead to different outcomes. However, the nominative goals are food security and sustainable environmental management (Ericksen 2008, p. 238).

3.1.1 Food security

Food security is met when “all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO 2009, p. 1). The food security concept has been extended over the time with a change of focus from increasing food production towards increasing access to food for all (Ingram 2011, p. 418). Apart from food access, food availability, food utilization and food stability are also crucial dimensions of food security. Food

access is explained as “access by individuals to adequate entitlements to resources which are needed for acquiring appropriate foods constituting nutritious diets” (Brunori et al. 2013, p. 5). The emphasis of food access shifted from the system to people. It focuses on the conditions which allow people access to food. Food availability is defined as sufficient supply of food of appropriate quality (Brunori et al. 2013, p. 5). Food utilization refers to the individual or household capacity to consume and benefit from food (Ericksen 2008, p. 238). Food stability presents the state of the three above mentioned dimensions over time. It is achieved when an individual, household or population always has access to adequate food, even in case of sudden shocks (i. e. climate or economic crisis), cyclical events or long-term stresses (Brunori et al. 2013, p. 5f).

The concepts of food system and food security are often conflicted as it often is difficult to achieve economic growth and to protect the environment at the same time. Therefore, strategies to overcome this gap should consider different actors and communities in the food system (Ericksen 2008, p. 242).

3.1.2 Food system activities and actors

A food system is composed of four sets of activities: producing, processing and packaging, distributing and retailing as well as consuming food. The first three sets of activities form the food supply chain (Ericksen 2008, p. 238f). Various actors are involved in different activities and control one or more of them. Producing food consists of all activities which are included in the production of raw food materials. Actors involved in food production are farmers, fishermen, hunters, multiple suppliers of production inputs, agricultural labourers and landowners (Ingram 2011, p. 420). The second activity, processing and packaging food, includes different

transformations which raw food material (fruit, vegetable, animal) goes through before it is sent to the retail market for sale. On the one hand, these transformations add value to the raw material in an economic sense, but on the other hand, they also change the appearance, nutritional value, shelf life and content of the raw materials (Ericksen 2008, p. 238). Actors included are the middlemen who buy from producers and sell to processors, the workers and managers in processing and packaging plants and trade organizations which set standards (Ingram 2011, p. 420). Further, distributing and retailing food includes all activities which bring the food from one place to another and bring it to the market (Ericksen 2008, p. 238). Different middlemen who go between producers, processors, packers and the final markets along with all actors working in transportation, delivery, warehousing operations, advertising, trading and supermarkets are involved in distributing and retailing food (Ingram 2011, p. 420). Lastly, the remaining activity is consuming food which involves everything from deciding what to select through to preparing, eating and digesting (Ericksen 2008, p. 238). Actors included in this activity are consumers and actors which control consumption such as market regulators, advertisers and consumer groups (Ingram 2011, p. 420).

3.1.3 Food environments

Apart from the food supply chain and consumer behaviour, food environments are another component of the food system. These are influenced by the drivers, shape diets and determine the final nutrition, health, economic and social outcomes. According to HLPE (2017, p. 28) the food environment refers to “the physical, economic, political and socio-cultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food”. Consumer food choices are influenced by the

food environment. The most important aspects are food availability and physical access (proximity); economic access (affordability); promotion, advertising and information and food quality and safety (HLPE 2017, p. 24ff). Apart from the aspects mentioned above, other aspects such as convenience and desirability of various foods can also be considered (Herforth and Ahmed 2015, p. 506).

3.1.3.1 Food availability and physical access (proximity)

Food availability means the sufficient supply of food at the national or international level. However, it alone does not assure food security and nutrition at household or community levels (HLPE 2017, p. 29). Lack of access to food is the most basic level of the food environment which affects dietary choices. Food which is not available, cannot be consumed (Herforth and Ahmed 2015, p. 507f). Consequently, this can lead to poor nutrition which can impair the individual's well-being and health and increase the risk of undernourishment, obesity and diet-related chronical diseases (HLPE 2017, p. 29).

Availability and physical access to food depend on the built environment which refers to the presence of food entry points and sufficient infrastructures which make these food entry points accessible. Nevertheless, there are multiple factors impacting access to different consumers. These factors are mobility (availability of private or public transport and distance to the food entry points), health and disability conditions, time availability, kitchen facilities and cooking equipment, food preparation skills and knowledge as well as the purchasing power to buy nutritious foods (HLPE 2017, p. 29). Hence, food availability is also related to prices (Herforth and Ahmed 2015, p. 508).

3.1.3.2 Economic access (affordability)

The next aspect of food environments is food affordability. It can be defined as the purchasing power of households or communities in relation to the price of food. Affordability is determined by pricing policies and mechanisms, local prices relative to external prices, seasonal and geographical differences in price, the form in which households are paid, income as well as wealth levels (Ericksen 2008, p. 240). Food affordability influences consumption patterns. Consumers can be stimulated to purchase healthier food if these are cheaper than less healthy food options. However, this tends not to be the case in most countries. Further, people in low and middle-income countries are more likely to spend a bigger proportion of their household income on food compared to people in high-income countries. Poor households are more affected by food prices. Higher prices reduce consumer welfare. On the contrary, lower prices impact food producers. Frequent changes in food prices cause uncertainties in the whole food system, discourage investments and negatively affect food security in the long term (HLPE 2017, p. 29f).

3.1.3.3 Promotion, advertising and information

Markets and retail outlets promote food products to consumers by different means including advertising, branding and social marketing. Different marketing techniques such as product placement, billboards, radio and television advertisements, influence consumer preferences, their purchasing behaviour, consumption patterns and food acceptability. Moreover, consumers can receive information about food products from labels and declarations on food packaging. Nutrition labels shape consumer preferences and consequently change industry behaviour by encouraging product reformulations. Food labelling and nutrition information on the menus should be easy to understand and always

available to allow consumers to make more informed decisions about the food products they purchase and consume. An additional source of information for consumers are national food-based dietary guidelines which have a great importance as they provide most recent recommendations for healthy diets and consider different conditions of each country. Dietary guidelines can influence consumer preferences and inform policymakers along with other actors in the food system (HLPE 2017, p. 30f).

3.1.3.4 Food quality and safety

To avoid confusion, clear definitions of the terms food safety and food quality are necessary. Food safety refers to "all those hazards whether chronic or acute, that may make food injurious to the health of the consumer" (FAO/WHO 2003, p. 3). Food safety is non-negotiable and should be a concern and a priority for all actors in the food system. Food safety refers to the ways to prevent food-borne diseases, arising from food contamination with chemicals or pathogens through all the stages in the food supply chain. Further, it involves controls and standards which are in place to assure consumers are protected from unsafe foods (HLPE 2017, p. 31). On the other hand, food quality includes all other attributes which influence a product's value and make it acceptable or desirable to the consumer. This includes not only positive attributes such as origin, flavour, colour, texture and processing method of the food, but also negative attributes such as spoilage, discolouration, off-odours and contamination with filth. This differentiation between food safety and food quality concerns public policy and influences the nature and content of the food control system which is suitable to meet predetermined national objectives (FAO/WHO 2003, p. 3). However, both can alter consumption patterns by changes in the affordability of food or consumer preferences. In addition, food

safety scares and crises also have a large impact on consumers' purchasing decisions (HLPE 2017, p. 31).

3.1.4 Food environment measurements

Food environments have an extensive impact on agriculture, food programs, policies, nutrition and diets. However, they are often not considered when it comes to food system evaluations. Measuring all aspects of food environment contributes to agriculture-nutrition research for three reasons. First, it helps to predict and understand the possible effect of additional income on diets. Second, it monitors the impact of programs or larger-scale investments which aim to reduce food prices and increase access to diverse, nutritious food. Third, it provides a better understanding of the existing food environments and accordingly designs better nutrition-sensitive programs to fill supply and demand gaps. There has not yet been any standard approach on how to measure food environment developments. Further, such measurements have been seldomly included in analyses on how agriculture affects nutrition. The two aspects of food environment which are more often included are food availability and affordability (Herforth and Ahmed 2015, p. 511ff). Due to the constant change of food environments, they need to be monitored systematically to observe and understand their consequences for diets, nutrition and health (HLPE 2017, p. 100).

To improve the quality of food environments, policy interventions across food environments have to be adapted to each food system and local context. Rather than a single intervention which is not sufficient to address most of the connected factors affecting the food environment, multiple interventions are needed to realize lasting change (HLPE 2017, p. 100f).

3.1.5 Person-centred approach to food systems

The relationship between the food system and the natural, social and economic environment is very complex. However, the food system depends on human activities and people depend on food. Moreover, poor nutrition is recognized as the primary preventable risk factor for global health problems (Boylan et al. 2019, p. 2). People should have the right to healthy and culturally appropriate food which is produced by methods which are sustainable and not harmful to the environment. Additionally, people should be able to define their food systems. Further, it is reported that a person's health is improved when the person has control over the means which deliver health. The interactions between food system activities influence how, why and what we eat. Food policies should address the food system as a whole instead of only specific areas of concern. Food policy-making processes are often considered to be top-down processes which ignore the main causes of food systems challenges. Food policies should be rooted in principles of equity and ecological sustainability which require deliberate involvement from civil society and people who produce, harvest, collect, process, distribute and consume food (Levkoe and Sheedy 2017, p. 1ff).

Over the years, various concepts to ensure food security and nutrition have been developed. Most of the time, the emphasis is put on the development of an approach which maximizes issues of entitlement, access and distribution from the individual to larger communities. In this concept, the individual is put into focus with its dignity as a human being and its status as a rights-holder (Brunori et al. 2013, p. 9f). When it comes to the framework of "Right to Food", the individual's entitlement to nutritional food focused. The framework increases food and nutritional security from an optional privilege to due entitlements, not only in theory but also as a matter

of international law (Shaw 2007, cited in Brunori et al. 2013, p. 10). “Right to Food” implies five different requirements such as improving access to food, ensuring nutritional sufficiency, securing accountability, empowerment, coherence and participation in the policymaking, targeting susceptible food-insecure group and ensuring environmental sustainability. Moreover, another point to consider is the extent to which local people, cultural, environmental and economic resources can be equipped to maximize benefits from the improved access to nutritious food (Brunori et al. 2013, p. 10f).

This reflection of a food system onto a person could provide a better understanding of the need for a food system transformation which will be described in the following chapter.

3.2 Alternative food systems

First, the three most common alternative food systems need to be defined. These are organic, biodynamic and sustainable food systems. Further, the transformation of the current or conventional food system into alternative food systems and its necessity will be discussed.

3.2.1 Alternative food systems definitions

The definition of organic agriculture proposed by FAO/WHO is as follows: “Organic agriculture is a holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods as opposed to using synthetic materials to fulfil any specific function within the system." (FAO/WHO 1999).

A biodynamic food system is a form of the organic food system. Biodynamics is the world's oldest organized alternative agricultural movement. Its approach includes biological, technical, economic, and social aspects. The biodynamic movement has developed methods of organizing farms, plant and animal husbandry. It has also reintroduced prosperous traditional approaches and elements of agriculture (Lorand et al. 1997, p. 57f).

A sustainable food system is defined as "a food system that ensures food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition of future generations are not compromised" (HLPE 2017, p. 23). Galli et al. (2018, p. 6) propose six criteria for the food system's sustainability assessment: health, ecological, social, economic, ethical and resilience. Health criteria can be interpreted as a strategic policy goal in which health and wellbeing should be improved by system activities. It should be considered that they affect health not only in terms of food accessibility, food quality and nutritional habits but also by occupational risks and environmental contamination. Sustainability involves a dynamic interaction between the goals which society wants to reach as well as the limitations to accomplish these goals (Galli et al. 2018, p. 5f).

3.2.2 Food system transformation

To meet future demands for food, a transformation of the food systems is necessary. The current food system in Europe is not able to provide food and nutrition security to all citizens. Further, it is not environmentally sustainable and considered to be susceptible to various future challenges. It is essential to understand that a transformation of the current food system is crucial to become more resilient and provide sustainable food and nutrition security. The term transformation is generally used to refer to "fundamental

changes in structure, functions and relations within (socio-ecological) systems" (Brunori et al. 2013, p. 12). Transformations have to be studied interdisciplinary and transdisciplinary as they are complex, dynamic and comprise of multiple dimensions such as the social, cultural, political, institutional, technological and ecological dimension (Brunori et al. 2013, p.12).

The transformation to more sustainable food and agriculture systems can be endorsed and achieved by an approach based on five principles which balance the environmental, social and economic dimensions of sustainability. This approach also provides a foundation for the development of new adapted policies, regulations, strategies and incentives. The five key principles are increasing productivity, employment and value addition in food systems, protecting and improving natural resources, enabling better living and supporting economic growth, enhancing the resilience of people, communities and ecosystems as well as adapting governance to new challenges (FAO 2018, p. 8). These principles can be applied to production systems but also to consumers. Diet changes play a significant role in the food system transformation. At this stage, the consumption patterns of organic consumers are considered similar to sustainable consumption patterns. Both differ widely from dietary patterns in conventional food systems. Diets shape food systems and vice versa. Therefore, both organic and sustainable diets as well as the sustainable organic production, should be considered and encouraged (Rahmann 2017, p. 186). Moreover, the involvement in the food system transition can start by influencing consumer behaviour across food supply chains or within food environments. The approach and solutions should be adjusted to each specific food system and also consider local contexts (HLPE 2017, p. 109).

3.3 Summary of literature review on food system

To understand the global environmental change and food system interactions, a holistic approach is needed. This approach considers environmental and socioeconomic feedbacks as well as interactions among drivers and multiple outcomes. Consumer food choices are influenced by the food environment. The most important aspects of the food environment are food availability and physical access, economic access, promotion, advertising, information as well as food quality and safety (HLPE 2017, p. 24ff).

The relationship between the food system and the natural, social and economic environment is very complex. However, the food system depends on human activities and people depend on food. Therefore, a person-centred approach should be taken when evaluating food systems. A transformation towards alternative food systems such as organic, biodynamic and sustainable food systems is necessary to meet current and future demands for food. Transformations have to be studied interdisciplinary and transdisciplinary as they are complex, dynamic and comprise of multiple dimensions such as the social, cultural, political, institutional, technological and ecological dimension (Brunori et al. 2013, p.12).

4 Primary Research

After secondary research was completed, primary research consisting of the questionnaire-based survey was implemented. The existing questionnaires were pre-assessed for their potential applicability in food systems research. The new questionnaire was designed to fit the target group. The aim of the questionnaire was to assess the participants' QOL and their experiences with the food system as well as to get a better understanding of possible connections between the QOL and different food system aspects. The survey results were collected and all data was analysed and evaluated.

4.1 Methodology

4.1.1 Research sample

The target population are actors (food producers, manufacturers, suppliers, retailers, consumers and others) of an organic municipality in Södertälje, Sweden. For this research, the municipality represents a model of a sustainable food system. The Södertälje municipality is considered a pioneer for sustainable food production, consumption, research, planning and innovation. It has a long history of local organic and biodynamic farming practices and research in Järna, a locality situated in Södertälje municipality. In addition, it implements various sustainable practices such as a sustainable technical production, organic meals in their schools, ecosystem services sustaining the landscapes, green roofs, solar panels and pollinator-friendly parks. Furthermore, the municipality is committed to share its knowledge and expertise with other cities with the goal of contributing to a more sustainable future. Positive outcomes of these practices are local economic growth, environmental improvements and a high quality of life (Södertälje

Municipality 2018, p. 4ff). Due to its involvement in organic, biodynamic and sustainable food systems, Södertälje was chosen for this study to test the ability of the developed questionnaire to measure the actors' QOL and assess the possible application of the concept QOL for the evaluations in food systems.

4.1.2 Questionnaire design

First, existing questionnaires were sourced and examined in the SLR to identify their relevance for potential use in this research. It has been observed that most used questionnaires to measure the QOL are SF-36 and WHOQOL-BREF. The latter is more applicable as it measures the QOL and not the HR-QOL (as in the case of SF-36). However, not all questions were useful and significant for this research. The questions were adapted to the target population which is considered to be healthy. For this reason, illness-related questions were removed. Subsequently, the first 12 questions of the final questionnaire were formed. They present the first of three parts in the questionnaire and aim to measure the participants' QOL with the intention to give the participant the feeling to be put into focus. The first question to be answered was a general one: "How would you rate your quality of life?". This question was followed by more specific questions about the individual's satisfaction with other aspects of life which are important in the QOL assessments. In the WHOQOL-BREF questionnaire (World Health Organization 2004), four broad domains are measured. In this research's questionnaire the same domains were considered. Each domain correlates to the specific number of questions as follows: physical health Q2, Q3 and Q4, psychological health Q5, Q9 and Q10, social relationships Q6, Q7 and Q8, environment Q11 and Q12. Thus, it is possible to evaluate each dimension of the QOL individually as well as combined.

The second part of the questionnaire was designed to assess the participants involvement in the food system. Initially, the food system under review was a sustainable food system. For the need of this questionnaire, the term “sustainable” was substituted by the term “organic”. Considering the target population, it was assumed that not all participants would be familiar with the term “sustainable”, so the more well-known term “organic” was used. However, another term that participants could be familiar with is “biodynamic”. All these terms represent different food systems but have in common to be parts of alternative food systems. In this part of the questionnaire, 16 questions were included, starting with the question,” Do you currently work in the food sector?”. The purpose of this question is to classify different actors in the food system. If the reply was “no”, the participant was asked to continue with Q21 (skipping the following seven questions which only apply to people employed in the food sector). Hence, the participant was considered a consumer. Other actors were asked in Q14 to indicate their position in the food system apart from being consumers which can be automatically assumed of (everyone needs to consume food). Further, Q21- Q28 are targeted to consumers of organic food and their view of different aspects including food environments (as described in the previous chapter).

The third and last set of questions consists of demographic questions. These are used to gain a better overview of the respondents’ characteristics. Moreover, they allow a comparison between two or more different sections of demographics. Participants were asked about their gender, age, education, relationship status and whether they have children. The question regarding their income was avoided because it can be a sensitive topic and was not necessarily relevant for research. Apart from that, the country of origin was not part of the questionnaire either as it

was assumed that all the participants live (at least temporarily) in Sweden. However, the ethnicity of participants could differ, but would also have no relevance. Lastly, a short introduction with a brief description of the aim of the survey, an explanation of the term food system and a confidentially of data information were implemented. There was a total of 33 questions included in the questionnaire. At the end of the questionnaire, some place was allocated for comments.

After the questionnaire was finished, the pre-test was carried out with the final draft. The paper version of the questionnaire in the English language was completed by ten individuals. Six of them were employed in the food sector (one farmer, three food producers, one quality control, one researcher). Gender distribution between pre-test participants was 50 % each (male, female). The average age of the participants was 38.4 years, with the youngest participant being 19 and the oldest 62 years. After the completion of the questionnaire, the pre-test participants were asked whether they had any difficulties in understanding the questions or whether they noticed any other aspects which could be improved. Apart from that, the questionnaire was also forwarded to a contact person in Sweden who translated it into the Swedish language. The contact person in Sweden is Maria Micha who is a project manager for “Diet for a Green Planet Flagship” and responsible for the research related to communication and collaboration in Södertälje. The translation was necessary to permit a higher response rate as most of the target population in the municipality under study does not speak English. For a Swedish translation to be as close to the original English version as possible, some small but important adjustments were made. The examples of the final questionnaires in English and Swedish language can be found in Appendix 2.1 and 2.2. After the

last questionnaire improvements, the process of data collection began and will be described in the following section.

4.1.3 Data collection

The primary data collection method used was a survey using an online and paper-based questionnaire. Both versions were used to achieve a higher response rate as some individuals from the target population may not be receptive to online questionnaires. The survey participants were collected by convenience sampling. As described above, the target population consists of adults who were part of the organic/biodynamic food system. They were either employers, employees or consumers. The online-based survey was initiated by the Swedish side. Assistance was provided by Gunilla Jägeberg. She is an entrepreneur and freelancer in a plant based and organic food store in the Södertälje municipality as well as a research assistant and assistant in event management. The Swedish version of the questionnaire (Appendix 2.2) was transferred into an online survey tool. Afterwards, it was distributed to different food system actors by e-mail and postings on Facebook. The paper-based responses were collected in the organic food shop in Järna/Sweden with the help of an assistant. Afterwards, the assistant transferred the responses from the paper-based surveys manually into the online survey tool to have the answers in the same format. The whole data collection process lasted two weeks (from the 8th to the 22nd of July 2019). The final number of respondents was 125 (76 online and 49 paper-based). However, three participants did not complete the survey, leaving at least half of the questions unanswered (all answered the only first set of questions about QOL, but not the other two parts). These three questionnaires were excluded from further analysis. Therefore, the total number of respondents is 122 (n=122). Besides, some of the other

respondents also skipped a few questions. If not more than three answers were left out, the questionnaire was included in the analysis. Since the dataset was large enough, the responses with a missing value were not used for that particular variable. Thereby, no bias was created.

4.1.4 Data analysis and evaluation

After collection, the data was analysed using the statistical software "Statistical Package for the Social Sciences" (from here onwards SPSS), Version 1.0.0.1275. Prior to the analysis, the questionnaire results were transferred from an online survey tool into an Excel file. At this point, the data was in Swedish language. The assistant from Sweden then translated the comments and open questions into English. There was no need to translate the rest of the data as the questionnaires were identical. The order of questions and answers did not defer. To verify the validity of the manual transfer of the paper-based surveys into the online survey tool, the data from the filled-in paper questionnaires were compared to the raw data in the Excel file. The initial raw data (Item 1.0 on "raw materials CD") was gathered and coded on Excel worksheets first.

Afterwards, the coded data was exported into SPSS. Proper labels and data types were assigned to each variable. Starting with descriptive statistics, a frequency test was run for all demographic data. For the next set of data about QOL (Q1-Q12), the measures of central tendency (mean, median and mode), minimum, maximum and standard deviation were calculated. For the following data about the food system (Q14-Q21), frequency analysis was used. Frequency, percent, valid percent and cumulative percent were calculated. The total number of answers included in the analysis for Q14-Q20 was 28 (n=28) since only people employed in the food system were targeted. Other respondents were asked to skip these

seven questions. For the last set of data (Q22-Q28) minimum, maximum, mean and standard deviations were calculated. Next, the mean and standard deviation for the four QOL dimensions (physical, psychological, social and environmental) were calculated based on Q2-Q12 as divided and described above.

Subsequently, the normality test was conducted. It was determined that the data was not normally distributed. Therefore, non-parametric tests needed to be performed. Correlations (non-parametric, bivariate) between QOL and food environments as well as demographic data (gender, age, education) were tested by the Spearman's rank correlation coefficient (Field 2018, p.472ff). Lastly, the Cronbach's alpha coefficient was computed to test the reliability of the questionnaire (Field 2018, p.1044f). The SPSS results for each individual test completed will be presented in the following chapter.

4.2 Results

In this chapter, the results will be presented in three different sections. First, the demographic data of all survey respondents will be presented. Second, the results from QOL related questions and the corresponding dimensions will be explained. The third section will include results from the questions about the food system. Lastly, the results of other completed tests will be presented and explained in more detail.

4.2.1 Demographic data

Among the survey participants, 66.4 % were female and 33.6 % were male. The absolute distribution of frequency of the age groups is shown in Figure 6 on the next page.

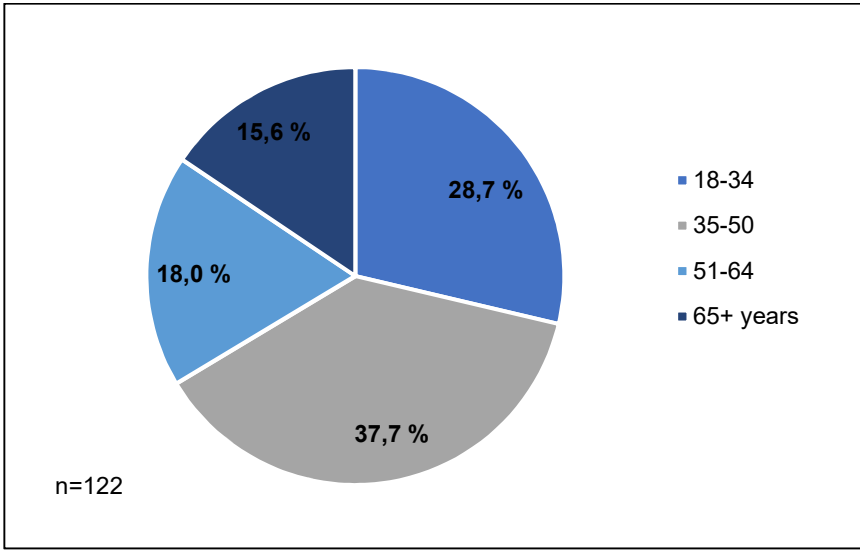

Figure 6: Distribution of frequency of age groups (Source: own data)

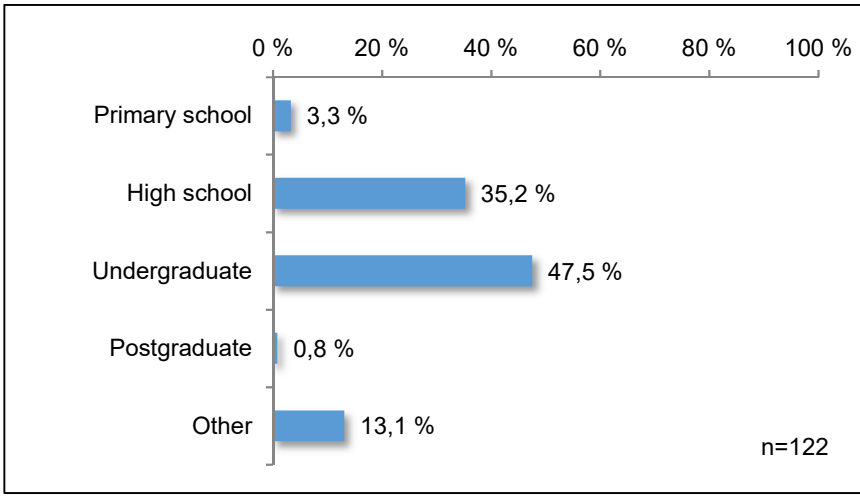

Figure 7: Highest education level completed (Source: own data)

Most participants answered that their highest education level completed was the undergraduate degree (47.5 %) (see Figure 7).

However, 13.1 % of the participants noted other educations such as pedagogy (3 participants), folk high school (2 participants), university (2 participants), university of applied sciences (2 participants) and further options with one participant only (see Item 2.0). Due to differences in the education system in each country as well as the availability of multiple different institutions and programs, the choices given may not have been specific enough. Some of the answers could fit into the provided options but participants may not have been familiar with the exact levels of education. They rather chose the answer “Other”. Looking at Figure 8, it is apparent that the results about the relationship status were quite equally distributed, most people living without a partner. 60.7 % of respondents have children, 39.3 % have none. The descriptive analyses of each question can be found in the Excel file named “Item 2.0 Data Analysis SPSS Results” on “raw materials CD”.

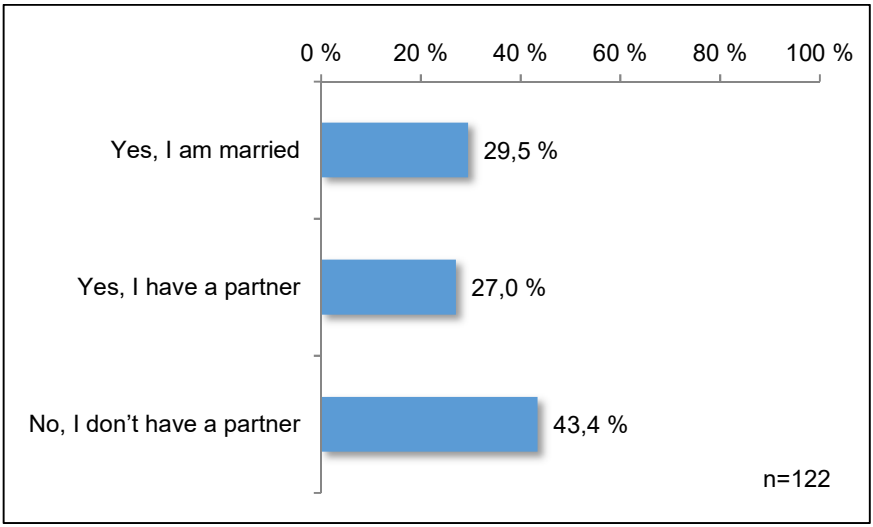

Figure 8: Distribution of relationship status (Source: own data)

4.2.2 Survey results related to QOL

The first question in the questionnaire was, “How would you rate your quality of life?” with a five-point Likert scale indicating answer options (labels) from very poor (value=1), poor (value=2), neither poor nor good (value=3), good (value=4) to very good (value=5). It is apparent from Table 3 that respondents gave a minimum value of 2 and a maximum value of 5 with an average value of 4.29. Most participants indicated that their QOL is good (57.4 %) or very good (36.1 %).

Table 3: Quality of life - Q1 (Source: own data)

N	Valid	122
	Missing	0
Mean		4.29
Median		4
Mode		4
Std. Deviation		0.61
Minimum		2
Maximum		5

The following questions ask about the participants’ satisfaction with different life aspects. Except for satisfaction with “yourself” with a minimum value of 2, all other aspects had ratings ranging from 1 to 5 (1=very dissatisfied, 2=dissatisfied, 3=neither satisfied not dissatisfied, 4=satisfied, 5=very satisfied). Participants indicated the highest level of satisfaction with themselves (mean=3.90; SD=0.75), closely followed by satisfaction with their living conditions (mean=3.88; SD=0.91). The participants were the least satisfied with their energy levels (mean=3.54; SD=0.92). However, results

from all aspect were closely distributed and reported a rather high satisfaction (see Table 4).

Table 4: Satisfaction with life aspects - Q2-Q8 (n=122) (Source: own data)

How satisfied are you with…	Minimum	Maximum	Mean	Std. Deviation
2. … your health?	1	5	3.83	0.83
3. … your sleep?	1	5	3.77	1.05
4. … your energy levels?	1	5	3.54	0.92
5. … yourself?	2	5	3.0	0.75
6. … your community?	1	5	3.80	0.85
7. … your work?	1	5	3.84	0.89
8. … your living conditions?	1	5	3.88	0.91

In Table 5, the remaining QOL related results are presented. The options were also given on a five-point Likert scale with the following values and labels: 1=not at all, 2=a little, 3=a moderate amount, 4=very much, 5=extremely. The highest average value was indicated for the feeling of safety (mean=4.07; SD=0.78).

Table 5: Other QOL aspects - Q9-Q12 (n=122) (Source: own data)

	Minimum	Maximum	Mean	Std. Deviation
9. How much do you enjoy life?	2	5	3.77	0.79
10. To what extent do you feel your life to be meaningful?	1	5	3.97	0.78
11. How safe do you feel in your daily life?	1	5	4.07	0.78
12. How healthy is your living environment?	1	5	3.76	0.85

Following, the means for each QOL dimension were calculated based on the pre-defined designation of the questions into these four dimensions (see Table 6). The dimension achieving the highest average score is the environmental dimension (mean=3.92; SD=0.70). The physical dimension has the lowest average score (mean=3.71; SD=0.75). Nonetheless, the differences between the dimensions' averages are minor.

Table 6: QOL dimensions (n=122) (Source: own data)

	Mean	Std. Deviation
PHYSICAL_DIMENSION	3.71	0.75
PSYCHOLOGICAL_DIMENSION	3.88	0.64
SOCIAL_DIMENSION	3.84	0.67
ENVIRONMENTAL_DIMENSION	3.92	0.70
Valid N (listwise)		

4.2.3 Survey results related to food system

The first question related to the food system was whether the participant is currently working in the food sector. 94 participants indicated that they are currently not working in the food sector, 28 participants answered to be employed in the food sector. Those 28 participants continued with the seven following questions, the others were asked to skip those. Figure 9 shows the distribution of the employments between different food system actors. Most people chose the answer “Other” and indicated their profession. Six participants work in the gastronomy industry (restaurants, cafes), three participants in retail, but they wrote down more specific answers (buyer, food manager, sourcing top quality food, food store work, purchaser). One participant is a meal manager in the public sector, one a teacher and one an expert advisor.

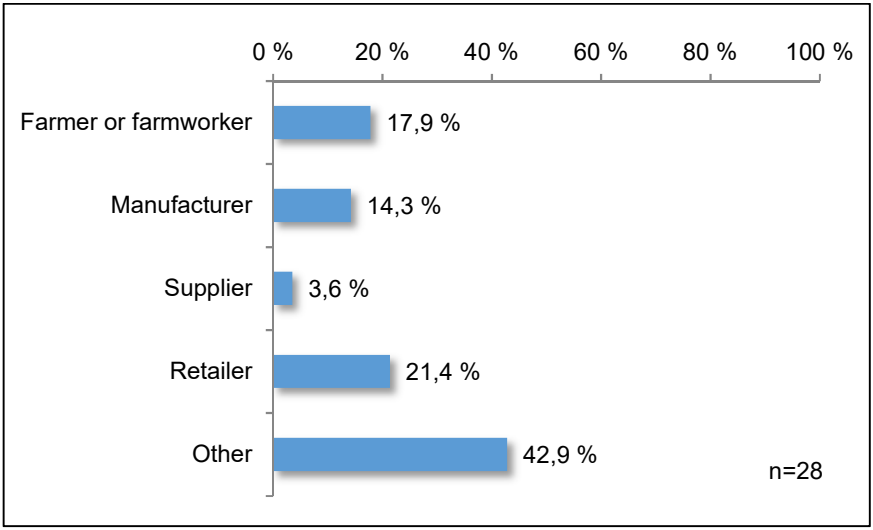

Figure 9: Distribution of the employments in the food sector - Q14 (Source: own data)

For 85.7 % of the participants working in the food sector, this job is the primary source of income. Figure 10 displays whether participants have enough money to meet their needs. 53.6 % of the participants chose the option “mostly”. Only 10.7 % indicated to not have enough money to meet their needs. Following, the results for satisfaction with working conditions are the same. 85.7 % of the participants are mostly satisfied. 10.7 % are not satisfied with the working conditions at their current job (see Figure 11).

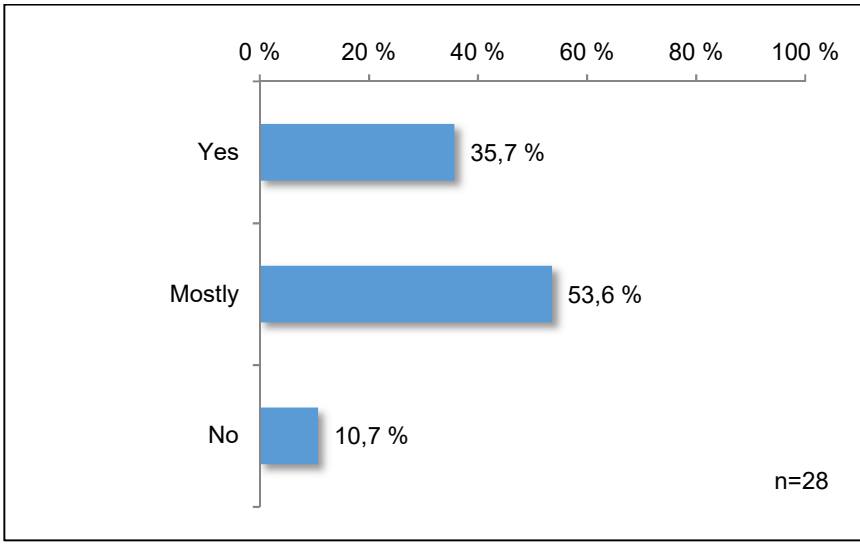

Figure 10: Having enough money to meet the needs - Q16 (Source: own data)

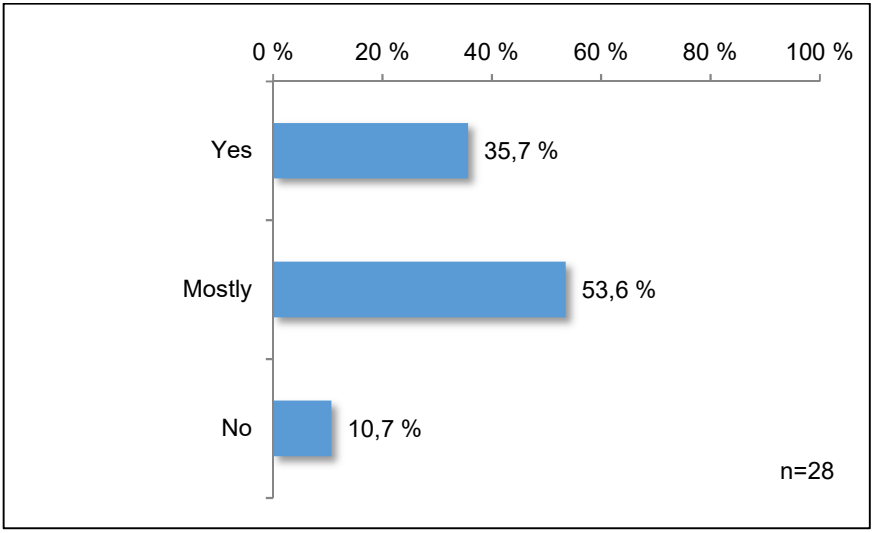

Figure 11: Satisfaction with working conditions - Q17 (Source: own data)

Further, 39.3 % of the participants mostly feel a long-term stability in their personal career, 28.6 % do not (see Figure 12). When asked about the opportunity for further trainings or education, most participants (53.6 %) indicated to occasionally have this opportunity (see Figure 13). 3.6 % of the participants never had any opportunity for further trainings.

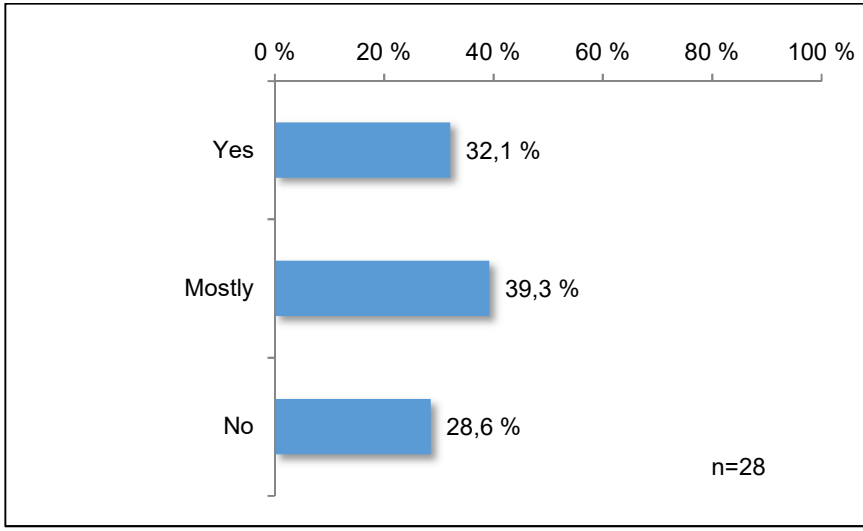

Figure 12: Feeling of a long-term stability in the career - Q18 (Source: own data)

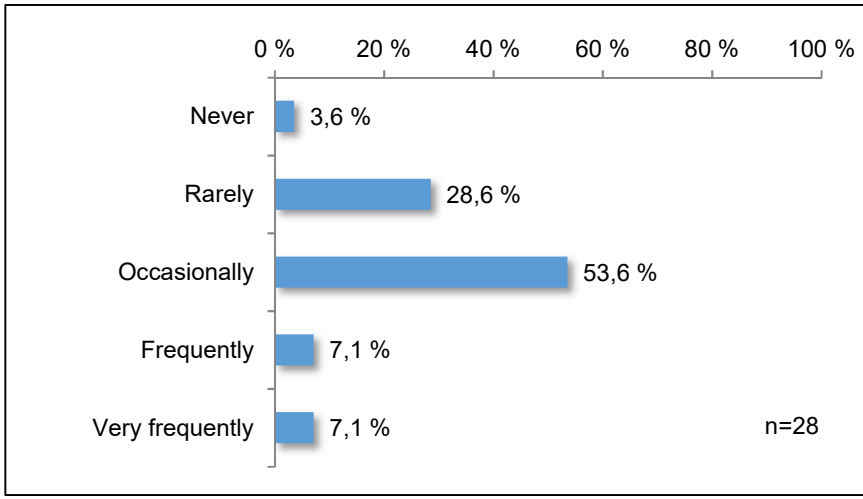

Figure 13: Opportunity for further trainings/education - Q19 (Source: own data)

The next question was whether there is any bonus system for participants and their families or whether they have any other advantages related to their work or living in this area (for example subsidy, wage benefits, access to free or subsidized food, accommodation). Participants were asked to choose a “Yes“ or “No” answer and if choosing “Yes”, to write down what kind of bonuses they get. 53.6 % of the participants said they have bonuses. Most of the noted bonuses were related to the food. It is either free, discounted or subsidized (food, drink, lunch). Seven participants wrote down to have a personal (staff) discount to buy food in the organic store where the survey was conducted. Other bonuses noted were business trips, further trainings and wellness allowance. Two participants left an empty space. The rest of the questions was filled out by all the participants, employed and not employed in the food sector (n=122). The following question (Q21) about promotion and advertising of organic food, was the only question with the option for multiple answers. The participants were asked to select all the channels in which they saw organic food advertisements in the past few weeks. The answer selected the most was social media (for example Facebook, Youtube, Instagram, Twitter) with 50.8 %. The least advertisements did participants hear on the radio with only 4.1 % as it can be seen in Figure 14 below.

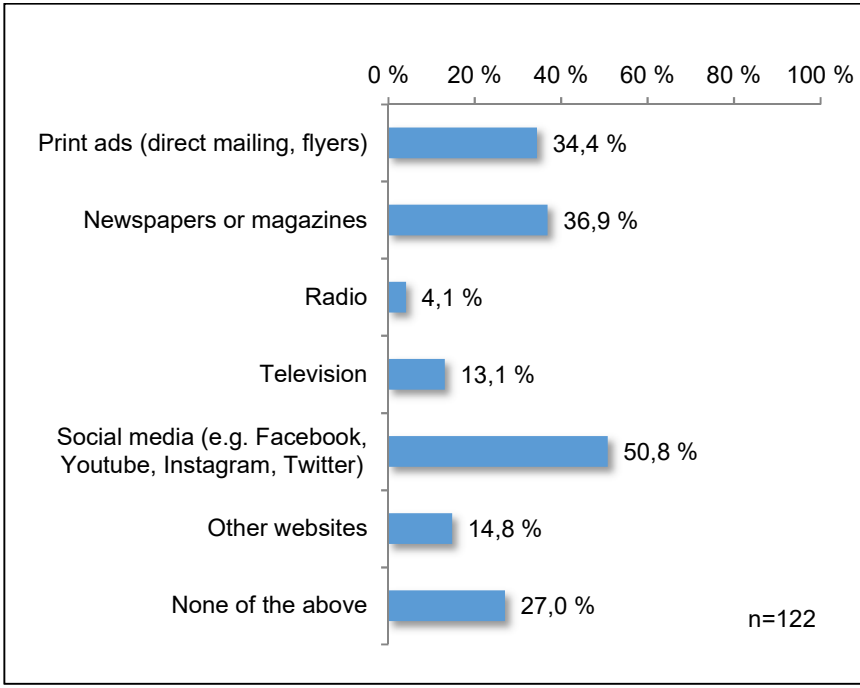

Figure 14: Distribution of channels for advertising and promotion - Q21 (Source: own data)

For the next seven questions, the options were given on a five-point Likert scale with the following values and labels: 1=not at all, 2=a little, 3=a moderate amount, 4=very much, 5=extremely. From the results, the minimums, maximums, means and standard deviations were computed (see Table 7). The importance of organic food reached the highest average score (mean=4.52; SD=0.68), followed by accessibility of organic food (mean=4.43; SD=0.68). Q27 about the overall quality of organic food had the highest minimum score (min=3). The lowest average score had the last question asking, how familiar are the participants with other actors of the food system (mean=3.30; SD=1.27).

Table 7: Aspect of food system - Q22-Q28 (n=122) (Source: own data)

	Minimum	Maximum	Mean	Std. Deviation
22. How important is organic food to you?	2	5	4.52	0.68
23. How accessible are organic food options to you?	2	5	4.43	0.68
24. How affordable are organic food options to you?	1	5	3.73	1.04
25. How available is information regarding organic food to you?	1	5	4.16	0.91
26. How safe, do you feel, is organic food?	2	5	4.20	0.79
27. How is the overall quality of organic food in your opinion?	3	5	4.19	0.70
28. How familiar are you with other actors of the food system?	1	5	3.30	1.27

4.2.4 Correlations and other results

After descriptive statistics were completed, the normality of data was tested with the Kolmogorov–Smirnov test. It was determined that variables were not normally distributed. Therefore, non-parametric tests were used for further analysis. The correlation between QOL and aspects of the food environment were tested by Spearman's rank correlation coefficient. As can be seen in Table 8 below, there is a positive correlation between the participants' QOL and the availability of organic food (Spearman's rho=0.232;

Sig=0.010), between QOL and the affordability of organic food (Spearman's rho=0.298; Sig=0.001) as well as between QOL and the participants' opinion about organic food quality (Spearman's rho=0.221; Sig=0.014). This means the more available and the more affordable organic food, the higher the participants' QOL. Moreover, when participants perceive that organic food has a higher quality, their QOL will improve as well.

Table 8: Correlation between QOL and food environment aspects (Source: own data)

			1. How would you rate your quality of life?
Spearman's rho	1. How would you rate your quality of life?	Correlation Coefficient	1.000
		Sig. (2-tailed)	
		N	122
	23. How accessible are organic food options to you?	Correlation Coefficient	,232*
		Sig. (2-tailed)	.010
		N	122
	24. How affordable are organic food options to you?	Correlation Coefficient	,298**
		Sig. (2-tailed)	.001
		N	122
	25. How available is information regarding organic food to you?	Correlation Coefficient	.139
		Sig. (2-tailed)	.128
		N	122
	26. How safe, do you feel, is organic food?	Correlation Coefficient	.158
		Sig. (2-tailed)	.083
		N	122
	27. How is the overall quality of organic food in your opinion?	Correlation Coefficient	,221*
		Sig. (2-tailed)	.014
		N	122
	28. How familiar are you with other actors of the food system?	Correlation Coefficient	.142
		Sig. (2-tailed)	.118
		N	122

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Furthermore, Spearman's rank correlation coefficient was also used to determine the relationship between QOL dimensions and demographic data (gender, age, education). However, no

statistically significant correlation was found (see Appendix 3.0). Therefore, the same test was carried out again, but this time testing QOL related questions (Q2-Q12) individually. It can be seen from the data in Appendix 4.0 that there is a correlation between the level of education and the feeling of a meaningful life (Spearman's rho=0.186; Sig=0.040). The higher the education level of the participants, the more meaningful they perceive their lives to be.

Additionally, to test the internal consistency of the questionnaire, Cronbach's alpha coefficient was computed. Cronbach's alpha coefficient is 0.818 which indicates a good reliability. Thus, if the same participants would complete the questionnaire again at a different time, the results should still be the same (Field 2018, p.1044ff).

A few participants provided feedback at the end of the questionnaire. Their comments will be presented here. One respondent pointed out that it felt quite personal to start by asking to share why they experience poor or very poor QOL. Another comment was left about specific terms used in the questionnaire stating that the terms “community” or “living conditions” should be more defined. Four participants were retired. They expressed their confusion by Q7, asking about satisfaction with their work. Further, one participant was younger than 18, so it was not possible to choose a corresponding age group. Additionally, one participant noted to have previously worked in the food sector but does not do so anymore.

Further feedbacks were not related to the questionnaire itself but with the participants view and opinion about the organic food system. Three participants noted that they wish that organic food would be cheaper and more accessible for everyone’s budget and status (specifically dairy products, nuts and seeds). One participant

stated that even though he feels that he can afford organic food, it does not mean that he has a high income. Another participant pointed out that organic food is very similar to conventional products. Biodynamic food on the other hand makes a big difference in both taste and health. Other people wrote further comments about their experiences with organic food such as “organic and sustainable food has been important to me since the 70's”, “I came in touch with another lifestyle through anthroposophy already 40 years ago and have continued with this in health care and private” and similar. One person noted that in case some of her answers seem contradictory. This can be explained by the fact that she has Parkinson, so her energy level can be low, even though she feels like she is doing well.

5 Discussion

The results of the SLR on QOL, the literature review on the food system and the questionnaire-based survey are discussed in this section. Based on the findings, the link between QOL and the food system will be drawn and the potential for the application in the evaluation of food systems will be assessed.

5.1 QOL and the food system: Drawing the link

As mentioned in the literature review, the concept of QOL is multidimensional and covers different aspects of life as well as the individuals' perspective on them. It provides information about how satisfied people are with their lives and how they feel about themselves. However, very little was found in the literature about the direct link between QOL and the food system. One significant finding is that apart from analysing component parts and actors, the interactions between these parts and actors, the holistic comprehension of the food system should be considered as well. These interactions produce different outcomes such as food security, environmental security and social welfare (Ericksen 2008, p. 242f).

The survey results demonstrate a correlation between the participants' QOL and three aspects of the food environment: food availability and physical access, food affordability or economic access and food quality. If organic food would be easily available and physically accessible which means if there would be enough organic food for all and if the food entry points and infrastructures would be adequate, people would purchase and consume more of such food. As a result, their QOL would improve. The same outcome comes with better economic access to organic food as people can only buy what they can afford. However, as mentioned in the

literature review, high-income countries such as Sweden are less likely to spend a big proportion of their household income on food. Therefore, they are less affected by food prices. Similar to findings of HLPE (2017, p. 29f) that lower food prices have an impact on food producers, survey results showed that the few participants who indicated to not have enough money to meet their needs, were all food producers (farmers or farmworkers). Nevertheless, they still indicated to have a good QOL. Other food system actors reported to have enough money to meet their needs as well as a good or very good QOL.

Further, the participants feel that organic food has a high quality. This perception results in a higher QOL as people feel that they purchase and consume food which is beneficial to their health and environment. This finding aligns with Uhlmann's (2018, p. 1f) finding. It states that the connection to the natural world typically benefits the individual's well-being and predicts pro-environmental behaviours. There is no standard approach to measure food environments. The last aspect of food environments (promotion, advertising and information) is not easy to evaluate. For a better understanding of this aspect, people were asked about different advertising and marketing techniques which they come across in daily life and which may influence their purchasing behaviour and consumption patterns. More than half of the participants reported seeing some advertisements or promotions for organic food on social media such as Facebook, YouTube, Instagram or Twitter as well as on other web-based channels. This suggests the importance of social media marketing nowadays and a way for food marketers to promote and increase organic food consumption. However, a significant number of participants also indicated to come across advertising and promotion in newspapers, magazines and in form of print ads such as direct mailing or flyers. Therefore, traditional ways

to market should not completely be substituted by alternative digital marketing. This distribution of channels for advertisement and promotion cannot be considered as an assessment of how well participants are informed about organic food. However, it provides an insight into organic food advertisement and promotion.

The results of the present survey show that most of the participants perceive their QOL as good or very good (displayed in Table 3). This aligns with the assumption that the QOL of the target group is high because people perceive local and organic food as healthier and more environmentally friendly than conventionally produced food (Rahmann et al. 2017, p. 180). Only one participant rated her QOL as poor due to factors such as a poor social network, bad economy, being often criticized by others and having no access to a good commute, travel links or arable land. The high level of satisfaction was found within all four dimensions of QOL. It can be assumed that the participants find all aspects of their life important. They do not feel any deficiency in the physical, psychological, social or environmental dimension. This finding is consistent with the statement of Martin (2011, p. 95f) who indicated that different dimensions are included in the QOL measures for the complete assessment. However, the high QOL of the individuals cannot directly be associated with the food system they are a part of. Based on the report from OECD, life satisfaction in Sweden is among the highest worldwide. Sweden performs very well across all well-being dimensions compared to other OECD countries (OECD 2017, p. 298). So, the survey results which demonstrate a high QOL, may identify a high QOL of Swedish inhabitants in general and not only for the ones included in organic food systems. For a better understanding of this gap in the future, the survey should be carried out with a bigger population including people who are not part of any

alternative food system. Thereby, the differences in the QOL could be further observed and compared between different food systems.

5.2 Potential for application in evaluation of food systems

The assessment of the quality of life is one of the main priorities in health sciences, but the concept is not widely used in the evaluation of food systems yet. However, there are other concepts or notions which put the individual's well-being into focus. The main purpose of food is to feed people, so people should be focused when it comes to food system related activities. The assessment of the food system is a complex process, many aspects need to be considered.

A research question of this thesis was to identify the potential application of a newly developed questionnaire as a QOL instrument for the application in the evaluation of food systems. The QOL reports the degree of human needs being met and the individuals' satisfaction (Böhnke 2005, p. 3). As stated in the literature review, many different instruments to measure QOL are developed. The QOL questionnaires have become an efficient way of gathering data about the individual's subjective well-being. Conducting the survey to measure the QOL of different food system actors, provided new insights on the complexity of both concepts, QOL and food system. It is therefore likely that measuring only subjective aspects of an individual's life, would not provide a complete understanding of all the outcomes and impacts on human well-being. This result corroborates the ideas of Maridal (2016) that subjective and objective aspects should be used for the best assessment of people's lives. Nevertheless, QOL questionnaires are an efficient instrument to measure QOL of different actors in the food systems. The person is put into focus. This provides important findings which

could help to evaluate the need for transformation of the food system as well as its direction.

The questionnaire used in this thesis was developed with consideration of the different QOL dimensions as well as various aspects of food systems like different food environments and food system outcomes. Previous studies suggest that food environments strongly influence agriculture, food programs, policies, nutrition and diets but are not often considered in food system evaluations (Herforth and Ahmed 2015; HLPE 2017). With the inclusion of several aspects from both areas, different variables could be compared and evaluated. Thereby, with the QOL assessment, the individuals' well-being, the situation in the food system and the food system actors' satisfaction with it, the advantages and disadvantages of a specific food system can be identified. This understanding could be helpful to fill the gaps between human well-being and social and environmental aspects. Food and agriculture are the principal links between people and the planet. Therefore, a transition towards a more sustainable food system could help to achieve multiple SDGs (FAO 2018, p. 4) and provide a better future for all.

5.3 Additional findings and suggestions for questionnaire adaptations

At the end of the questionnaire, respondents had the option to leave feedback concerning the questionnaire. A few participants left comments which provide a better understanding of the participants' opinions on the topic and personal ratings. This information could be helpful for potential adaptations of the questionnaire in case of further use and application. One respondent pointed out that it feels quite personal to start by asking to share why they experience poor or very poor QOL. This could be avoided by moving the question

(Q1) to the end of the first set of questions about QOL. That way, the sensitive topic would be dealt with at a later point in the questionnaire, when participants might already feel more confident about sharing their experience.

There were a few difficulties with the translation of the English questionnaire into Swedish as it was not possible to directly translate some questions (Q22-Q28) to fit the answer scale. To achieve the exact translation, an adjustment of the questions would be necessary. Instead of a table with the same answer options for the set of seven questions, these could be presented individually. However, this change was not made to avoid complications and to avoid lengthening the questionnaire as well as to keep the same meaning of the translated questions. There should no biases be caused by doing so. Additionally, on the first day of the data collection, one mistake was discovered in the Swedish version of the questionnaire. However, it was immediately corrected and the error was crossed out on the remaining questionnaires. This error was not present in the online version of the questionnaire. Due to the immediate response, it did not bias the questionnaire results.

Another feedback was provided about specific terms used in the questionnaire. According to the comment, the terms “community” or “living conditions” could be better defined. Here, the problem was that the well-known English terms could not directly be translated into Swedish because identical terms are not widely used in Sweden, so participants would not be familiar with them. Thus, the translations with the most similar meaning were chosen. However, for the future use of the questionnaire, these questions could be rephrased or the terms could be explained with more examples. Likewise, there was some confusion regarding the education levels. As education systems differ from country to country, translations of the English levels were not suitable for the Swedish participants.

Namely, 13.1 % of the respondents chose answer option “other” and four respondents noted to have completed “university” (instead of selecting between options like “undergraduate” or “postgraduate”), two noted “folk high school” (instead of selecting the given option “high school” which is assumed to be the same level in the education system). One noted “college” which could also be potentially sorted into the options given. To avoid bias and to acquire more accurate sociodemographic data on the education level, other answer options for education levels should be provided considering the country-specific education system.

Moreover, Q7 about work satisfaction should be rephrased or other options should be provided for people who are not employed like students or retired people. Four participants were in retirement and pointed out the confusion caused by this question. This mistake could be avoided when at least one retired person would be included in the pre-test. That was not the case as the pre-test respondents were chosen based on proximity and convenience. Different age groups and professions were included but no people in retirement. Further, one participant was younger than 18 but there was no corresponding age group to choose. However, the target populations were adults who were expected to be older than 18 years. Despite that, age of adulthood can depend on cultural views and living situations. Some individuals could be considered as adults even before the age of 18. To avoid confusion in the future, the exact age range should be explicitly defined and communicated or the option for the age group answer could be changed from “18-34” into “younger than 34”. Additionally, one participant noted to have previously worked in the food sector but does not do so anymore. So, an additional option for people who were previously employed in the food sector could be provided.

Moreover, some limitations of the research should be mentioned. As the survey was conducted in Sweden, the questionnaire and responses needed to be translated. Therefore, the survey results might be influenced by the interpreter bias in the process of translation. Further, the questionnaires were filled out in paper and online form. The paper form questionnaires were manually transferred into an online survey tool. Consequently, a potential bias could occur. Another limitation of this study that needs to be acknowledged is the sample size. Although it was big enough to be statistically significant, only 23 % of the participants were employed in the food sector. As a result, most of the respondents represented consumers. Other food system actors were underrepresented in the study. Hence, the total amount of respondents for the questions which were only concerning people employed in the food sector (Q14-Q20) was 28. With a small sample size, caution must be applied as the findings might not be transferable to the wider community.

6 Conclusion

The concept of QOL is a booming topic in various research fields. However, there is no universal definition and no ultimate meaning of the concept proposed. Most researchers agree that QOL is a multidimensional concept, but dimensions differ depending on the context in which QOL is assessed. Additionally, little is known about the effect of food system aspects on QOL. The research question for this thesis was to find out whether the concept of QOL can be applied to food systems. Besides, it was aimed to find out whether it can help to evaluate various aspects of a specific food system using a more person-centred approach instead of technocratic parameters which are generally used for such assessments. Based on the findings from the literature review, the conduction of the survey and its results, it can be concluded that QOL has important factors to consider when evaluating food systems. Moreover, questionnaires are an efficient instrument to measure the individual's QOL and can be applied to food system evaluations in the transformation process towards more sustainable food systems.

The recognition of the need for transformation of our food system is growing. To meet future food demands, changes in food systems are essential to provide a high quality of life for individuals and society. The measurements of the current QOL have a significant role in assessing and improving the QOL for present and future generations as one cannot improve things which cannot be measured. The QOL should not only be measured for people with impairments but also for healthy people. The person-centred approach can be used when considering the individual's QOL in various assessments of the relation between the food system and QOL.

When developing a new questionnaire to measure QOL in the food system, the four dimensions of QOL were considered and included to give a complete representation of the individual's QOL. These dimensions were the physical, psychological, social and environmental dimension. The purpose of the different dimensions was to find out whether there are significant shortcomings in any of those areas. However, it was concluded that a high level of satisfaction was found within all four dimensions of QOL. Ultimately, the level of QOL was indicated as good or very good by most participants in the survey. This leads to the conclusion that all actors of the organic food system under question perceive their lives to be meaningful and that they are satisfied with their current living conditions. There are always ways to improve life situations. As QOL is a subjective concept, the most important aspect is the individual's perception of life. People can face various problems and challenges but if they are satisfied with their QOL, they will be able to live happily and to achieve mental well-being, even without reaching high levels in all of the dimensions.

As food is consumed in systems, various aspects, subjective and objective, need to be considered for a successful evaluation of different food systems. Moreover, it is necessary to include all actors involved and evaluate their experiences and levels of satisfaction. The major shortcoming of this study is the small representation of food system actors. Further research using a bigger sample size, could shed more light on the QOL of food producers, manufacturers, suppliers and retailers. Besides, it is important to assess how people influence and are influenced by food system aspects. Thereby, this provides a better view on the benefits of a specific food system. The one that brings the most benefits to an individual's life can be identified as a good direction for the transformation of the food system in the future. There is an increasing consumers' interest in

alternative food production and consumption and this trend will continue to grow in the future.

Measuring and improving the individual and societal well-being is an important issue for future research in environmental, social, health and other fields. Future work should assess the QOL in the conventional food system as well as in different alternative food systems comparing the outcomes and proposing a way to improve current food production and other food system activities. Well-being for all citizens should be promoted and a high level of life satisfaction should be ensured. All aspects considered help people to adopt sustainable and healthy diets for good health as well as well-being. They have a great significance for everyone and should be the primary global goal for the future for all.

7 Summary

Quality of life is a subjective and multidimensional concept which includes positive and negative features of life. However, there is no universally accepted definition of the concept. Nowadays, food systems are affected by different challenges such as climate change, population growth and deficiency of natural resources. Ensuring healthy lives, promoting well-being to all citizens and consumers along with helping them to adopt more sustainable and healthy diets for good health and well-being is an important global goal for the future.

The research question to be answered in this thesis was: “Can the questionnaire to measure QOL be applied for the food system evaluation?”. It needed to be identified whether the concept of QOL can be applied to a food system context and whether it can help to evaluate various aspects of a specific food system using a more person-centred approach instead of technocratic parameters. To answer the research question, a systematic literature review on the concept of QOL and its application in various fields, a literature review on food systems and a questionnaire-based survey were conducted. The survey was carried out in an organic municipality in Sweden with different food system actors.

Findings from all three research methods included in the thesis were presented and interpreted in the discussion section. The link between QOL and food system was described. The applicability of the questionnaire for the evaluation of food systems was assessed. There is potential for the application of the concept of QOL in the food system evaluation aiming to offer a more person-centred instead of technocratic approach. However, a high quality of life alone cannot directly be associated with a specific food system. Additional factors should be assessed for a comprehensive

evaluation in food systems. Nevertheless, the implementation of QOL indicators as a benchmark for evaluating the transformation process towards more sustainable food systems should be enforced. Lastly, the shortcomings of this study were mentioned and propositions for further research were suggested in the conclusion.

References

Ali, S. and Malik, J. A. (2015): Consistency of prediction across generation: Explaining quality of life by family functioning and health-promoting behaviors. In: Quality of Life Research, Vol. 24, No. 9, p. 2105–2112.

Artacho, R., Lujano, C., Sanchez-Vico, A. B., Vargas Sanchez, C., Gonzalez Calvo, J., Bouzas, P. R. and Ruiz-López, M. D. (2014): Nutritional status in chronically ill elderly patients. Is it related to quality of life? In: The Journal of Nutrition, Health & Aging, Vol. 18, No.2, p. 192–197.

Atanasova, I. and Karashtranova, E. (2016): A Novel Approach for Quality of Life-Evaluation: Rule-Based Expert System. In: Social Indicators Research, Vol. 128, No. 2, p. 709–722.

Azupogo, F., Seidu, J. A. and Issaka, Y. B. (2018): Higher vegetable intake and vegetable variety is associated with a better self-reported health-related quality of life (HR-QoL) in a cross-sectional survey of rural northern Ghanaian women in fertile age. In: BMC Public Health, Vol. 18, No. 920, p. 1-13.

Baernholdt, M., Yan, G., Hinton, I., Rose, K. and Mattos, M. (2012): Quality of Life in Rural and Urban Adults 65 Years and Older: Findings from the National Health and Nutrition Examination Survey. In: Journal of Rural Health, Vol. 28, No. 4, p. 339–347.

Block, L. G., Grier, S. A., Childers, T. L., Davis, B., Ebert, J. E. J., Kumanyika, S., … Bieshaar, M. N. G. van G. (2011): From Nutrients to Nurturance: A Conceptual Introduction to Food Well-Being. In: Journal of Public Policy & Marketing, Vol. 30, No. 1, p. 5–13.

Böhnke, P. (2005): First European Quality of Life Survey: Life satisfaction, happiness and sense of belonging. Luxembourg: Office for Official Publications of the European Communities.

Borges, L. R., Paiva, S. I., Silveira, D. H., Formoso Assuncao, M. C. and Gonzalez, M. C. (2010): Can nutritional status influence the quality of life of cancer patients? In: Revista de Nutricao-Brazilian Journal of Nutrition, Vol. 23, No. 5, p. 745–753.

Boylan, S., Sainsbury, E., Thow, A., Degeling C., Craven, L., …, Zhang, Y. (2019): A healthy, sustainable and safe food system: examining the perceptions and role of the Australian policy actor using a Delphi survey. In: Public Health Nutrition, p. 1-10.

Bowden, R. G., Lanning, B. A., Doyle, E. I., Slonaker, B., Johnston, H. M. and Scanes, G. (2008): The Effects of Weight Loss Attempts, Exercise Initiation, and Dietary Practices on Health-Related Quality of Life. In: Applied Research in Quality of Life, Vol. 3, No. 2, p. 149–160.

Brunori, G., Bartolini, F., Avermaete, T., Brzezina, N., Mathijs, E., Marsden, T., ...Helfgott, A. (2013): Creating resilient food systems for enhancing food and nutrition security. Assessment, 1.

Carrier, N., West, G. E. and Ouellet, D. (2009): Dining experience, foodservices and staffing are associated with quality of life in elderly nursing home residents. In: The Journal of Nutrition, Health and Aging, Vol. 13, No. 6, p. 565–570.

D'Anna, W. and Cascini, G. (2016): Adding quality of life to design for Eco-Efficiency. In: Journal of Cleaner Production, Vol. 112, p. 3211-3221.

D'Souza, M. S., Karkada, S. N. and Somayaji, G. (2013): Factors associated with health-related quality of life among Indian women in mining and agriculture. In: Health and Quality of Life Outcomes, Vol. 11, No. 9, p. 1-16.

Damião, R., Meneguci, J., da Silva Santos, Á., Matijasevich, A. and Rossi Menezes, P. (2018): Nutritional Risk and Quality of Life in Community-Dwelling Elderly: A Cross-Sectional Study. In: The Journal of Nutrition, Health & Aging, Vol. 22, No.1, p. 111–116.

de Carvalho, B., Policarpo, S. and Moreira, A. C. (2017): Nutritional status and quality of life in HIV-infected patients. In: Nutricion Hospitalaria, Vol. 34, No. 4, p. 923–933.

Ericksen, P. J. (2008): Conceptualizing food systems for global environmental change research. In: Global Environmental Change, Vol. 18, p. 234-245.

Estes, R. J. and Sirgy, M. J. (2019): Global Advances in Quality of Life and Well-Being: Past, Present, and Future. In: Social Indicators Research, Vol. 141, No. 3, p. 1137–1164.

Estoque, R. C., Togawa, T., Ooba, M., Gomi, K., Nakamura, S., Hijioka, Y. and Kameyama, Y. (2018): A review of quality of life (QOL) assessments and indicators: Towards a “QOL-Climate” assessment framework. In: Ambio, Vol. 48, No. 6, p. 619–638.

European Commission. (2016): FOOD 2030 High-level Conference background document. Luxembourg: Publications Office of the European Union.

European Commission. (2017): Food 2030: Future-Proofing our Food Systems through Research and Innovation. Luxembourg: Publications Office of the European Union.

Fabiola, R. and Dalila, D. R. (2016): How the Nexus of Water/Food/Energy can be Seen with the Perspective of People well being and the Italian BES Framework. In: Agriculture and Agricultural Science Procedia, Vol. 8, p. 732–740.

FAO. (2009): World Summit on Food Security Rome: FAO.

FAO. (2018): Transforming Food and Agriculture to Achieve the SDGs. Rome: FAO

FAO/WHO (2003): Assuring food quality and safety: guidelines for strengthening national food control systems. Available online: http://www.fao.org/3/a-y8705e.pdf, checked on: 10.06.2019

FAO/WHO. (1999): Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods. Available online: http://www.fao.org/organicag/doc/glorganicfinal.pdf, checked on 24.03.2019

Field, A. (2018): Discovering Statistics Using IBM SPSS Statistics (5th ed.). London: SAGE Publications.

Fillion, M., Passos, C. J. S., Lemire, M., Fournier, B., Mertens, F., Guimarães, J. R. D. and Mergler, D. (2009): Quality of Life and Health Perceptions Among Fish-Eating Communities of the Brazilian Amazon: An Ecosystem Approach to Well-Being. In: EcoHealth, Vol. 6, No. 1, p. 121–134.

Frongillo, E. A., Nguyen, H. T., Smith, M. D. and Coleman-Jensen, A. (2017): Food Insecurity Is Associated with Subjective Well-Being among Individuals from 138 Countries in the 2014 Gallup World Poll. In: Journal of Nutrition, Vol. 147, No. 4, p. 680–687.

Galli, F., Favilli, E., D'Amico, S. and Brunori, G. (2018): A transition towards sustainable food systems in Europe. Food policy blue-print scoping study. Pisa: Laboratorio di Studi Rurali Sismondi.

Gartaula, H., Patel, K., Johnson, D., Devkota, R., Khadka, K. and Chaudhary, P. (2017): From food security to food wellbeing: examining food security through the lens of food wellbeing in Nepal's rapidly changing agrarian landscape. In: Agriculture and Human Values, Vol. 34, No. 3, p. 573–589.

González, E., Cárcaba, A. and Ventura, J. (2018): Weight Constrained DEA Measurement of the Quality of Life in Spanish Municipalities in 2011. In: Social Indicators Research, Vol. 136, No. 3, p. 1157–1182.

Govindaraju, T., Sahle, W. B., McCaffrey, A. T., McNeil, J. J. and Owen, J. A. (2018): Dietary Patterns and Quality of Life in Older Adults: A Systematic Review. In: Nutrients, Vol. 10, No. 8, p. 971-989.

Guillemin, I., Allaert, F. A., Arnould, B., Capuron, L., Dupuy, A., Ginon, E., Marrel, A. (2013): Development of a questionnaire to evaluate food-related well-being. In: Value in health, Vol. 16, No. 7, p. A605–A606.

Guillemin, I., Marrel, A., Arnould, B., Capuron, L., Dupuy, A., Ginon, E., Allaert, F. A. (2015): How French Subjects Describe Well-Being from food and Eating Habits? Development, and Scoring Definition of the well-Being Related to food Questionnaire (Well-Bfq©). In: Value in Health, Vol. 18, No. 7, p. A712.

Guyonnet, D., Chassany, O., Picard, C., Guillemin, I., Meunier, J., Seignobos, E., Trudeau, E. (2008): Perceived subject outcomes and impact on health-related quality of life associated with diet usin the new Food Benefits Assessment (FBA (c)) questionnaire: development and psychometric validation. In: Public Health Nutrition, Vol. 11, No. 11, p. 1163–1172.

Herforth, A. and Ahmed, S. (2015): The food environment, its effects on dietary consumption, and potential for measurement within agriculture-nutrition interventions. In: Food Security, Vol. 7, No. 3, p. 505-520.

HLPE. (2017): Nutrition and food systems. A report by the High Level-Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome: HLPE.

Ingram, J. (2011): A food systems approach to researching food security and its interactions with global environmental change. In: Food Security, Vol. 3, No. 4, p. 417-431.

Jiménez-Redondo, S., Beltran De Miguel, B., Gavidia Banegas, J., Guzman Mercedes, L., Gomez-Pavon, J. and Cuadrado Vives, C. (2014): Influence of nutritional status on health-related quality of life of non-institutionalized older people. In: The Journal of Nutrition, Health & Aging, Vol. 18, No. 4, p. 359–364.

Johnson, R., Robertson, W., Towey, M., Stewart-Brown, S. and Clarke, A. (2017): Changes over time in mental well-being, fruit and vegetable consumption and physical activity in a community-based lifestyle intervention: a before and after study. In: Public Health, Vol. 146, p. 118–125.

Kazana, V. and Kazaklis, A. (2009): Exploring quality of life concerns in the context of sustainable rural development at the local level: A Greek case study. In: Regional Environmental Change, Vol. 9, No. 3, p. 209–219.

Kim, B. and Joo, N. (2014a): Structural relations in the effect of convenience food satisfaction and quality of life according to dietary style - Comparative study of singles in metropolitan area of Korea, Japan and China -. In: Nutrition Research and Practice, Vol. 8, No.3, p. 312–318.

Kim, B. and Joo, N. (2014b): Structural relations of convenience food satisfaction and quality of life according to dietary style - Focusing on singles in metropolitan area of Korea -. In: Nutrition Research and Practice, Vol. 8, No. 5, p. 564–570.

Koutsos, T. M., Menexes, G. C. and Dordas, C.A. (2019): An efficient framework for conducting systematic literature reviews in agricultural sciences. In: Science of Total Environment, Vol. 682, p. 106-117.

Kuckartz, U. and Rheingans-Heintze, A. (2006): Trends im Umweltbewusstsein: Umweltgerechtigkeit, Lebensqualität und persönliches Engagement. Wiesbaden: VS Verlag für Sozialwissenschaften.

Kuhnlein, H. V. (2015): Food system sustainability for health and well-being of Indigenous Peoples. In: Public Health Nutrition, Vol. 18, No. 13, p. 2415–2424.

Kwon, K. M., Lee, J. S., Jeon, N. E. and Kim, Y. H. (2017): Factors associated with health-related quality of life in Koreans aged over

50 Years: the fourth and fifth Korea National Health and Nutrition Examination Survey. In: Health and Quality of Life Outcomes, Vol. 15, No. 243, p. 1-12.

Lappo, A., Bjørndal, T., Fernández-Polanco, J. and Lem, A. (2015): Consumers' Concerns and External Drivers in Food Markets. In: FAO Fisheries and Aquaculture Circular, No. 1102.

Larsson, M. (2012): Environmental Entrepreneurship in Organic Agriculture in Järna, Sweden. In: Journal of Sustainable Agriculture, Vol. 36, No. 2, p. 153-179.

Lee, D. W., Kim, S. and Cho, D. Y. (2013): Obesity-Related Quality of Life and Distorted Self-Body Image in Adults. In: Applied Research in Quality of Life, Vol. 8, No. 1, p. 87–100.

Lee, Y.-H., Shelley, M., Liu, C.-T. and Chang, Y.-C. (2018): Assessing the Association of Food Preferences and Self-Reported Psychological Well-Being among Middle-Aged and Older Adults in Contemporary China-Results from the China Health and Nutrition Survey. In: International Journal of Environmental Research and Public Health, Vol. 15, No. 3, p. 1-13.

Levkoe, Z. C. and Sheedy, A. (2017): A people-centred approach to food policy making: Lessons from Canada's People's Food Policy project. In: Journal of Hunger & Environmental Nutrition, Vol. 14, No. 3, p. 1-21.

Lorand, A. C., Etling, A. W. and Yoder, E. P. (1997): Biodynamic Agriculture: A Paradigmatic Analysis. Available online: http://www.triptolemos.net/wp-content/uploads/2015/07/Lorand-short-Dissertation.pdf, checked on 24.03.2019

Maridal, J. H. (2016): A Worldwide Measure of Societal Quality of Life. In: Social Indicators Research, Vol. 134, No. 1, p. 1–38.

MARK Group: Sanchez-Aguadero, N., Alonso-Dominguez, R., Garcia-Ortiz, L., Agudo-Conde, C., Rodriguez-Martin, C., … Recio-

Rodriguez, J. I. (2016): Diet and physical activity in people with intermediate cardiovascular risk and their relationship with the health-related quality of life: Results from the MARK study. In: Health and Quality of Life Outcomes, Vol. 14, No. 169, p. 1-10.

Martin, F. (2012): Perceptions of Links Between Quality of Life-Areas: Implications for Measurement and Practice. In: Social Indicators Research, Vol. 106, No.1, p. 95–107.

McNaughton, S. A., Crawford, D., Ball, K. and Salmon, J. (2012): Understanding determinants of nutrition, physical activity and quality of life among older adults: the Wellbeing, Eating and Exercise for a Long Life (WELL) study. In: Health and Quality of Life Outcomes, Vol. 10, No.109, p. 1-7.

Michalos, A. C. (2014): Encyclopedia of Quality of Life and Well-Being Research. Dordrecht: Springer Netherlands.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G., The PRISMA Group (2009): Preferred Reporting Items for Systematic Reviews and Meta- Analyses: The PRISMA Statement. In: Public Library of Science Medicine, Vol. 6, No. 7, p. 1-6.

Morozova, E. A., Glushakova, O. V. and Fadeikina, N. V. (2016): Food Consumption as an Indicator of the Quality of Life of the Population in Regions. In: Foods and Raw Materials, Vol. 4, No. 1, p. 171–180.

Nadimi, R., Tokimatsu, K., and Yoshikawa, K. (2017): Sustainable energy policy options in the presence of quality of life, poverty, and CO_2 emission. In: Energy Procedia, Vol. 142, p. 2959–2964.

Oberrauch, A., Keller, L., Sanin, P. and Riede, M. (2016): Lebensqualitätsvorstellungen von Jugendlichen im Kontext des Leitbilds nachhaltiger Entwicklung. In: Mitteilungen der Österreichischen Geographischen Gesellschaft, Vol. 156, p. 221-248.

Ocean, N., Howley, P. and Ensor, J. (2019): Lettuce be happy: A longitudinal UK study on the relationship between fruit and vegetable consumption and well-being. In: Social Science & Medicine, Vol. 222, p. 335–345.

Organisation for Economic Co-operation and Development (OECD). (2017): How's Life? 2017: Measuring Well-being. Paris: OECD Publishing.

Othman, N., Mohamad, M., Latip, R. A. and Ariffin, M. H. (2018): Urban farming activity towards sustainable wellbeing of urban dwellers. In: IOP Conf. Series: Earth and Environmental Science, Vol. 117, p. 1-6.

Palumbo, R. (2016): Sustainability of Well-being through Literacy. The Effects of Food Literacy on Sustainability of Well-being. In: Agriculture and Agricultural Science Procedia, Vol. 8, p. 99–106.

Pinto, S., Fumincelli, L., Mazzo, A., Caldeira, S., and Martins, J. C. (2017): Comfort, well-being and quality of life: Discussion of the differences and similarities among the concepts. In: Porto Biomedical Journal, Vol. 2, No. 1, p. 6–12.

Plaisted, S. C., Lin, P., Ard, J. D., Mcclure, L. M. and Svetkey, L. P. (1999): The Effects of Dietary Patterns on Quality of Life. In: Journal of the Academy of Nutrition and Dietetics, Vol. 99, No. 8, p. S84 - S89.

Rader, T., Mann, M., Stansfield, C., Cooper, C. and Sampson, M. (2014): Methods for documenting systematic review searches: a discussion of common issues. In: Research Synthesis Methods, Vol. 5, No. 2, p. 98-115.

Rahmann, G., Reza Ardakani, M., Bàrberi, P., Boehm, H., Canali, S., Chander, M., … Zanoli, R. (2017). Organic Agriculture 3.0 is innovation with research. In: Organic Agriculture, Vol. 7, No. 3, p. 169–197.

Ruano, C., Henriquez, P., Bes-Rastrollo, M., Ruiz-Canela, M., del Burgo, C. L. and Sánchez-Villegas, A. (2011): Dietary fat intake and quality of life: The SUN project. In: Nutrition Journal, Vol. 10, No. 121, p. 1-8.

Schalock, R. L. (2004): The concept of quality of life: what we know and do not know. In: Journal of Intellectual Disability Research, Vol. 48, No. 3, p. 203–216.

Schuenemann, H. J., Sperati, F., Barba, M., Santesso, N., Melegari, C., Akl, E. A., Muti, P. (2010): An instrument to assess quality of life in relation to nutrition: item generation, item reduction and initial validation. In: Health and Quality of Life Outcomes, Vol. 8, No. 26, p. 1-13.

Silva, I. L., Pais-Ribeiro, J. and Cardoso, H. (2008): Quality of Life and General Health Perception in Women with Obesity: Do Eating Patterns Make a Difference? In: Applied Research in Quality of Life, Vol. 3, No. 2, p. 127–136.

Södertälje Municipality (2018): GROWING TOGETHER creating a sustainable future through food - SÖDERTÄLJE AGRI-URBAN INTEGRATED ACTION PLAN. Available online: https://www.sodertalje.se/contentassets/293474ae3da945609726e44c65e7f364/20180406_sodertalje-handlingsplan-web.pdf, checked on: 10.01.2019

Song, H. J., Park, S. and Kwon, J.-W. (2018): Quality of life of middle-aged adults in single households in South Korea. In: Quality of Life Research, Vol. 27, No. 8, p. 2117–2125.

Stiglitz, J. E., Sen, A. and Fitoussi, J. (2009): Report by the Commission on the Measurement of Economic Performance and Social Progress. Paris: Commission on the Measurement of Economic Performance and Social Progress.

Uhlmann, K., Lin, B. B. and Ross, H. (2018): Who Cares? The Importance of Emotional Connections with Nature to Ensure Food

Security and Wellbeing in Cities. In: Sustainability, Vol. 10, No. 6, p. 1-16.

United Nations. (2015): Transforming our world: The 2030 Agenda for Sustainable Development. Available online: https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf, checked on: 15.04.2019

Wanden-Berghe, C., Sanz-Valero, J., Escriba-Agueir, V., Castello-Botia, I., Guardiola-Wanden-Berghe, R. and Cyted, R. M. (2009): Evaluation of quality of life related to nutritional status. In: British Journal of Nutrition, Vol. 101, No. 7, p. 950–960.

Westhoek, H., Ingram, J., Van Berkum, S., Özay, L., Hajer, M. (2016): Food Systems and Natural Resources. Nairobi: United Nations Environment Programme.

WHOQOL Group. (1993): Study protocol for the World Health Organization project to develop a Quality of Life-assessment instrument (WHOQOL). In: Quality of Life Research, Vol. 2, No. 2, p. 153–159.

World Health Organization. (2004): World Health Organization Quality of Life (WHOQOL) – BREF. Available online: https://www.who.int/substance_abuse/research_tools/en/english_whoqol.pdf, checked on: 20.03.2019

Yamaguchi, A. (2015): Influences of Quality of Life on Health and Well-Being. In: Social Indicators Research, Vol. 123, No. 1, p. 77–102.

Zaragoza-Martí, A., Ferrer-Cascales, R., Hurtado-Sánchez, J. A., Laguna-Pérez, A. and Cabañero-Martínez, M. J. (2018): Relationship Between Adherence to the Mediterranean Diet and Health-Related Quality of Life and Life Satisfaction Among Older Adults. In: The Journal of Nutrition, Health & Aging, Vol. 22, No. 1, p. 89–96.

Zarnowiecki, D., Cho, J., Wilson, A., Bogomolova, S., Villani, A., Itsiopoulos, C., Parletta, N. (2016): A 6-month randomised controlled trial investigating effects of Mediterranean-style diet and fish oil supplementation on dietary behaviour change, mental and cardiometabolic health and health-related quality of life in adults with depression (HELFIMED): Study protocol. In: BMC Nutrition, Vol. 2, No. 52, p 1-10.

Appendixes

Appendix 1.0: Questionnaire draft (used for pre-test)

***Dear participant**, thank you very much for taking part in this survey!*
I am Tjasa Rednak, a student of MSc International Food Business and Consumer Studies in Germany and I am writing my master thesis about the concept of quality of life and its application and evaluation in food systems.
*All your answers are completely **anonymous** and will be treated **confidential**.*

Firstly, I want to know how you feel about your quality of life. Please read each question, assess your feelings and mark the box that gives the best answer for you.

	Very poor	Poor	Neither poor nor good	Good	Very good
1. How would you rate your quality of life?					

If you chose answers Poor or Very poor, can you please write here, what is the cause of it in your opinion:_____
_____

How satisfied are you with...	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2. ... your health?					
3. ... your sleep?					
4. ... your energy levels?					
5. ... yourself?					
6. ... your community?					
7. ... your work?					
8. ... your living conditions?					

	Not at all	A little	A moderate amount	Very much	Extremely
9. How much do you enjoy life?					
10. To what extent do you feel your life to be meaningful?					
11. How safe do you feel in your daily life?					
12. How healthy is your physical environment?					

In the second part of this questionnaire, I would like to ask you some questions regarding sustainable food and your position in the sustainable food system.

13. Do you currently work in the food sector? ◯ Yes ◯ No **(if No, continue with question 21)**

14. What is your position in the food system?
◯ Farmer or farmworker
◯ Manufacturer
◯ Supplier
◯ Retailer
◯ Researcher
◯ Other: _____

15. Is your job in the food sector your primary source of income? ◯ Yes ◯ No

16. Do you have enough money to meet your needs? ◯ Yes ◯ Mostly ◯ No

17. Are you satisfied with working conditions at your job? ◯ Yes ◯ Mostly ◯ No

18. Do you feel long-term stability in your personal career? ◯ Yes ◯ Mostly ◯ No

19. How often do you have an opportunity for further trainings/education?

◯ Never
◯ Rarely
◯ Occasionally
◯ Frequently
◯ Very frequently

20. Do you have any bonus system for you/your families? ◯ Yes ◯ No

21. Did you see/use any advertising/promotion for sustainable food products on the following channels in the last weeks? (Please select all that apply.)

◯ Print ads (direct mailing, flyers)
◯ Newspapers or magazines
◯ Radio
◯ Television
◯ Social media (e.g. Facebook, Youtube, Instagram, Twitter)
◯ Other websites

	Not at all	A little	Moderate amount	Very much	Extremely
22. How important is sustainable food to you?					
23. How accessible are sustainable food options to you?					
24. How affordable are sustainable food options to you?					
25. How available is information regarding sustainable food to you?					
26. How safe, do you feel, is sustainable food?					
27. How is the overall quality of sustainable food in your opinion?					
28. How familiar are you with other actors of the food system?					

Lastly, I would like to ask you to answer few general questions about yourself. As already mentioned, all your answers are completely anonymous.

29. What is your gender? ◯ Male ◯ Female ◯ Other

30. How old are you? ◯ 18-34 ◯ 35-50 ◯ 51-64 ◯ 65+ years

31. What is the highest level of education that you have completed?

◯ Primary school
◯ High school
◯ Undergraduate
◯ Postgraduate
◯ Other: _____

32. Are you in a relationship?

◯ Yes, I am married
◯ Yes, I have a partner
◯ No, I don't have a partner

33. Do you have children? ◯ Yes ◯ No

If you have any additional comments, please note them here: _____
_____
_____

Thank you very much for your time!

Appendix 2.1: Questionnaire (English version)

***Dear participant**, thank you very much for taking part in this survey!*
I am Tjasa Rednak, a student of MSc International Food Business and Consumer Studies in Germany and I am writing my master thesis about the concept of quality of life and its application and evaluation in food systems. My aim is to find out the importance of individuals' quality of life when evaluating food systems. Food system includes all food-related activities (from production to consumption), all the actors involved and different inputs needed and outputs created at each step.
*All your answers are completely **anonymous** and will be treated **confidential**.*

Firstly, I want to know how you feel about your quality of life. Please read each question, assess your feelings and mark the box that gives the best answer for you.

	Very poor	Poor	Neither poor nor good	Good	Very good
1. How would you rate your quality of life?					

If you chose answers Poor or Very poor, can you please write here, what is the cause of it in your opinion:_____

_____

How satisfied are you with...	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2. ... your health?					
3. ... your sleep?					
4. ... your energy levels?					
5. ... yourself?					
6. ... your community?					
7. ... your work?					
8. ... your living conditions?					

	Not at all	A little	A moderate amount	Very much	Extremely
9. How much do you enjoy life?					
10. To what extent do you feel your life to be meaningful?					
11. How safe do you feel in your daily life?					
12. How healthy is your living environment?					

In the second part of this questionnaire, I would like to ask you some questions regarding organic food and your position in the local organic food system.

13. Do you currently work in the food sector? ◯ Yes ◯ No **(if No, continue with question 21)**

14. What is your position in the food system?
◯ Farmer or farmworker
◯ Manufacturer
◯ Supplier
◯ Retailer
◯ Researcher
◯ Other: _____

15. Is your job in the food sector your primary source of income? ◯ Yes ◯ No

16. Do you have enough money to meet your needs? ◯ Yes ◯ Mostly ◯ No

17. Are you satisfied with working conditions at your job? ◯ Yes ◯ Mostly ◯ No

18. Do you feel long-term stability in your personal career? ◯ Yes ◯ Mostly ◯ No

19. How often do you have an opportunity for further trainings/education?

◯ Never
◯ Rarely
◯ Occasionally
◯ Frequently
◯ Very frequently

20. Do you have any bonus system for you/your families or other advantages related to your work or to living in this area (e.g. subsidy, wage benefits, access to free or subsidized food, accommodation etc.)? ◯ Yes ◯ No

If yes, please describe what kind of bonus: _____

_____

21. Did you see/use any advertising/promotion for organic food products on the following channels in the last weeks? (Please select all that apply.)

◯ Print ads (direct mailing, flyers)
◯ Newspapers or magazines
◯ Radio
◯ Television
◯ Social media (e.g. Facebook, Youtube, Instagram, Twitter)
◯ Other websites
◯ None of the above

	Not at all	A little	Moderate amount	Very much	Extremely
22. How important is organic food to you?					
23. How accessible are organic food options to you?					
24. How affordable are organic food options to you?					
25. How available is information regarding organic food to you?					
26. How safe, do you feel, is organic food?					
27. How is the overall quality of organic food in your opinion?					
28. How familiar are you with other actors of the food system?					

Lastly, I would like to ask you to answer few general questions about yourself. As already mentioned, all your answers are completely anonymous.

29. What is your gender? ◯ Male ◯ Female ◯ Other

30. How old are you? ◯ 18-34 ◯ 35-50 ◯ 51-64 ◯ 65+ years

31. What is the highest level of education that you have completed?

◯ Primary school
◯ High school
◯ Undergraduate
◯ Postgraduate
◯ Other: _____

32. Are you in a relationship?

◯ Yes, I am married
◯ Yes, I have a partner
◯ No, I don't have a partner

33. Do you have children? ◯ Yes ◯ No

If you have any additional comments, please note them here: _____

_____

_____

_____**Thank you very much for your time!**

Appendix 2.2: Questionnaire (Swedish version)

***Hej**, tack för att du deltar i den här studien!*
Jag heter Tjasa Rednak och studerar International Food Business and Consumer Studies i Tyskland. Den här enkäten är en del av min masteruppsats och handlar om begreppet livskvalitet och hur det kan användas och utvärderas i samband med livsmedelssystem. I begreppet livsmedelssystem inkluderas alla livsmedelsrelaterade aktiviteter från produktion till konsumtion – alla människor, alla produktionsmedel och allt som produceras, både varor och olika sidoeffekter som miljöpåverkan. Den här studien vänder sig till er som konsumerar och/eller producerar ekologisk mat i Södertälje kommun.
*Alla dina svar är helt **anonyma** och kommer behandlas **konfidentiellt**.*

Först vill jag veta hur du känner kring din livskvalitet. Vänligen läs varje fråga, känn efter och kryssa i den ruta som bäst motsvarar ditt svar.

	Mycket dålig	Dålig	Varken dålig eller bra	Bra	Mycket bra
1. Hur skulle du värdera din livskvalitet?					

Om du valde Dålig eller Mycket dålig, vänligen skriv varför här: _____

Hur nöjd är du med...	Mycket missnöjd	Missnöjd	Varken nöjd eller missnöjd	Nöjd	Mycket nöjd
2. ... din hälsa?					
3. ... din sömn?					
4. ... din energinivå?					
5. ... dig själv?					
6. ... ditt lokalsamhälle?					
7. ... ditt arbete?					
8. ... dina livsvillkor? (inkluderar t ex boende, utbildning, balansen mellan familj och arbete, fritid)					

	Inte alls	Lite	Måttligt	Mycket	Väldigt mycket
9. I hur stor utsträckning njuter du av livet?					
10. I vilken utsträckning känns ditt liv meningsfullt?					
11. Hur trygg känner du dig vanligtvis?					
12. Hur hälsosam tycker du att din livsmiljö är?					

I den andra delen av enkäten vill jag be dig svara på några frågor om ekologisk mat och din roll i det lokala ekologiska livsmedelssystemet.

13. Arbetar du för närvarande inom livsmedelssektorn? ◯ Ja ◯ Nej **(om Nej, hoppa till fråga 21)**

14. Vad har du för roll i livsmedelssystemet?
◯ Lantbrukare, trädgårdsmästare eller liknande
◯ Förädlare
◯ Leverantör
◯ Handel
◯ Forskare
◯ Annat: _____

15. Kommer dina huvudsakliga inkomster från ditt jobb i livsmedelssektorn? ◯ Ja ◯ Nej

16. Har du tillräckligt med pengar för dina behov? ◯ Ja ◯ För det mesta ◯ Nej

17. Är du nöjd med arbetsvillkoren på ditt jobb? ◯ Ja ◯ Mestadels ◯ Nej

18. Upplever du en långsiktig stabilitet inom ditt yrke? ◯ Ja ◯ Mestadels ◯ Nej

19. Hur ofta har du möjlighet till fortbildning?

◯ Aldrig
◯ Sällan
◯ Ibland
◯ Ofta
◯ Mycket ofta

20. Har du någon ekonomisk fördel kopplade till att arbeta och/eller leva i det här området? (t ex subvention, bonus, löneförmån, tillgång till gratis eller subventionerad mat, boende, etc)

◯ Ja ◯ Nej

Om ja, beskriv vilken typ av fördel:_____

21. Har du sett eller använt någon form av reklam för ekologiska livsmedelsprodukter i någon av följande kanaler under de senaste veckorna? (Mer än ett val kan kryssas för)

◯ Tryckta reklamblad (direktreklam eller andra reklamblad)
◯ Tidningar eller tidskrifter
◯ Radio
◯ TV
◯ Sociala medier (t ex Facebook, Youtube, Instagram, Twitter)
◯ Andra webbsidor
◯ Inget av ovanstående

	Inte alls	Lite	Måttligt	Mycket	Väldigt mycket
22. Hur viktig är ekologisk mat för dig?					
23. Hur lätt/svårt är det för dig att få tag i ekologisk mat?					
24. Har du råd att köpa den ekologiska mat du vill?					
25. Har du tillgång till information om ekologisk mat?					
26. Tycker du ekologisk mat känns säker?					
27. Vad tycker du generellt om kvaliteten på ekologisk mat?					
28. Känner du andra aktörer inom livsmedelssystemet?					

Till sist vill jag be dig svara på några generella frågor om dig själv. Som sagt, alla svar är anonyma.

29. Ditt kön ◯ Man ◯ Kvinna ◯ Annat

30. Din ålder ◯ 18-34 ◯ 35-50 ◯ 51-64 ◯ 65+

31. Vilken är din högsta avslutade utbildning?

◯ Grundskola
◯ Gymnasium
◯ Kandidat /Master
◯ Doktor
◯ Annat: _____

32. Lever du i en relation?

◯ Ja, jag är gift
◯ Ja, jag har en partner
◯ Nej, jag har ingen partner

33. Har du barn? ◯ Ja ◯ Nej

Om du har några fler kommentarer, vänligen skriv dem här:

_____
_____
_____
_____ **Tack för att du tog dig tid att svara!**

Appendix 3.0: Correlation between QOL dimensions and demographic data (gender, age, education)

(Source: own data)

			29. What is your gender?	30. How old are you?	31. What is the highest level of education that you have completed?
Spearman's rho	PHYSICAL_DIMENSION	Correlation Coefficient	.064	-.118	.092
		Sig. (2-tailed)	.483	.195	.313
		N	122	122	122
	PSHYCHOLOGICAL_DIMENSION	Correlation Coefficient	-.067	.054	.156
		Sig. (2-tailed)	.460	.555	.087
		N	122	122	122
	SOCIAL_DIMENSION	Correlation Coefficient	.048	-.053	-.057
		Sig. (2-tailed)	.599	.565	.531
		N	122	122	122
	ENVIRONMENTAL_DIMENSION	Correlation Coefficient	-.026	.003	.014
		Sig. (2-tailed)	.780	.971	.881
		N	122	122	122

Appendix 4.0: Correlation between QOL and demographic data (gender, age, education) (Source: own data)

How satisfied are you with…			2. … your health?	3. … your sleep?	4. … your energy levels?	5. … your self?	6. … your community?	7. … your work?	8. … your living conditions?	9. How much do you enjoy life?	10. To what extent do you feel your life to be meaningful?	11. How safe do you feel in your daily life?	12. How healthy is your living environment?
Spearman's rho	29. What is your gender?	Correlation Coefficient	-.040	.032	-.112	-.089	.084	.018	-.029	-.092	-.014	-.061	.017
		Sig. (2-tailed)	.662	.033	.221	.330	.358	.846	.751	.313	.882	.507	.853
		N	122	122	122	122	122	122	122	122	122	122	122
	30. How old are you?	Correlation Coefficient	-.068	-.112	-.030	-.025	-.126	.056	-.001	.033	.117	-.021	.002
		Sig. (2-tailed)	.460	.219	.741	.783	.167	.542	.989	.720	.198	.816	.979
		N	122	122	122	122	122	122	122	122	122	122	122
	31. What is the highest level of education that you have completed?	Correlation Coefficient	.083	.096	.029	.100	-.176	.080	-.065	.125	,186*	.064	-.061
		Sig. (2-tailed)	.366	.292	.753	.272	.052	.381	.476	.171	.040	.484	.507
		N	122	122	122	122	122	122	122	122	122	122	122

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Series / Reihe **Sustainable Food Systems - Nachhaltige Lebensmittel-und Ernährungssysteme**

Edited by / Herausgegeben vom

Department of Organic Food Quality and Food Culture, University of Kassel

http://www.upress.uni-kassel.de/

Vol. 1 Organic Food System Cases Around The World – A Documentation Project, Kassel 2021, 381 S., ISBN 978-3-7376-0938-8
Jamil, Tooba / Stefanovic, Lilliana / Kretschmer, Sebastian (eds.)

Vol. 2 Basis for monitoring the performance of Sustainable Development Goals in Organic Food Systems, Kassel 2021, 365 S., ISBN 978-3-7376-0981-4
Stefanovic, Lilliana:

Vol. 3 Quality of Life: Application of the Concept and the Questionnaire for Evaluations in Food Systems, Kassel 2022, 115 S., ISBN 978-3-7376-1010-0
Rednak, Tjaša

Vol. 4 A Simulation Game on Sustainable Diets and their Contribution to the Sustainable Development Goals (SDGs) – its Effect on Learning Outcomes to Support Education for Sustainable Development (ESD), Kassel 2022, 117 S., ISBN 978-3-7376-1011-7
Meuser, Maike

The concept of quality of life has a wide range of applications in different scientific fields and realms in life. To evaluate the link between the quality of life and food systems, a survey was conducted with the actors of an organic municipality in Södertälje, Sweden. This municipality is a pioneer in sustainable food production and consumption, research, planning and innovation. The survey results provided for a better understanding of how individuals affect and are affected by food systems. Organic consumers perceive local and organic food as healthier and more environmentally friendly than its conventional counterpart, and this perception typically impacts individuals' perception of well-being.

Quality of life is an important factor to consider when evaluating food systems, since it provides a person-centred approach in food systems' evaluations. A questionnaire has proven to be an effective instrument to measure individuals' quality of life and can be applied to food system evaluations, to facilitate the transformation process towards sustainable food systems. Food system transformation is essential to provide a high quality of life for individuals and society.

ISBN 978-3-7376-1010-0