How to self-manage dietary practices with type 2 diabetes

Using the asset-approach to identify factors that influence dietary self-management.

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Preface

During my thesis journey there were many people I would like to thank for playing an important role in contributing to my process.

My supervisor Laura Bouwman assisted me to look critically at my work and allowed me to make my own mistakes. This type of support improved the end result of this research. Her way of doing research in everyday life context was inspiring to me. For this reason, but also for her flexibility, that made it possible to take up other interesting challenges and opportunities while engaged in this thesis, I would like to thank Laura tremendously.
My gratitude goes also to Kristel Polhuis for thinking along and giving valuable input.

Of course I also would like to thank all the participants. It was an eye-opening experience to look into the lives of these people. They all had their own stories and their own ways of living their lives while coping with diabetes. I am grateful that they were willing to share these with me. It was wonderful that they were so open hearted to me.

Finally, I would like to thank my parents for their support, suggestions and wise words.

It has been a long road, but I am proud to present you my “master piece”.
Enjoy reading it!

Abstract

Purpose

The aim of this research was to gain a better understanding in how Dutch adults with type 2 diabetes self-manage their dietary practices in everyday life, and to investigate the factors that enable them to eat healthily.

Methods

The asset approach was used to identify factors that influence self-management in everyday life context. A literature review and semi structured interviews were conducted in order to gain insight. In total 11 Dutch adults, diagnosed with T2DM were interviewed. Factors regarding self-management of dietary practices with T2DM were identified, in both literature review and in interviews. The literature review and interviews were conducted to identify assets. However, barriers were also discovered in both the literature and interviews.

Results

Several assets and barriers were found that could be divided into internal and external. The main health asset at individual level was high self-efficacy. The main external assets were having social support and support by health professionals.

Barriers at the internal level included negative attitude towards T2DM, comorbidity, lack of knowledge and confidence about diet and disease, lack of awareness and understanding of dietary routines and meal planning and decisions. The external barriers were the lack of social support, maintaining a healthy diet during social events, unclear and limited communication about food with health professionals and use of diabetes medication.

General factors that influenced the everyday life context were someone's sex, age and profession.

Conclusion

Self-management of dietary practices is difficult for Dutch T2DM adults. Having many assets or no barriers cannot predict if someone is able to self-manage dietary practices. Identifying the factors that influence self-management gives understanding in what is necessary for these adults. Knowing these factors gives insight in what contributes to the empowerment of self-management of dietary practices.

Patients' attitude, social support, acceptance of disease and the use of medication are the most important factors that influence self-management of dietary practices. However, it remains important to take into account the everyday life context of T2DM adults when looking at factors that influence self-management of dietary practices.

Table of Contents

1. Introduction

Currently more than 382 million people worldwide are diagnosed with diabetes (Ligthart et al., 2015). In the Netherlands this concerns currently for 1,2 million citizens (Diabetes Fonds, 2016[b]), which is approximately 7% of the entire population. Around 90%-95% of all diabetes cases are diagnosed with Type 2 Diabetes Mellitus (T2DM). Today, diabetes is the most common chronic disease in the Netherlands (Ligthart et al., 2015). The number of people with diabetes increased rapidly worldwide during the past few decades and it has nearly doubled since 1980 (Brandle et al., 2003; World Health Organization (WHO), 2016). It is expected that the prevalence and incidence of diabetes will continue to increase in the upcoming years (Nederlandse Diabetes Federatie (NDF), 2013). According to the research of Ligthart et al. (2015), of all the non-diabetic individuals aged 45 and older, one in three will develop diabetes. A large number of people are not diagnosed with T2DM while having it. So the numbers mentioned above probably end up being even higher.

The increase of diabetes is due to the demographic trends: population growth and aging population (Wild, Roglic, Green, Sicree, & King, 2004), the epidemiological trends: changes in diet and lifestyle (Schulze & Hu, 2005) and increase in detection by General Practitioners (GP's) (Baan & Poos, 2013).

Diagnoses

T2DM develops when the body becomes resistant to insulin or when the pancreas stops producing the required amount of insulin (Schulze & Hu, 2005). The exact (combination of) factors contributing to developing diabetes are not yet unravelled, but there is strong evidence that genetic and environmental factors contribute to the development of T2DM (Mayo Clinic, 2016). T2DM is heritable and being overweight and/or having an unhealthy lifestyle increases the risk of developing the disease (Diabetesvereniging Nederland (DVN), 2011).

It is difficult to diagnose someone with T2DM because it develops slowly and the symptoms appear gradually. Symptoms can go unnoticed or may be attributed to something else. Symptoms can range from being thirsty, extensive urinating, being tired, problems with the eyes, recurrent infections of e.g. the urinary systems, wounds that heal badly, shortness of breath or pain in the legs when walking (Diabetes Fonds, 2016[c]). The diagnosis of T2DM is based on an elevated blood- or glucose levels and in the Netherlands it is diagnosed by a GP (NDF, 2015). When treating T2DM it is important to regulate the glucose levels in the blood as good as possible. Maintaining good glucose levels limits short-term health problems such as being thirsty and extensive urinating.

After being diagnosed with T2DM, patients get a general check-up every three months and an annual comprehensive check-up, which limits the development of complications (Diabetes Fonds, 2016[a]).

Consequences of diabetes

In the long-term, diabetes increases the risk of cardio-vascular diseases (CHD), stroke (DVN, 2011; Ligthart et al., 2015) and complications such as blindness, kidney failure and (non-traumatic) amputations (Schulze & Hu, 2005). T2DM is often unnoticed and therefore untreated (Diabetes Fonds, 2016[b]). This increases the risks of heart-, blood vessel- and eye damage.

Diabetes has not only health consequences, but entails also a heavy economic burden (Jönsson, 2002; Schulze & Hu, 2005). The lifetime risk of diabetes and the use of insulin are a heavy burden for the health costs e.g. pharmacological treatment in the European population (Ligthart et al., 2015). When including the labour loss caused by diabetes, the total cost of this disease is estimated at around €6 billion a year in the Netherlands alone (Boorsma, 2013).

1.1 Problem statement

In many theories and clinical practices for improving health, an increasing emphasis is put on the individual's responsibility. An adult diagnosed with T2DM, is expected to make many choices in his/her life to manage the disease. This requires dedication since managing the disease is on a lifelong time span (Jarvis, Skinner, Carey, & Davies, 2010).

Actions required

In order to address the (health) problems of T2DM adults, it might be valuable to improve the self-management of dietary practices of this group. This means behaviour that prevents diseases and promotes health (Henry & Schor, 2015). Self-management can, to a large extent, improve the quality of life on the one hand, and decrease the economic costs on the other hand.

Many distinctions are made when researching the important components of self-managing diabetes. But the importance a healthy lifestyle, medication use and knowledge about the disease are often mentioned (DVN, 2011; Lorig & Hofman, 2003; Schulman-Green et al., 2012).

Shift in responsibility

Patients are more often seen as active decision-makers for their own health. They are responsible for managing their own health and their self-management is a fundamental component in diabetes care (Jallinoja, Pajari, & Absetz, 2008; van der Heide et al., 2014). For adults with T2DM, managing their disease means to continuously pay attention to their disease, since only they can be held responsible for the day-to-day care over the length of their disease (Lorig & Holman, 2003). This makes diabetes one of the most psychologically burdensome chronic diseases (NDF, 2015).

Facilitating patients in self-managing their (chronic) disease helps preventing or limiting the negative (health) outcomes. It is about making diabetes care more bearable in everyday life, which helps to increase the patients' quality of life (NDF, 2015). Self-management of diabetes can positively affect the health outcomes of patients.

Sandén-Eriksson (2000) state that in order to self-manage, patients need to accept the fact that they have diabetes. Self-managing capacities are also required to cope with the disease. For patients to be able to self-manage their health, several factors are important in their life in order to be able to do so (Wilkinson, Whitehead, & Ritchie, 2014), these factors are defined as health assets.

The importance of being able to self-manage a chronic disease is frequently found in literature, some studies even explored attitudes and beliefs towards self-management among T2DM patients. However, there are limited insights in factors that influence if T2DM adults are able to self-manage dietary practices (Booth, Lowis, Dean, Hunter, & McKinley, 2013). Especially with the focus of T2DM in everyday life context, which is of importance for the perceptions of T2DM adults and their potential behaviour change towards self-management of dietary practices (Furler et al., 2008).

This research focusses on how T2DM adults manage their disease in everyday life, and what factors are of importance for them in order to (not) succeed. Knowledge of these factors helps to support patients with their self-management. It could contribute to creating more effective self-management interventions that focus on the role of internal, social and physical environment to be able to eat health for Dutch adults dealing with T2DM.

1.2 Research aim and research question

The rising problem of T2DM demands more information on how T2DM adults self-manage diet in order to cope with the disease. The overall aim of this research is to gain insight into how Dutch T2DM adults self-manage their dietary practices in everyday life in order to manage their disease. Therefore the following research question is formulated:

"Which factors influence self-management of dietary practices among Dutch adults diagnosed with T2DM in everyday life?"

The sub-questions that help to answer the research questions are:

1. What factors influence self-management of dietary practices for adults diagnosed with T2DM?
2. How do Dutch adults diagnosed with T2DM deal with a healthy diet in their everyday life?

2. Theoretical background

Theory in this study is used as a tool to interpret and analyse the to be collected data. It helps to have a specific focus on the literature and provide guidelines for the interviews. It is essential to define the important concepts in this thesis. First self-management will be defined, then the asset approach and lastly the everyday life context.

2.1 Self-management

Self-management of patients is considered to be a fundamental requirement for chronic disease management (Holman & Lorig, 2004). It is the ability of an individual (with the help of his/her family, the community or the health professional) to manage the symptoms, treatment and lifestyle changes that are related to living with a chronic condition and the physical and psychosocial consequences of the health condition (Omisakin & Ncama, 2011; Richard & Shea, 2011; Wilkinson & Whitehead, 2009).

Self-management of T2DM consist of self-management of daily activities which are related to daily diabetes activities (e.g. administering insulin), off-course self-management (managing health problems that might be caused by diabetes), and preventive self-management (the behaviour to prevent health problems related to diabetes) (Moser, van der Bruggen, Widdershoven & Spreeuwenberg, 2008).

A patient needs to accept his/her diabetes and have self-managing capacities in order to cope with the disease (Sandén-Eriksson, 2000). Assets can improve self-management capacities, whereas barriers to self-management can make it more difficult to develop and sustain self-management. The more assets a patient has, the better he/she will be at self-managing his/her health (Lorig & Holman, 2003; Sandén-Eriksson, 2000).

2.2 Asset approach

The asset approach is based on the theory of salutogenesis (Morgan & Ziglio, 2007), it focusses on investigating important factors of individuals that contribute to promoting health rather than the prevention of disease (Morgan, Ziglio, & Davies, 2010). These factors are called “health assets”, and can be described as any factor (or resource) that enhances the ability of individuals and/or groups to maintain and sustain health and well-being and to help to reduce health inequities (Morgan et al., 2010; Rotegård, Moore, Fagermoen, & Ruland, 2010).

The asset approach targets the search for creating, enhancing and improving physical, mental and social health (Swan, 2016). It focuses on the success of the individual and searches for the positive patterns of health rather than focusing on the failure and negative outcomes of health (being ill) (Morgan & Ziglio, 2007; Morgan et al., 2010). So the focus is on "what creates health?" rather than the question that is often asked in healthcare: "what causes the disease?".

Health is placed in an "ease – disease continuum" and depending on where a person is in this health continuum, provides information about one's health process. Coping with stressors that occur during everyday life and self-managing them, helps to move towards the ease end of the continuum (the healthy end) (Lindström & Eriksson, 2005; Swan, 2016; Wiesmann & Hannich, 2010).

The asset approach is in this research applied by seeking health assets in a person's everyday life. It focuses (in the literature review and interviews) on what contributes to being able to self-manage. Explicitly on the things that are going well in the everyday life of Dutch T2DM adults. This research identifies protective and health promoting factors that act together to support a person to move towards the health side of the health continuum.

A division can be made between internal and external health assets. Internal health assets are individual factors like personality traits that positively influence the ability to self-manage a healthy diet. Internal health assets can be found in everyone, but the amount a particular person possesses varies (Rotegård et al., 2010; Rotegård, & Ruland, 2010).
External assets mainly concern the positive influence someone could derive from his or her social and cultural context. External assets mainly cover family, neighbourhood and/or physical environment.
The relationship between internal and external health assets goes in both directions, both assets help to further maintain, improve or develop each other (Rotegård et al., 2010).
Besides a division in internal and external health assets, it is possible to make an even further distinction in health assets. The internal assets influence the external assets and vice versa. Table 1, next page, shows the different levels of health assets.

Table 1: Levels of health assets

Level of health assets	*Examples of capacities*
Individual level (internal assets)	social skills, resistance skills, commitments to learning, positive values, self-esteem and sense of purpose
Community level (external assets)	family and friendship, supportive networks, intergenerational solidarity, community cohesion, affinity groups, religious tolerance and harmony
Institutional level (external assets)	environmental resources necessary for promoting physical, mental and social health, such as health professionals

Source: (Morgan et al., 2010)

A part of the asset approach is mapping these health assets. This mapping gives insight to the assets of an entire community and highlights the interconnections among them (McLean, 2011; Morgan et al., 2010). It helps to identify the best "asset indicators" that promote healthy conditions (Morgan & Ziglio, 2010). Asset mapping is in this research used as a method to help participants to structure their thoughts on assets that have or have had an impact on their disease. It forces participants to evaluate what are assets (what is going well) and what are barriers (what is difficult) in order to successfully self-manage dietary practices. It was also till a great extend the leading framework in the literature review (chapter 5).

2.3 Everyday life context

Many patients state to know the most important aspects of their disease and what behaviour is required to prevent the disease and/or to decrease the negative effects of the diagnoses (Laranjo et al., 2015). However, the most difficult part is knowing how to organize this in their everyday life and patients often have problems in achieving this (van Woerkum & Bouwman, 2012). This is the reason why people often fail to self-manage, which is also largely due to a lack of capacities or external barriers that patients are exposed to (Jallinoja et al., 2008).

The asset approach views health as a process that is shaped through the interaction between people and their everyday context (Swan, 2016). A great number of health assets that are required for creating health conditions, lies within the social context of people's lives. In order to understand these assets, it is necessary to understand the specific contexts in which such potential assets operate (Morgan et al., 2010). To change a person's behaviour, his/her social system, lifestyle, dominant values and existing norms concerning his/her behaviour also need to change in line with them (van Woerkum & Bouwman, 2012). Because unhealthy

behaviour is embedded in routines and in social systems of a person. In other words, adults with T2DM need to continuously make decisions about food (e.g. meal planning, food shopping, etc.) and they need to make these decisions in their everyday life. The context in which a patient lives in is therefore relevant for their decision making, because patients are their own actors in promoting or hindering healthy dietary practice (Bouwman, 2009).

This research uses this perspective to gain insight into how T2DM adults make sense of their diabetes in their everyday life. It takes into account that choices for a healthy diet are shaped by someone's history, cultural, social and economic circumstances (Weaver, Lemonde, Payman, & Goodman, 2014).

3. Conceptual model

The conceptual model (figure 1), integrates the important concepts of the theory that are discussed in the theoretical background (chapter 2). It shows how the different concepts are related to each other.

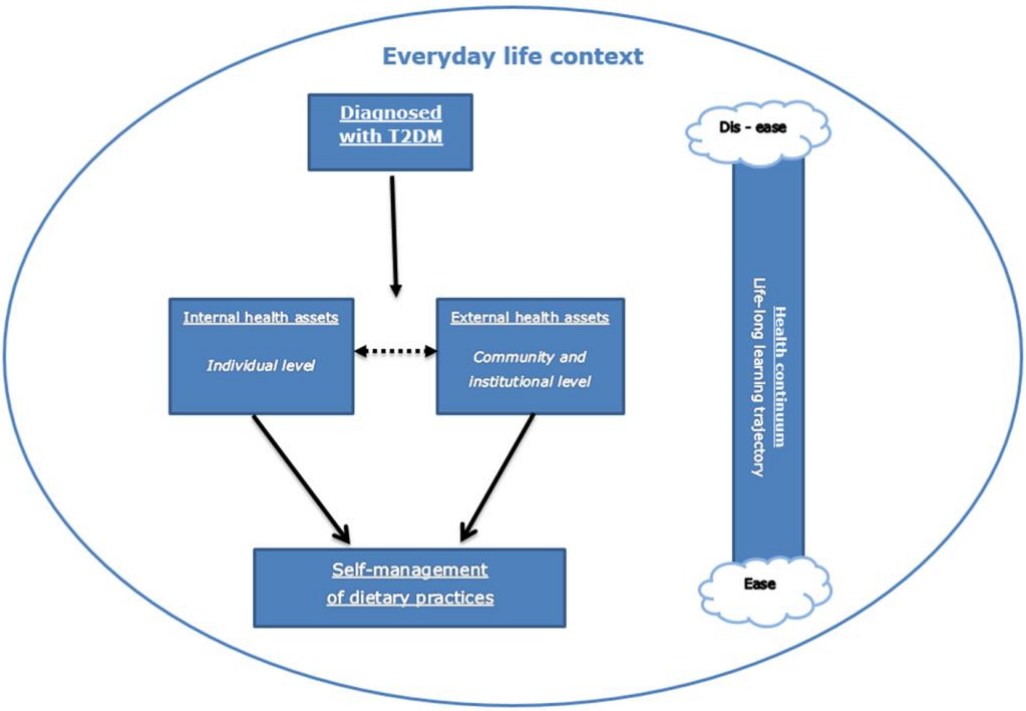

Figure 1: Conceptual model

The model consists of three important parts:

1. The left side of the model shows the steps that need to be made to come from being "diagnosed with T2DM" to "self-management of dietary practice" taking into account the influence of internal and external health assets.
2. The rights side of the model displays the health continuum. What happens on the left side of the model has influence on where a person is on the health continuum. There is no concept of "health" in the model, since health is not static.
3. The circle around the concepts shows the "everyday life context". This is important because the context a patient lives in is relevant for the decisions he/she makes and therefore for his/her self-management of dietary practices.

4. Methodology literature review

A systematic literature review is conducted in order to discover what is previously researched about this topic. The aim of the literature review is to answer the following sub-question:

What factors influence self-management of dietary practices for adults diagnosed with T2DM?

4.1 Literature search strategy

To select relevant evidence about self-management of dietary practices with T2DM, the below mentioned synonyms of the important concepts are used, see table 2.

Table 2: Synonyms of the concepts

Concepts	**Synonyms**
T2DM	Diabetes type 2, type 2 diabetes, adult-onset diabetes, non-insulin-dependent diabetes, NIDDM, Diabetes Mellitus type 2
Factors	Facilitators, elements, items, determinants, assets, asset approach, asset model, asset based approach, asset mapping
Dietary practices	Eating practices, eating habits, eating choices, food habits, food choices, food practices, dietary choices, dietary habits, nutritional practices, behaviour diet
Self-management	Self-care, self-regulating capacity, self-efficacy, self-empowerment, self-leadership, self-control

The used databases are Scopus and PubMed. The reasons for these databases are that Scopus is a general database and PubMed is a medical database. The combination of these two databases generates a good overview of available articles about this topic. The exact search terms that are used to answer the sub questions can be found in box 1.

Box 1: Search terms literature review

Scopus:
TITLE-ABS-KEY (("type 2 diabetes" OR "diabetes mellitus" OR "non-insulin dependent diabetes mellitus" OR "adult onset diabetes" OR "T2DM")) AND TITLE-ABS-KEY (("self-management" OR "management" OR " self-care" OR "self-regulating capacity" OR "self-efficacy" OR "self-empowerment" OR "self-leadership" OR " self-control")) AND TITLE-ABS-KEY ((" eating practice*" OR "behaviour diet" OR " eating habit*" OR " eating choice*" OR " food habit*" OR " food choice*" OR " food practice*" OR " dietary choice*" OR " dietary habit*" OR "nutritional practice*")) AND TITLE-ABS-KEY ((factor* OR facilitator* OR element* OR item* OR determinant* OR asset* OR "asset approach" OR "asset model" OR "asset based approach" OR "asset mapping")))

Pubmed:
("type 2 diabetes"[All Fields] OR "diabetes mellitus"[All Fields] OR "non-insulin dependent diabetes mellitus"[All Fields] OR "adult onset diabetes"[All Fields] OR "T2DM"[All Fields]) AND ("self-management"[All Fields] OR "management"[All Fields] OR "self-care"[All Fields] OR "self-efficacy"[All Fields] OR "self-empowerment"[All Fields] OR "self-leadership"[All Fields] OR "self-control"[All Fields]) AND ("eating practice"[All Fields] OR "eating habit"[All Fields] OR "food habit"[All Fields] OR "food choice"[All Fields] OR "food practice"[All Fields] OR "dietary choice"[All Fields] OR "dietary habit"[All Fields] OR "food"[All Fields] OR "eating"[All Fields] OR "eating pattern"[All Fields] OR "food consumption"[All Fields] OR ("diet"[MeSH Terms] OR "diet"[All Fields])) AND (factor[All Fields] OR facilitator[All Fields] OR ("elements"[All Fields] OR "element"[All Fields]) OR item[All Fields] OR items[All Fields] OR determinant[All Fields] OR determinants[All Fields] OR asset[All Fields] OR "asset approach"[All Fields] OR "asset model"[All Fields] OR "asset based approach"[All Fields] OR "asset mapping"[All Fields])

4.2 Inclusion- and exclusion criteria

To be able to select relevant data for this literature review, several inclusion and exclusion criteria are applied, see table 3. These criteria are used to select publications that give adequate answers to the research question.

Table 3: Used inclusion- and exclusion criteria

Inclusion criteria	Exclusion criteria	Explanation
English literature	Literature in a different language	English is chosen in order to have a broader scope of relevant literature, other languages are excluded because of language barrier.
Literature publication date since 2000	Literature with publication date before 2000	Literature older than 2000 is outdated.
Literature about T2DM	Literature about T1DM	T1DM and T2DM differ on many points. Focusing on T1DM is therefore not representative for this research.
Literature about dietary practices in T2DM	Literature about lifestyle excluding dietary practices in T2DM	Lifestyle consists of many aspects and focusing on all these aspects is too broad in scope for this research. In this research the focus is only on dietary practices.
Research conducted in western developed countries	Research conducted in non-western developed countries	In order to make the findings generalizable for the situation in the Netherlands.
Literature that mentions positive or negative factors on self-management of dietary practices	Literature that does not mention positive or negative factors on self-management of dietary practices.	In order to gain insight into what factors influence the self-management of dietary practices.

4.3 Quality assessment

In order to guarantee the quality of the included studies, quality assessment is applied for both qualitative and quantitative studies.

Qualitative criteria

To guarantee the quality of the qualitative studies used in this research, the quality assessment criteria of Boulton, Fitzpatrick, and Swinburn (1996) were applied. These criteria focus on the following: introduction, sample and generalizability, methods of data collection and data analysis. The quality assessment consists of sixteen quality criteria, see appendix 1. The studies used were screened with these criteria. If a study scores lower than seven (low quality), than it is excluded from this research. When a study scores between seven and twelve (medium quality) or higher than twelve (high quality) then the quality is guaranteed and the article is used in this research. The quality assessment scores of all the included qualitative studies are visible in appendix 3.

Quantitative criteria

To guarantee the quality of the quantitative studies used in this research, the Effective Public Health Practice Project (EPHPP) quality assessment criteria were applied. These criteria focus on the following: selection bias, study design, confounders, blinding, data collection method and withdrawals and dropouts (Thomas, Ciliska, Dobbins, & Micucci, 2004), see appendix 2. Studies could score: weak (two or more weak ratings), moderate (one weak rating) or strong (no weak ratings). Studies that scored moderate or strong were included in this study. The quality assessment scores of all the included quantitative studies are visible in appendix 3.

4.4 Flowchart

The literature review was conducted on 26-10-2016. In figure 2, a flowchart of the literature is shown.

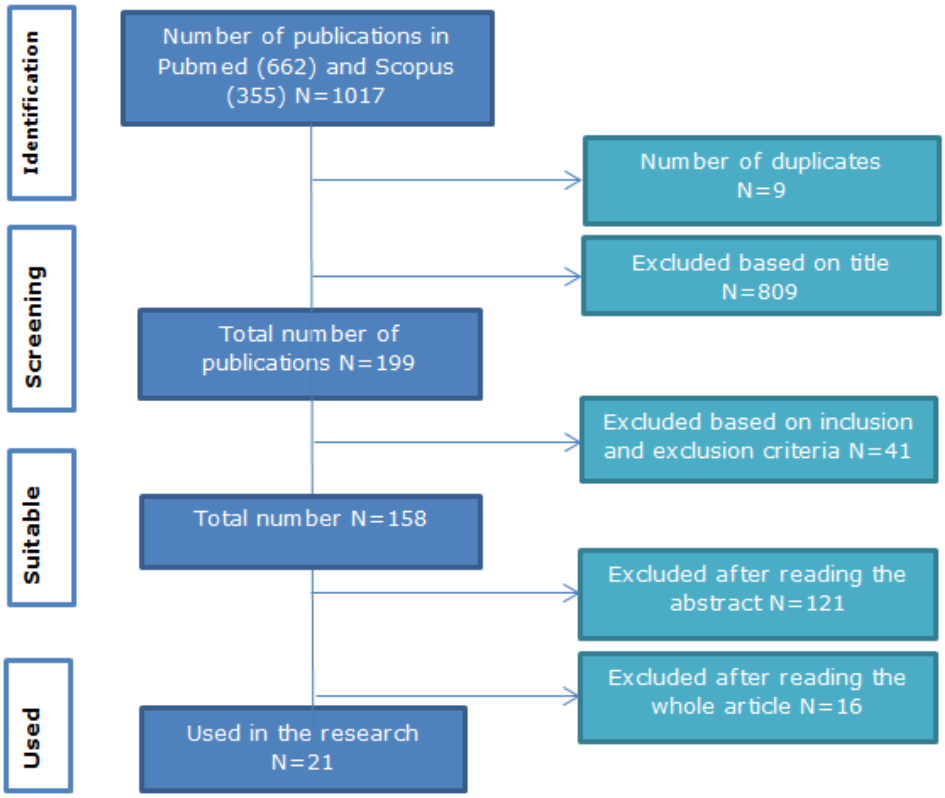

Figure 2: Flowchart literature review

5. Literature results

The literature review did not only discover various health assets, but revealed also several barriers that influence the self-management of dietary practices of T2DM in everyday life. These assets and barriers are divided in internal and external and are further divided in individual, community and institutional assets and barriers. In table 4, on the next page, a summary is shown of all the health assets and barriers for self-management of dietary practices. Most of these factors are conducted from cross-sectional studies (see appendix 4 and 5). Other types of studies (randomized controlled trial, longitudinal descriptive survey, pilot studies and literature review) are highlighted in table 4, as well as the number of studies that mentioned a particular factor and studies that scored ≥ 15 or strong on the quality assessment.

All of these assets and barriers will be further discussed in the various paragraphs of this chapter.

Table 4: Summery of the literature results

General factors - Someone's sex (■□/■□) - Someone's age (■/■)		
	Assets	**Barriers**
Internal	**Individual** <u>Personality traits</u> - High self- efficacy (■■□□□□□/■■□□□□□) / *Longitudinal, pilot* - Having problem-solving skills (□□/□□) / *RCT, longitudinal* - Feeling empowered (□/□) <u>Personal assets</u> - Perception of being overweight (■/□)	**Individual** <u>Personality traits</u> - Negative attitude towards T2DM (□□□/□□□) / *RCT, longitudinal,* - Low behaviour control (■□/□□) / *Longitudinal* - Experiencing stress (□□/□□) / *RCT* - Low blood glucose levels (□/□) <u>Personal barriers</u> - Comorbidity (■/■) - Low level of education (□/□) - Lack of knowledge and confidence about diet and disease (□□□□□/■□□□□) - Lack of cultural resources (□/□) <u>Dietary management barriers</u> - Lack of awareness and understanding of dietary routines (□□□□/■□□□) - Focus on short-term consequences of diet (□/□) - Meal planning and decisions (□□□/□□□) - Motivation to follow a healthy diet (□□/□□) - Food quantity and quality (□□/□□)

	Assets	Barriers
External	**Community** Social support - Having social support (■■□□/□□□□) - Subjective norm (□/□) / *Longitudinal* - Source of information (■□/■□)	**Community** Lack of social support - Lack of social support (□□□□/□□□□) - Maintaining a healthy diet during social events/sociability (□□/□□) / *RCT* - Search for support (□/□)
	Institutional Role of the health professionals - Providing emotional support(□□/■□) - Source of information (■/■) Educational diabetes interventions - Provides nutritional knowledge (□/□) - Empower patients via ICT (□/□) / *Pilot* - Use of interactive communication (□/□) - Peer-led diabetes self-management support program (□/□) / *Pilot* Neighbourhood characteristics - Access to healthy foods (■/□)	**Institutional** Role of the health professionals - Unclear and limited communication about food (■■□/■■□) - Not discussing nutrition (□/□) - Not suitable information about nutrition (□□/■□) - Not prioritizing dietary habits (■/■) - Not aware of self-management goals (■/■) Diabetes education - Resources unclear (□/□) / *Review* - Not suitable (fragmented, outdated etc.) (□/□) Access to services and food - Limitations in community based services (□/□) - Limited food environment (□/□) - Unhealthy food is convenient (□/□)

Legend

Type of studies

- *RCT*: Randomized control study
- *Longitudinal:* Longitudinal descriptive survey
- *Pilot:* Pilot study
- *Review*: Literature review

Frequency of studies

The number of ■□□/… indicates the frequency of how many studies mentioned this particular factor (in this case three)
■/… indicates the number of participants (for qualitative ≥50 and quantitative ≥ 500)
□/… indicates the number of participants (for qualitative <50 and quantitative < 500)

Quality assessment

…/■ = ≥ 15 points or strong scores in quality assessment (see appendix 3)
…/□ = < 15 point or moderate scores in quality assessment (see appendix 3)

5.1 General factors

The literature review showed two general factors, these are someone's sex and their age. Someone's sex is a factor that accounts for self-management behaviour for persons diagnosed with T2DM according to two cross-sectional studies (Schoenberg, Traywick, Jacobs-Lawson, & Kart, 2008; Tol et al., 2012). Sex is significantly related to general and specific diet (Tol et al., 2012). Men exercise more, whereas women visited their dietician more often (Schoenberg et al., 2008).

The research of Schoenberg et al. (2008) showed that age influences self-management behaviour, because older participants are more likely to follow a recommended diet for diabetes. However, this is inconclusive evidence. The cross-sectional study of Gorter et al. (2010) showed that age was not a determinant for preference in applying certain self-management behaviour (physical exercise, taking medication or keeping a healthy diet).

5.2 Internal assets

The literature revealed several internal assets, these are assets from within an individual.

Individual assets

The assets on individual level can be divided in personality traits (a particular characteristic of feature of an individual's personality) and personal assets (sets of values, beliefs, and preferences about oneself in relation to the environment).

Personality traits

Three personality traits are mentioned as an asset that determines if someone is able to perform and maintain healthy dietary behaviour. These are high self-efficacy, having problem-solving skills and feeling empowered.

Self-efficacy is in several cross-sectional studies (Hernandez-Tejada et al., 2012; Schoenberg et al., 2008; Tol et al., 2012; Walker, Gebregziabher, Martin-Harris, & Egede, 2015; Wardian & Sun, 2014) and in a descriptive longitudinal survey (Gatt & Sammut, 2008) mentioned as an predominant asset for self-management of dietary practices. It is the confidence patients have in their ability to competently perform health behaviour (Wardian & Sun, 2014). Higher self-efficacy is significantly related to better self-management of people with T2DM, changes in dietary self-care can be predicted by changes in self-efficacy (Schoenberg et al., 2008). It is a relevant factor to improve outcomes in diabetes management (Hernandez-Tejada et al., 2012). Having high self-efficacy may be associated with less diabetes related distress and gives an increase in confidence to perform self-management tasks that are necessary in order to improve health outcomes (Wardian & Sun, 2014). In previous self-management studies is found that goal setting helps to develop a sense of self-efficacy in individuals (Comellas et al., 2010).

Having problem-solving skills influence the ability to self-manage in a positive way. These skills were compromise, rely on established routines, use of willpower, positive statements, not follow through with regimen activity and substitute alternative activities (Glasgow, Toobert, Barrera, & Strycker, 2004). A person who is able to solve problems, reports fewer problems associated with his/her disease. These persons are more likely to experience success in applying healthy behaviour into their lifestyles such as healthy eating habits according to RCT from Glasgow et al., 2004). One of the most applied problem-solving skills for T2DM is the "compromise strategy", this means acceptance of lower health standards than is desirable for someone' health (Glasgow et al., 2014). Thus, T2DM patients have the feeling that eating a bit healthier is better than not doing anything at all. This results in not fully committing to a

healthy diet. Patients use this strategy when dealing with food, relying on established routines (Gatt & Sammut, 2008). This is also demonstrated in the research of Glasgow et al. (2004) where compromise is the most frequently applied strategy in diabetes problem-solving skill. The level of patient empowerment is another personality trait for diabetes self-management, this refers to the ability to make decisions about healthy eating. This is created by having the knowledge that is required for making informed decisions and the resources to implement these decisions (Hernandez-Tejada et al., 2012). Empowerment focuses on fostering an active role for the patient, helping them to work in partnership with care professionals while taking responsibility for needed care. It involves efforts aimed at improving self-esteem, autonomy and facilitating personal responsibility, which together combine to improve self-management according to the cross-sectional study of Hernandez-Tejada et al. (2012). Emphasis on empowerment is important to improve the outcome of diabetes self-management.

Personal assets

The research of Gorter et al. (2010) revealed that patients who consider themselves overweight preferred the self-care activity that focussed on keeping a healthy diet. Their hypotheses is that the overweight participants know that eating healthy is important for them and therefore prefer focusing on keeping a healthy diet, but this hypotheses is not confirmed in the research.

5.3 External assets

External assets that influence self-management can be found at community level (people's own network) and at institutional level (environment resources).

Community assets

The assets at community level focus on the social aspects and therefore consist of social support.

Having social support

Having social support is according to four cross-sectional studies an important factor for self-management of T2DM (Laranjo et al., 2015; Smalls, Gregory, Zoller, & Egede, 2014; Walker et al., 2015; Weaver et al., 2014). Self-management behaviour of T2DM patients is significantly associated with social support (Smalls et al., 2014). Positive social support from family members in meal preparation and monitoring the amount of consumption promotes stable diabetes management (Weaver et al., 2014). These social networks of support are mainly constituted of a few family members or friends (Weaver et al., 2014).

Friends and family are important for the subjective norm, which influences the intention to carry out self-management behaviour in patients with T2DM (Gatt & Sammut, 2008).
Patients regard the sources of information from family members, friends or acquaintance with diabetes as facilitating. Participants who have a friend or family member that helped them with some aspect of self-management considered them as facilitators (Laranjo et al., 2015). Friends and family are for a small number of patients (3%), their primary source for T2DM information (Schoenberg et al., 2008).

Institutional assets

The institutional level focuses on environmental assets. There are three main fields: the role of professionals, educational interventions and the neighbourhood characteristics. Below these external assets are more closely examined.

Role of the health professionals

Health professionals provided emotional support according to two cross-sectional studies (Graffigna, Barello, Libreri, & Bosio, 2014; Murrock, Taylor, & Marino, 2013). Health professionals provide support that was lacking from family and friends for African-American women with T2DM in the research of Murrock et al. (2013). "The doctor-patient relationship appears to be a key in offering the patients the emotional support they need." (Graffigna et al. 2014).
The majority of the participants in the research of Schoenberg et al. (2008) mentioned that their GP or other health professionals were their primary source for their T2DM information.

Educational diabetes interventions

Several education interventions were mentioned as an asset for self-management. Educational interventions have shown to be effective for improving dietary behaviour (Weaver et al., 2014). This is because of the given nutritional knowledge in these educational interventions, which is directly convertible to dietary choices.
Patients are being empowered in ICT education interventions (i.e. use of computers and the internet). The cyclical process of the ICT intervention included medical consultations, self-management goal settings, self-management actions, feedback collection and at the end an evaluation and self-management readjustments. After using the ICT self-management tools, participants paid more attention to their lunch breaks and the regular meal intake. Some even mentioned that they had made adjustments to their dietary habits according to the pilot study of Lamprinos et al. (2016).

The increasing use of interactive communication techniques and technologies (e.g. television, computers and emails) to distribute information and expanding the reach of the audience helps to tackle healthy literacy and encourage self-efficacy (Murrock et al., 2013).

Including peer-led diabetes self-management support as a part of educational interventions help participants to improve their healthy diet (Comellas et al., 2010). During this intervention diabetes self-management was discussed which consisted of: healthy eating, physical activity, emotions control, other diseases and their effect on T2DM control. The intervention focussed on fighting negative thoughts, goals setting, problem-solving and effective ways to communicate with the GP. These peer group meetings showed significant improvements in several physical and nutrition activities as well as an improvement in well-being of the participants. The participants of the pilot evaluation study mentioned that they valued the social support they received through the program, but that it was too brief (Comellas et al., 2010).

Neighbourhood characteristics

The research of Smalls et al. (2014) showed that access to healthy food is significantly associated with diabetes self-management. Other neighbourhood characteristics such as enjoyable scenery, attractiveness of the area, interesting things to do in the neighbourhood and presence of violence in the neighbourhood did not have statistically significant association with T2DM in self-management behaviours (Smalls et al., 2014).

5.4 Internal barriers

The barriers that are found in literature will be reflected upon. These barriers can also be divided in internal and external, further grouping took also place here with a division in individual, community and institutional level.

Individual barriers

The barriers on individual level are barriers within an individual, these can be divided in personality traits, personal barriers and dietary management.

Personality traits

Four personality traits are identified as barriers that determine if someone is able to perform healthy dietary behaviour. These are negative attitude towards T2DM, low behaviour control, experiencing stress, low blood glucose levels.

The attitude someone has towards healthy dietary practices is a barrier according to a descriptive longitudinal survey (Gatt & Summet, 2008), a RCT (Clark & Hampson, 2001) and a cross-sectional study (Simon-Tuval, Shmueli, & Harman-Boehm, 2016). Gatt and Summet (2008) mentioned that someone's attitude towards healthy dietary practices is the main predictor of healthy eating intention. Thus, is someone's opinion on carrying out certain behaviour positive or negative. Patients perceived their T2DM only as slightly serious and were only slightly worried about its threat to their future health (Clark & Hampson, 2001). Impaired disease perception, which is the attitude that having a certain disease is not that bad, was mentioned as a barrier for preforming healthy dietary behaviour (Clark & Hampson, 2001). However, there is inconclusive evidence about the significance between someone's attitude and actual self-management behaviour (Clark & Hampson, 2001).

It also appears that low scores in control over behaviour had a relation to dietary adherence (Gatt & Sammut, 2008). According to this study, it may indicate that T2DM patients are more likely to self-manage when behaviour requires little effort and lifestyle change. Physical activity and dietary adherence are the least performed behaviours (Gatt & Sammut, 2008). According to Gorter et al. (2010) medication taking and healthy eating are the most burdensome for people with eating disinhibition; these are people that tend to lose temporary control of eating behaviour because of emotional arousal.

Experiencing stress was found to be a barrier according to the cross-sectional study of Breland, McAndrew, Gross, Leventhal, and Horowitz (2013) and the RCT of Glasgow et al. (2004). Stress influences problem-solving capacity, which is an important factor for being able to self-manage (Glasgow et al., 2004). According to Black and Latino adults from East

Harlem, New York, stress is also perceived as a barrier to adopting and sustaining healthy dietary practices (Breland et al., 2013). Stress is in this particular study in a large part due to discrimination (because of the stigma of T2DM and the management the disease) and poverty (the development of stressful life events from finance and the healthcare system) (Breland et al., 2013).

Having low blood glucose levels, according to the participants of Breland et al. (2013), undermined the acceptance of healthy eating and nutritional knowledge. A person with low blood glucose levels tends to be more focused on increasing their glucose levels instead of healthy dietary practices.

Personal barriers

Someone's health status is an important factor that accounts for self-management. For example, having a depression or other comorbidities makes it more difficult to perform self-management behaviour (Schoenberg et al., 2008).

The research of Tol et al. (2012) shows that someone's level of education has a significant association with someone's preference to follow a specific diet or exercise. A quarter of the participants with a low education level (completion of primary school or less) find keeping a healthy diet the most burdensome of the self-care activities.

The lack of knowledge about T2DM is another barrier according to five cross-sectional studies (Breland et al., 2013; Graffigna et al., 2014; Laranjo et al., 2015; Weaver et al., 2014; Wellard, Rennie, & King, 2008). Lack of health literacy is a major barrier for diabetes self-management (Simon-Tuval et al., 2016). More information about T2DM is needed according to the participants of the research of Laranjo et al. (2015). There are several myths, doubts and knowledge gaps about specific types of foods in terms of knowledge and information (Laranjo et al., 2015). Participants believed that certain foods were 'forbidden' for people with T2DM. As a response to the lack of knowledge participants also had a lack of confidence. The article of Weaver et al. (2014) showed that patients with low economic, social and cultural resources are less confident about their diet and have less knowledge about their disease. This group has limited access to information resources (e.g. people and computer know-how) that can provide information or help to answer questions about dietary management. They are also less confident about their ability to access information when required (Weaver et al., 2014).

The cultural resources influence one's ability to perform healthy dietary habits. These cultural resources are the values someone has towards taste or their commitment towards health. These are the results of early socializations and health related experiences, it influences the

choices people make in their diet and can complicate sticking to healthy dietary habits (Weaver et al., 2014).

Dietary management barriers

When looking further into possible or potential barriers for the internal assets, it appeared that at the individual level not only the personality traits or personal factors had a limiting effect but also the dietary management itself caused difficulties.

The majority of the patients in the research of Laranjo et al. (2015) and Gorter et al. (2010) refer to diet as the most problematic self-management behaviour. For this, a range of reasons were mentioned. A reason was the lack of awareness about dietary routines (Wellard et al., 2008) and lack of understanding why adjusting dietary practices is necessary (Graffigna et al., 2014; Breland et al., 2013; Laranjo et al., 2015). T2DM patients mentioned having doubts and difficulties in understanding why they need to change their diet (Graffigna et al., 2014; Breland et al., 2013), the advice that was given to them was too abstract. "Participants understood that diet affects T2DM, but many were unconvinced that dietary changes lower blood glucose levels." (Breland et al., 2013, p. 2896). Patients were often capable of identifying the general aspects of a healthy diet, but were confused and had a lack of understanding on how to adjust this to everyday life. They were unable to put abstract information into everyday practice (Laranjo et al., 2015).

Adults with T2DM, in low-income and minority neighbourhoods, mostly see the short-term negative consequences of dietary practices. These short-term consequences outweighed the benefits of healthy dietary practices for these people (Breland et al., 2013). Patients pursued their own common sense in order to guide their diabetes management and improve their health, because healthy dietary practices in order to control T2DM does not provide immediate tangible results (Breland et al., 2013).

African-American women with T2DM mentioned having frequent difficulties or struggles in managing their disease (Murrock et al., 2013). How to be flexible with meal planning and how to organize their diet with including their favourite foods such as pasta and still manage their disease, is something they did not understand (Murrock et al., 2013). As it requires planning and decisions making several times each day to determine what, when and how much to eat (Murrock et al., 2013). T2DM adults find it difficult to schedule a healthy diet (Laranjo et al., 2015). When dealing with food the most difficult thing for patients to do is to substitute and replace high fat foods and avoiding frying foods (Clark & Hampson, 2001). Patients mentioned to have difficulties in having motivation to follow a healthy diet and

dealing with cravings, since they craved particular food (Laranjo et al., 2015). A decrease of motivation results in nonadherence to self-management behaviours such as sticking to a healthy diet (Simon-Tuval et al., 2016).

The food quality and quantity makes it also difficult to eat healthy. For the quality of diet, patients mentioned the cost of healthy foods and need to learn how to cook healthy recipes. Poverty and underemployment contributes to food insecurity, risk of hunger and a chance of under and overconsumption of unhealthy foods such as calorically dense, low in fibre and high glycaemic foods (Weaver et al., 2014). Quantity is about the daily food intake and the portion size, which participants found difficult to manage (Laranjo et al., 2015).

5.5 External barriers

When looking to external barriers that have influence on self-management, the same division for assets can be made for barriers: barriers at community level and barriers at institutional level.

Community barriers

Barriers from community level are identified, these are grouped under lack of social support.

Lack of social support

T2DM adults experience a lack of support from family members. The preferences of children or spouses influence women's dietary management and needs that are necessary for managing their T2DM (Weaver et al., 2014). Corresponding with other's eating behaviours can undermine their dietary practices. The women in the research of Laranjo et al. (2015) mentioned that it is hard to cook for others in the household, since others in the household are often not motivated to eat the meals that diabetic females prepared for themselves. Patients describe that they sometimes even feel as if their family members are sabotaging their effort to healthy dietary practices (Laranjo et al., 2015). Research showed that patients with limited resources (this can be economical, social and cultural), lack social ties that support a healthy diet. These social ties sometimes even undermine a healthy diet (Weaver et al., 2014). Social engagement beyond the household is limited in patients with restricted resources, such social engagement is important to get motivation for healthy living (Weaver et al., 2014). Patients feel often judged about their food choices by their family and friend who seemed unaware of their diabetes and dietary needs (Wellard et al., 2008). The family of low SES patients will often not change their unhealthy dietary practices and therefore the participant self will not change it either (Breland et al., 2013).

Maintaining a healthy diet during social events and during the holidays is difficult for T2DM patients (Glasgow et al., 2004; Laranjo et al., 2015). Food is a part of sociability and eating away from home, special occasions and others make it difficult to maintain a healthy diet (Glasgow et al., 2004).

African American women with T2DM mentioned that they have a strong desire for some type of support (Murrock et al., 2013). These women do not feel as if they have a clear understanding of how to manage their disease and where to go for support when they need it (Murrock et al., 2013).

Institutional barriers

At the institutional level a number of barriers are revealed, which had to do with the role of the professional, diabetes education and the access to services and food. These three types of barriers will be further discussed.

Role of the health professionals

Communication between health professionals and patients is not always clear or sufficient according to two cross-sectional studies (Aikens, Bingham, & Piette, 2005; Breland et al., 2013). The Black and Latino adults of the research of Breland et al. (2013) mentioned that the communication with health professionals about dietary practices was limited. Participant expressed "a lack of clear bidirectional communication with practitioners" (Breland et al., 2013, p. 2899). According to the research of Aikens et al. (2005), is there need for more than clear communication in order to establish and maintain effective patters of diabetes self-management. More strategies are required, such as to focus on patient's empowerment, ongoing reinforcement of effective self-management, collaborative problem-solving and tailored education.

It was also found that patients with lower SES frequently encounter poorer quality and/or insufficient patient counselling on self-management, lack of specialist care, compromising self-management (Schoenberg et al., 2008).

Breland et al. (2013) found that patients are generally not aware that nutrition can be discussed with a GP. General information about dietary practices is needed according to patients, but they did not believe that GP's would discuss diet in consultation hours. However, when diet was discussed by GP's, patients felt often that it was too abstract, impractical and unrelated to their views on food (Breland et al., 2013; Graffigna et al., 2014). The patients feel as if they were treated generalized and find it difficult to integrate the given advice into their everyday life. The doctor-patient relationship appears challenging

sometimes, patients tend to avoid contact with the diabetes nurse and do not go to clinical check-up and doctors' appointments (Graffigna et al., 2014).

It was found that health professional focus on prescribing medication and recommended other self-management components that do not include dietary habits (Schoenberg et al., 2008). Therefore participants may prioritize medications over dietary regimens. Many health professionals are not aware of their patients' self-management priorities and goals. Even supportive health professionals often fail to communicate about self-management effectively with their diabetes patients (Aikens et al., 2005).

Diabetes education

It is unclear what resources needs to be addressed in diabetes self-managing education programmes to ensure successful delivery according to the literature review of (Jacob & Serrano-Gil, 2010).

There is more need for individualized guidance in diabetes self-management (Murrock et al., 2013). Participants in the cross-sectional study of Murrock et al. (2013) diagnosed with T2DM tended to view their own dietary needs as being separate from their family needs. This required additional meal planning, preparation and financial resources. These participants expressed their frustration with the diabetes education they received, the education was not individualized to meet their specific needs to help them manage their disease (Murrock et al., 2013). Patients felt that the education was hurried, fragmented and not applicable to their life. The mentioned that they had misinformation or gaps in their diabetes education, their knowledge was outdated.

Access to services and food

The limitation in quality and access of community based service was mentioned in the cross-sectional study of Wellard et al. (2008). The podiatry and dietetic services are costly and the attitude of the professionals discourages them to use these services regular. The dietetic services did not add new knowledge according to the participants and young inexperienced dieticians contributed to the participants' frustration (Wellard et al., 2008).

The limited access to healthy foods environment is another barrier (Breland et al., 2013). This is a result of the cost, quality and availability of healthy foods in their environment and this influences their ability to maintain a healthy diet.

Unhealthy foods are more easy and convenient to consume in contrast with the healthy foods. Healthy foods have many barriers such as access, money limitation, transportation and time (Breland et al., 2013).

5.6 Summary of the literature

In summary, the literature showed general factors, individual, community and institutional assets and barriers.

Two general factors; someone's sex and age, influence self-management of dietary practices. High self-efficacy is the most important individual asset, but having problem-solving skills is also an important individual asset.

Having social support is seen as the most important community asset, however the source of information also contributes to social support.

Emotional support from the health professional is according to the literature the most important institutional asset.

The literature showed a lot of individual barriers, The most important barriers are a negative attitude towards T2DM, lack of knowledge and confidence of diet and disease, lack of awareness and understanding of dietary routines and difficulties in meal planning and decisions. However, low behaviour control, experiencing stress, motivation to follow a diet and food quantity and quality are also important.

Lack of social support and maintaining a healthy diet during social events are the biggest community barriers.

The most important institutional barriers are unclear and limited communication with health professionals and not having suitable information about nutrition.

6. Methodology interviews

In order to get a comprehensive insight in one's views, experiences and beliefs on factors that influence self-management of diabetes (Gill, Stewart, Treasure, & Chadwick, 2008), interviews were held from 15-12-2016 till 08-02-2017. These interviews were face-to-face, semi structured in-depth interviews, with the aim to find answers to the following sub-question:

How do Dutch adults diagnosed with T2DM deal with a healthy diet in their everyday life?

6.1 Selection criteria

The study population consisted of Dutch adults above the age of 45 that have been diagnosed by a GP with T2DM for at least one year. They were selected on specific criteria which are elaborated upon below:

- (native-born) Dutch population*:* This to ensure a more or less homogenous study population as diagnoses between different nationalities could possibly differ (Rutten et al., 2013).
- Adults ≥ 45 years: When reaching the age of 45 there is an increased chance of getting T2DM, this makes them fit the risk profile (Ligthart et al., 2015).
- Diagnosed with T2DM by a GP: the participant is diagnosed with T2DM by a GP.
- Diagnosed at least one year ago with T2DM: To get meaningful information it is important that the patient has some experience with coping and self-management of diabetes.
- Being able to buy, prepare and cook own food: This is a prerequisite when it comes to self-management.
- Live in regions that are near to Wageningen: participants need to live in areas that are near Wageningen (e.g. Bennekom, Renkum, Ede) to ensure that potentially there was the same access to facilities that could have been of influence on the self-management of T2DM.

The sampling strategy that was used was purposive sampling. Purposive sampling helped to find participants that had the above-mentioned characteristics.

6.2 Ethical approval

To ensure that no participants could run the risk of harm in this research, the research plan was approved by the Social Sciences Ethical Committee of Wageningen UR. The research met the criteria and therefore received ethical approval. Patients who participated in the research were informed about the purpose of the study. In order to respect the autonomy of the participants, they were informed that participation was voluntary and the informed consent was signed. The confidentiality and anonymity of the participants are ensured in this research. The participating institutions that helped with recruiting participants (Opella and hospital Gelderse Vallei) had their own ethical approval procedure in order to recruit their patients. This research met with their criteria and was therefore also ethically approved by Opella and hospital Gelderse Vallei.

6.3 Recruitment

Participants were recruited in collaboration with the assistance of the diabetes clinic at hospital Gelderse Vallei in Ede, GP's of the Gelderse Vallei and the care provider Opella. With the help of these organizations, it was possible to get in touch with Dutch adults that were diagnosed with T2DM. The diabetes clinic Gelderse Vallei and Opella asked their participants if they were interested in participating in this research. If so, their personal information was given to the researcher in order to contact them for further information. The GP's gave the potential participants the telephone number of the researcher, they needed to contact the researcher if they wanted to participate. During this cell phone contact the research was further explained and an introduction appointment was made with the participants.

6.4 Study population

A total of 11 adults (six female and five male), diagnosed with T2DM, participated in this study. Their age ranged between 45-85 years. The youngest participant was diagnosed at the age of 30, the oldest was at the age of 59. The shortest a participant was diagnosed with T2DM was nine years and the longest was 43 years.

All participants were able to select, buy and cook their own food.

The educational background ranged from elementary school (three participants), lower vocational education (VMBO) (two participants), Vocational Education (MBO) (five participants) and University of Professional Education (HBO) (one participant). Two participants were employed (truck driver and administrative assistant), the other nine participants were retired.

Nine participants lived with their partner and two lived alone. All participants had children, but only one participant had children living with them in the same house.
All participants were from the regions Wageningen, Renkum, Bennekom, Veenendaal and Ede.

6.5 Data collection methods

To investigate factors that influence self-management of Dutch adults diagnosed with T2DM, semi-structured interviews were conducted. To get the most useful information during the interviews prior steps were done, these are explained below.

Introductory meeting (appendix 10)

One week prior to the actual interviews, a short introductory meeting at the participants' house was held to explain the purpose of the research as well as the home assignment. This introductory meeting was also used to fill out a short general questionnaire (appendix 7). The short questionnaire was necessary in order to get background information of participants' lives and their disease. These introductory meetings were important in building a trustful relationship, aimed at making them feel more relaxed and safe. This contributed in letting the participants feel more secure to talk about their disease.

Home assignment (appendix 8)

During the introductory meeting, the home assignment was explained. Participants were asked to do the home assignment in order to prepare for the interview. The purpose of the home assignment was merely to raise the participants' awareness about their situation as well as on how they manage T2DM in their everyday life. They needed to monitor themselves concerning times when it was easy or difficult to manage their disease and write this down during the whole week. The explanation was given orally and was written out so that participants could reread it. They were asked if everything was clear and if they had any questions left. If questions should occur between the introductory meeting and the interview, participants were told to feel free to contact the researcher.

The interview (appendix 11)

A week after the introduction, the interviews took place. The interviews started after the participants agreed and signed the informed consent (appendix 9). The interviews took about 30 minutes and consisted of open-ended questions in which the home assignment acted as a memory aid. The questions of the interviews were based on the theoretical framework and the literature study and focussed around the internal and external health assets. In the interview

there was one main question: “How do you deal with dietary practices in your everyday life?”. This question was asked twice, one time with a specific focus on what is going well and the second time with a focus on what was perceived as difficult. The individual assets/barriers, community assets/barriers and institutional assets/barriers that were revealed in the literature gave further focus points for the interviews and helped with formulating follow-up question. Important with all the answers was to keep asking “why?”. This resulted in more complete answers providing more insight into the self-management of Dutch T2DM adults. All of the interviews were recorded and transcribed.

6.6 Data analysis

For analysing the qualitative data, thematic analysis was used. This method is common in analysing qualitative data, it is used to understand the story within the data (Skovdal & Cornish, 2017). It helps to identify passages of sentences that are linked by themes, and makes it possible to index the text into categories and therefore establish a framework of thematic ideas. It helps to view the text in a theoretical way rather than approaching it with a descriptive focus (Gibbs, 2007). The steps for analysing the data are described on the next page.

Step 1: get familiar

All data captured during the interviews were transcribed. These transcripts were read until the researcher got familiar with the content of the interviews (five times). During this process notes and thoughts on the data were written down and a summary of all the data was created.

Step 2: coding

A list of temporary codes was formed based on the main concepts of the conceptual framework and the literature study. A code “contains a label that summarizes a descriptive and primary theme relevant to portions of your data” (Skovdal & Cornish, 2017, p. 164). All the interviews were highlighted with every code having a different colour and structured in a table. Everything was reread and the meaning behind sentences was analysed. New codes were developed when the current codes did not sufficiently cover all the data. At this stage the transcripts were divided into the following codes: indifferent, adaption, positive information, negative information, confusion, self-management, social support, social barrier and external costs.

Step 3: finalizing codes and creating themes

Creating codes is a dynamic process and can easily change in the process. It is therefore important to scrutinize the codes and merge, split or re-name codes if necessary (Skovdal & Cornish, 2017). This was also the case in this analysis and therefore codes were splitted and renamed in order to be more specific or comprehensive. After finalizing the codes, it was time to explore how the codes related to each other and could create themes. Codes were connected in order to see the underlying themes. The codes were more specific which made it easier to connect them under an overarching theme. The codes were divided in the following themes: perception of diabetes, adjustments in daily life, information on diabetes, the social influence of diabetes, professional support and external resources.

Step 4: Discussing with other researchers

Discussing the themes with other researchers (supervisors) helped to reflect on the previous chosen themes and subthemes. It gave a clear overview if all data was covered by the chosen themes. The overlap within some themes was discovered and the following final themes were developed.

These consist of four main themes that further split up into several sub themes:

- Diabetes and the self: *trivializing the disease*, *need for autonomy* and *"the deviant"*
- Diabetes and food: *out of routine*, *compromise* and *product specification*
- Supportive relations: *family and friends* and *health professionals*
- Hindering relations: *family and friends*, *health professionals* and *peer support*

Step 5: Checking data and thematic network

At this point the applied codes were clear clustered and divided into themes. The written results were checked to see if all important data were placed under a theme and represented the opinions of the participants. This was an important part in order to check if the transcripts were well reflected on the created thematic network.

Step 6: Presenting the findings

Finally, the transcripts were checked once more in order to verify that what the participants told in the interviews was in line with what was presented in the themes. Important citations in the interviews were highlighted in order to give more depth to the data, these were included in the results. The results will presented and elaborated on in the conclusion and discussion.

7. Interviews results

The results were obtained via the home assignment and during the main interview. The home assignment will be discussed first, then the four main themes that the interviews revealed (see table 5).

The first main theme was "Diabetes and the self", this theme describes the attitude of the participants towards their disease. The subthemes *trivializing the disease* and *need for autonomy* described the attitude of almost all of the participants. The theme "*the deviant"*, describes one participant separately who was seen as a deviant.

The second main theme was "Diabetes and food". The two subthemes: *out of routine* and *compromise*, describes participants' attitude towards their disease, results in how they deal with eating. The third subtheme *product specification* is about additional product suggestions that help the participant eat healthier.

The third main theme was "Supportive relations", which consist of the subthemes *family and friends* and *health professionals*. It reflects on the different supportive relations that Dutch T2DM adults perceive from their social environment.

The last main theme was "Hindering relations*"*, which consist of the subthemes: *family and friends*, *health professionals* and *peer support*. It reflects on the hindering relation that Dutch T2DM adults perceive from these groups.

Table 5: Themes in the interviews

	1. Diabetes and the self			2. Diabetes and food			3. Supportive relations		4. Hindering relations		
Participants	*Trivializing the disease*	*Need for autonomy*	*"The deviant"*	*Out of routine*	*Compromise*	*Product specification*	*Family and friends*	*Healthcare professionals*	*Family and friends*	*Healthcare professionals*	*Peer support*
1	X				X	X	X	X	X	X	
2	X			X	X		X	X	X	X	
3			X		X			X	X	X	X
4	X	X		X				X		X	
5		X		X			X			X	
6	X	X		X	X	X	X	X	X	X	X
7	X	X		X	X		X	X			
8	X						X		X	X	X
9	X	X					X		X	X	
10	X			X	X	X	X	X	X	X	
11	X			X	X			X	X	X	X

7.1 Home assignment

The home assignment was given one week prior to the interviews, during the introductory meeting. None of the participants had any questions about the home assignment, all mentioned that the assignment was clear to them. Some stated during the introductory meeting that there was nothing to fill out, because they experienced no difficulties. The researcher responded that if this was the case the participants could only fill in the "what goes well" part of the home assignment. However, after returning for the interviews it became clear that participants had different approaches towards the home assignment (see appendix 12-18). Five participants did not fill in anything at all in the home assignment, it was left completely blank. For two of them it was unclear what was actually expected while the other three stated that everything was going great and it was not necessary to fill the assignment in (see appendix 12).

One participant filled in what she had been eating all the days and divided it into healthy and unhealthy food (see appendix 13).

Another participant drew up his own document in which he registered what went well and what was difficult for him (appendix 15), but left the home assignment empty. He stated at his own document that filling in the home assignment was something that was already difficult for him. The remaining participants filled the home assignment in as planned and intended (appendix 13, 15, 16, 17).

7.2 Diabetes and the self

The interviews shed light on the unconcerned attitudes that the participants had towards their diabetes. More than half of the participants mentioned that they were not that impressed or concerned after their diagnoses. This could be because they did not understand, or accept the seriousness of their disease. Difficulties with regards to accepting the disease could be the result of feeling frightened or ashamed of having diabetes.

Trivializing the disease

The unconcerned attitude is also reflected in their opinions on diet and their disease. Having T2DM should not ruin the pleasure of eating. For most people, it was more important that food was tasty, than healthy.

> *"I just eat what I like and I think that is important. If that means I die earlier, I am fine with that."*
> *(participant 5)*

In addition, several mentioned that they use insulin to compensate for bad diet choices, and that they feel they can eat whatever they want as long as they make sure to inject enough insulin. The medicine is for them a way to continue eating in an unhealthy manner. Furthermore, they seemed unmotivated to change their eating behaviours. Among others, they mentioned a lack of interest in dietary practices, and felt no need to change as a result of experienced limited burden of disease.

"Are there things that are difficult with healthy eating?
Oh I do not really think about it. We just eat what we like to eat, what we want to eat." (participant 4)

Need for autonomy

The unconcerned attitude resulted in a strong need for autonomy. Just under half of the participants mentioned that they do not want much input and interference from others regarding on how they deal with their disease. They do not appreciate spontaneous advice from family or friends, and do not appreciate it when someone meddled with their health and/or eating choices. They find themselves fully capable of making their own decisions on what to eat and what not. For example, some participants said that they do not appreciate it when someone bought special food for them on a birthday party.

"This one time we went shopping with someone from Opella. She told us that we could not buy half of what we wanted to. I mean we can decide that for ourselves, she doesn't need to do that for us. We immediately told her to leave." (participant 4)

"I find it to be annoying when other people interfere with my diet." (participant 6)

"The deviant"

One participant can be seen as a deviant from the unconcerned attitude. This participant had a pro-active attitude and incorporates serious lifestyle changes to improve her health and weight. She said that at first she did not understand how serious the disease was, but after some research she found the diagnosis hard to grasp. She decided to be strict with her diet and to stick with the dietary advice most of the time, but allows herself to be less strict during the weekends. The participant had been slim before, but gained a lot of weight after the diagnosed. She was therefore motivated to be stricter with her diet and decided to exercise more. The participant hired a personal trainer who also supports her in difficulties with dietary practices.

7.3 Food and diabetes

The unconcerned attitude towards their disease is reflected by the way participants handle their diets. All participants did their own grocery shopping, food preparations and cooking. They also chose their own meals and the snacks that they consumed.

Eating out of routine

Most of the participants perceive to not have specific difficulties with managing food practices when dealing with diabetes, and are satisfied with the way they eat. More than half of the participants mentioned that they buy foods out routine. This was also the case with cooking food, which was not perceived as difficult by any participant. Even though three participants mentioned having difficulties with verifying dishes.

Moreover, participants described that sticking to their diabetic food advice was an automatism, but sticking to their diets during holidays and weekends was more difficult. One participant explained that this was due to the lack of rhythm during weekend and holidays. Social gatherings such as parties also disturbed their routines.

> *"To come up with meals to eat is difficult, not the preparation. We eat everything so that is easy."*
> *(participant 2)*

Compromise

In addition, more than half of the participants mentioned that they compromise with their dietary practices. One participant saw the weekend as a treat for her strict dietary practices behaviour during the weekdays. Others took a smaller bit of the things they enjoy, instead of the whole portion, but continue eating the things they like or ate it only a couple of days in de week instead of every day. One participant mentioned that Friday was his "greasy food day", he would then eat whatever greasy food he wanted. Another one mentioned that he really enjoy his evening snacks and compensate for them by eating healthy during the day. Still having these moments of enjoying food in their lives is important for many participants. A few also mentioned they compromise their unhealthy dietary practices by using more insulin. Medication is for them a way to continue eating unhealthily.

> *"Actually, you can eat whatever you want, you just need more medicine."*
> *(participant 6)*

All of the participants mentioned that they made small adjustments to make their routine healthier. For example, leaving carbohydrate foods out of dishes, using an air fryer, cooking with healthy oils (e.g. olive oil) and not using sauce with their foods. Two participants mentioned that in the beginning they were stricter with what to eat than now. In the beginning a participant used a scale to measure his food, now medication is more important for him in order to regulate his sugar levels instead of food.

> *"We try to adjust the medication to what I eat." (participant 7)*

Product specification

Participants found it very difficult to think of external factors that would help them with eating healthier. They mentioned the high cost of products that are specifically developed for diabetes patients and the limited healthy food that is available as barriers.

> *"The flip side of the story is that the alternative is often three times as expensive. You also need to look at the household budget and see what is realistic." (participant 1)*

Also the information on the packaging of products was mentioned, the small letters on the packaging are difficult to read. It is also difficult to see how many carbs are inside the product for participants. This makes it more difficult for them to choose the right products. A participant wants a broader assortment of snacks and small meals that are suitable for people with diabetes. More options would, according to him, help to improve healthier eating.

> *"You need a magnifying glass to read it, so I think to myself: that is not meant for me." (participant 6)*

7.4 Supportive relations

Having support was important for the participants. They experienced support from their partner, family, friend and/or health professionals.

Family and friends

Over half of the participants said that they receive social support from their partner or family to engage in healthy dietary habits. Participants mentioned that their partners gave support with preparing, cooking and reminding to eat healthily. They also motivate them to eat healthier. One participant mentioned that his family also helps with being more conscious with his diet. He discovered that eating healthily was not only necessary for him, but also for his kids. This was his biggest stimulance.

Having other family members that are also diagnosed with T2DM was common for many participants. These family members also act as support networks because they understand the disease and this makes it easier to talk about it

> *"I now have a motivation, mainly because of my girlfriend and children. You become more conscious of what to eat." (participant 1)*

Two participants mentioned their friends as support. Both have friends that know a lot about diabetes because of their jobs. These friends provide information and the participants experience this as support.

Health professionals

Almost all participants mentioned that they experienced support from their health professional (dietician, GP, diabetes nurse and internist). A quarter of the participants mentioned that these health professional gave useful tips for their diabetes maintenance which they experienced as being supportive. The conversations about food and the advice from the professionals help to motivate participants to eat healthily.

> *"He does not act like I am sick. Sometimes we suddenly talk about sailing, which makes talking about my disease nice." (participant 7)*

The dietician was for the majority of the participants a positive source of information and confirmed that patients were doing well, which increase their confidence. During the meetings with the dietician participants received information about what to eat. Some received a booklet or an eating list from their dietician, which increased their feeling of having grip on what to eat and what not. Some participants said that during the check-ups with their internist they felt empowered to ask their food and diet related questions.

7.5 Hindering relations

Participants also viewed their partner, family, friends, health professionals and peer support as barriers, which made it more difficult for participants to stick to their healthy diet.

Family and friends

More than half of the participants experienced friends and family hindering them in maintaining a healthy diet. They feel unsociable when sticking to their diet during a social event and got appetite when being surrounded by others who eat unhealthily. When in company, such as birthdays and dinners, participants mentioned that they found it difficult to refuse food that was offered to them. So they often ate a little piece.

Many participants experienced pressure from friend and family to join eating unhealthily, because their friend and family found not joining in as unsociable. Two participants stated that their partners also stimulated them to be less strict with their diets. In doing so participants often joined the social norm.

> *"I just join them in what they eat. I'll take a piece of that cake, just not as big as theirs."(participant 8)*

Health professionals

More than half of the participants experienced limitations in visiting health professionals. Several participants said that they want to receive more information, explanation and support concerning dietary practices with T2DM. Three participants search for this information themselves, because they did not receive satisfactory information about food.

A few participants stated that they never got information concerning food. The information given by the dietician was too generalized and unsuitable. A participant wants more customer focused care, talking about how to handle the disease and how others are dealing with their diabetes. He wants more personal accompaniment (also during the monthly check-ups) and maybe even help with making a plan to tackle bad dietary habits is desired.

> *"You just got thrown off the deep end, you have discover for yourself what wisdom is." (participant 1)*

Participants have no clue as to where to go with their food related questions. During meetings with caregivers, food related topics are not discussed. Participants do not feel secure enough to ask these food related questions themselves. During the check-ups a participant felt that there was limited time and therefore did not dare to ask things related to diet. Several participants were hesitant to trust health professionals (their internist and home healthcare provider). Due to the negative tone of the advice and information they were given they lost trust in the professionals.

> *"You know every time I went to the internist, he always said I was doing great, but in the meantime I also had a heart attack and surgery." (participant 3)*

Participants mentioned that they came across a lot of contradictory information from different sources such as the TV, papers and magazines. This makes it difficult to distinguish which information source to believe. The information given often focuses on scaring people and

participants dislike this.

> *"But also the information about diet, sometimes they say that it is bad and then it is the other way around again." (participant 10)*

Peer support

Some participants mentioned that in the beginning of their diagnosis they wanted to talk to someone who experienced the same burden and felt the need to be understood. This was often not the case, because many people do not understand what having T2DM really means to someone. Participants had negative experiences with peers, because talking to them led to jealousy and irritation.

> *"Diabetes is a lonely disease, you need to do it by yourself." (participant 3)*

Three participants went to a peer support group for diabetics, but were disappointed with this. The groups were not suitable for them. One participant, who is single, disliked the fact that the partner of the other participants gave the answers. Another older participant did not feel as if she could participate in the group, because everybody spoke so loudly and was only focussed on themselves according to her. The last participant was young when diagnosed with T2DM, the people in the talking groups were much older which made it difficult for her to relate to.

> *"But then it must be the people themselves and not their partners that answer the questions, because otherwise I don't care, I do not feel connected to them." (participant 6)*

8. Conclusion and discussion

The aim of this research is to gain insight into how Dutch T2DM patients self-manage their dietary practices in everyday life, in order to manage their disease. In this chapter the conclusions will be presented first, followed by the discussion of the findings. Subsequently the strengths and limitations of the research will be disclosed and finally the implications for further research and practice will be elaborated upon.

8.1 Conclusion

In this study various factors influencing self-management of dietary practices in everyday life among Dutch T2DM adults have been disclosed. An overview of the most important assets and barriers obtained via the literature review and interviews are shown in figure 3.

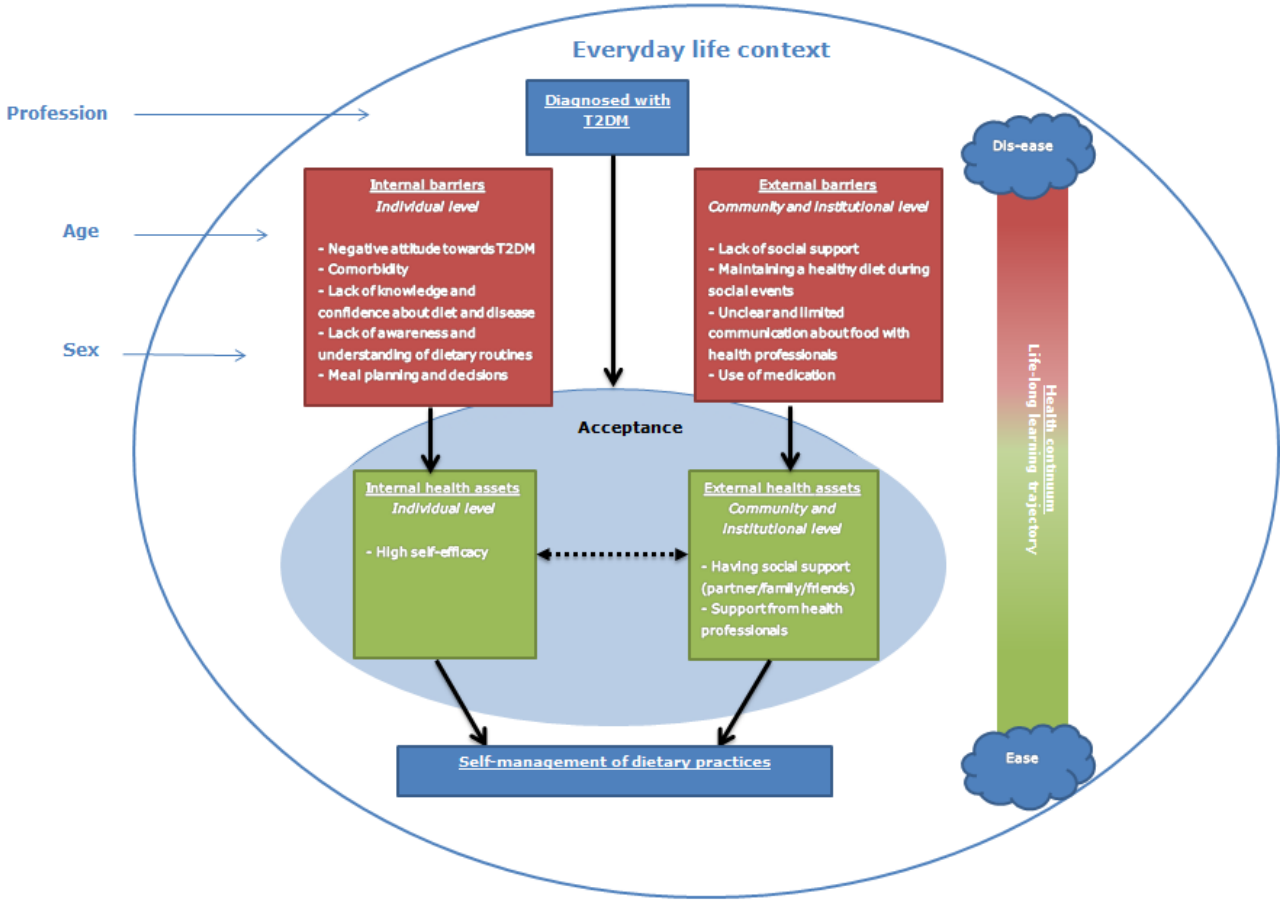

Figure 3: Important factors for self-management of dietary practices

Even though all factors mentioned in figure 3 influence self-management of dietary practices, four factors stand out specifically. These were frequently mentioned in both the literature as well as in interviews. The factors are: patients' attitude, social support, acceptance of T2DM and the use of medication.

These factors both influence each other and the self-management of dietary practices itself as shown in figure 4. When looking at these factors it is important to bear in mind the everyday life context of adults diagnosed with T2DM.

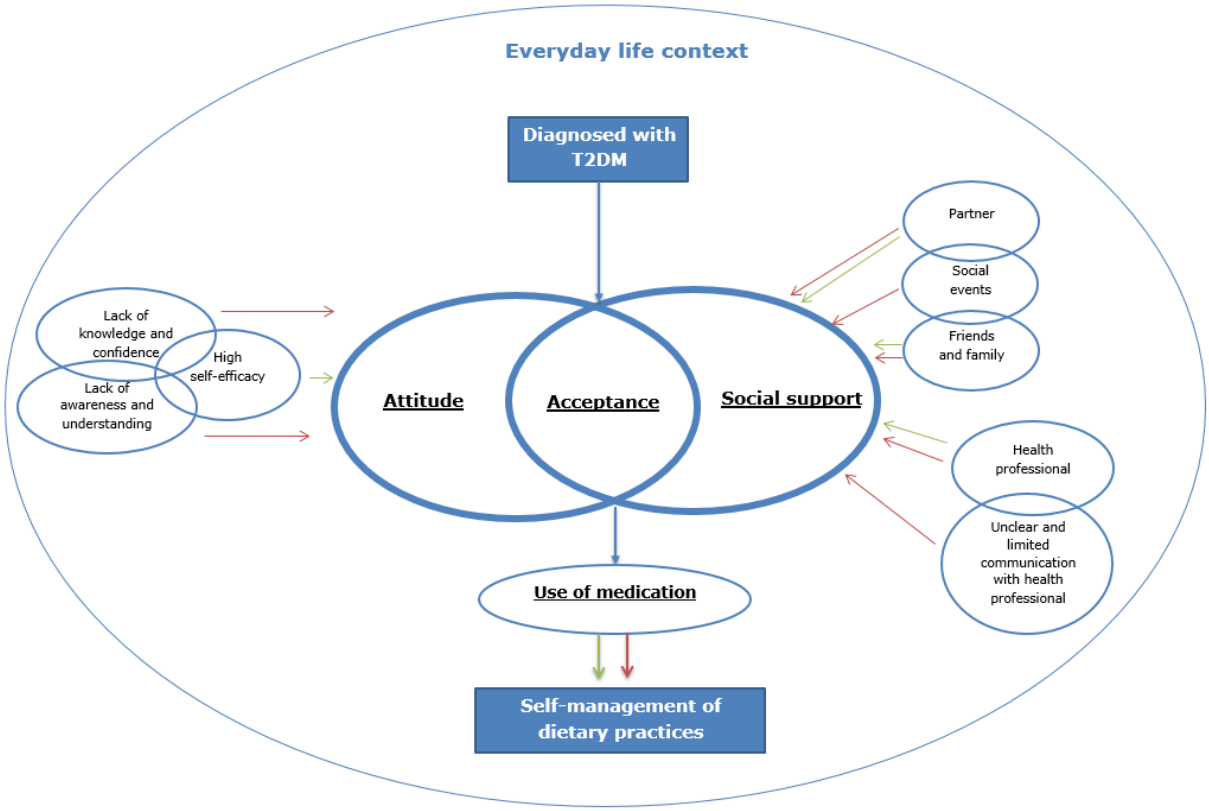

Figure 4: Relations between factors

Patients' attitude

The attitude of T2DM patients, by which is meant a positive attitude towards the seriousness of the disease and towards importance of healthy food, is key for self-management. Not having a positive attitude towards healthy eating will result in a lack of effort and dedication towards dietary practices. A positive attitude is imperative for a successful start of self-management. This research has discovered that a poor attitude is a barrier for dietary self-management, because patients who regarded their T2DM as slightly serious were hardly worried about its threat to their future health.

However, high self-efficacy and the lack of knowledge/confidence and lack of awareness/understanding influence the attitude and therefore self-management of dietary practices.

Higher self-efficacy is related to better self-management of people with T2DM. For self-efficacy, having the confidence in your ability to deal with health problems, it is important to

have knowledge and confidence in T2DM dietary practices. Awareness and understanding why dietary practices are important for T2DM self-management will help to gain this confidence. These asset and barriers are intertwined and influence each other, someone's attitude and self-management of dietary practices.

Social support

Self-management of dietary practices is related to social support. This support can come from a partner, family, friends and health professionals. A partner gives support by preparing and cooking meals and by reminding to eat healthily. Friends and family are important for the subjective norm. Health professionals provide emotional support when lacking from family and friends. The doctor-patient relationship appears to be key in offering patients the emotional support they need.

However, lack of social support from a partner, family, friends and health professionals also prove to be a barrier for self-management of dietary practices. Patients experience lack of support and sometimes even feel sabotaged in their effort to eat healthily by their partner, family and friends.

Social events show that food is sociable and being at a social event makes it difficult to maintain a healthy diet.

Consults with health professionals felt not supportive, due to the ambiguous and limited communication about nutrition. Patients in both literature and interviews are hesitant to have full faith in health professionals and are thus reluctant to turn to them.

Acceptance of T2DM

Acceptance is placed in the overlap of attitude and social support (see figure 4). Someone's attitude and social support is influenced by his/her ability to accept his/her diagnoses. Accepting T2DM on an emotional level facilitates developing health assets at an individual level, a prerequisite for making use of assets on a community and on an institutional level. It also helps to deal with barriers of healthy eating.

Use of medication

The use of medication appears also of vital importance for dietary self-management. The availability of medication facilitates adults in dietary management. It offers them the possibility to be flexible (and in control) with their food intake and their lives. Striking in this study is that medication is seen as a barrier for self-management of dietary practices, because insulin is used by respondents to compensate for the wrong diet choices they make.

Medication undermines the need to stick to healthy eating habits, because it re-establishes glucose levels faster and more easily.
On the other hand, medication can also be regarded as an asset for self-management. Patients can influence their blood glucose levels by themselves, it is a coping strategy for T2DM adults which contribute to their quality of life.

Everyday life context

All assets and barriers mentioned above, cannot be seen without the everyday life context of T2DM adults. The context is crucial in getting insight in how people deal with their disease and the assets and barriers that come with it. This research reveals that someone's age, sex and profession influence how T2DM adults cope with their disease. Looking at the assets and barriers, in relation to the context, helps to understand what is necessary for T2DM adults in order to self-manage their dietary practices.

8.2 Discussion

The conclusion shows the various factors that influence self-management of dietary practices among Dutch adults diagnosed with T2DM in everyday life. In the discussion some striking internal and external factors are discussed as well as the methodology that has been applied in this research.

Internal factors

The main internal barriers that are discussed are patients' attitude towards T2DM and comorbidity.

Patients' attitude towards T2DM

The attitude of T2DM patients is essential for self-management of dietary practices. This is also confirmed in the research of Jutterström, Isaksson, Sandström and Hörnsten (2012); their research mentioned four turning-points for T2DM patients to self-manage their illness in everyday life.
Turning point one is: "Being in a life-death struggle", people are not willing to die because of their illness. However, participants in this thesis stated that they would rather die sooner than not being able to live their lives with the dietary habits that they are used to. This is a health paradox, because the participants do not regard themselves as being ill, even though they are diagnosed with T2DM. They do not see the importance in self-management of dietary practices. Without a positive attitude towards dietary self-management, T2DM adults will not convert to a healthy diet.

Another turning point according to Jutterström et al. (2012) is: "The ones who decide". This means that it is the participant's own responsibility to decide to eat healthy. The participants in this research showed strong autonomy, they know what they want and do not appreciate it when someone else is trying to change their (eating) behaviour. This means sticking to their not-so healthy eating habits. In other words, their strong autonomy and longing to be responsible for their own lives, influence their attitude and creates a barrier for changing their dietary practices.

Comorbidity

This research shows that comorbidity can be a barrier, because having another disease makes it very difficult to stick to a healthy diabetes diet. However, according to Jutterström et al. (2012) health status can also be an asset because of the third turning point "Cross road with no return". This means it is now or never for patients to adapt their lifestyle or otherwise they will have to face complications caused by their disease. This was not the case for participants in this research, they already had severe complications such as amputated toes but they did not experience this as a turning point. But, this could also be caused by the fact that some of the participants were over 70 years of age and they would rather eat what they liked than getting much older.

External factors

The external barriers that are discussed are the role of medication and social support. However, both these barriers can also be seen as assets.

The role of medication

In literature a classification is made among the components that are important for T2DM self-management. These components are clustered differently in literature, but the importance of a healthy lifestyle, knowledge and medication is often mentioned. Striking is that in the classification of these components, medication is mentioned separately in all of the consulted sources. This is striking because this research shows that medication cannot be seen separately from a healthy lifestyle of the participants. In this research it is for many T2DM adults the way they self-manage their dietary practices.

In this study, medication is mostly seen as a barrier because T2DM adults use it to manage their glucose levels, instead of chancing their dietary practices to influence their glucose levels. Someone's locus of control, the extent to which people believe they have power over moments in their lives (Lefcourt, 2014), might influence the way people deal with their

dietary self-management. Such an internal locus of control makes participants more responsible to stick to a healthy diet for their dietary self-management. Participants that use medicine in order to self-manage dietary practices might have a more external locus of control.

Social support

A partner, friends, family, and health professionals can be both an important asset and a barrier for social support, because the food intake of T2DM adults appears to be strongly related to sociability. Sticking to a healthy diet is difficult when others are eating unhealthily. Friends and family sometimes push to join in when eating unhealthily, because otherwise he/she is said to be unsociable. Striking is that the participants can experience both support and sabotage for eating healthily from the same people. This emphasizes the influence of the everyday life context.

Family members (mainly spouses) often fulfil the most important role in providing this social support. However, friends and health professionals can also have this role. It is important that health professionals are aware of this.

In order to fulfil this support role in an effective manner, health professional should be aware that patients want to receive more (specific) information about diabetes and food. Patients want more time to discuss dietary practices with health professionals. They want to be reassured that they are doing well with their diet and that they can ask food related questions during consultations hours.

Methodology

The conceptual model will be discussed first, the everyday life context secondly, and the home assignment will be discussed lastly.

Conceptual model

The theoretical framework consists of the concepts: self-management, the everyday life context and the asset approach. Together this forms the conceptual model.

The asset approach focuses on success of individuals and thus the assets contributing to self-management. However, the literature review and the interviews also show that there are barriers for T2DM adults to self-manage their dietary practices. This is an important addition to the conceptual model, because to obtain the complete picture it is important to also understand the barriers. The barriers therefore (visible in the red squares) are also added in figure 3. Nevertheless, it is important to understand that not having a certain asset is

automatically a barrier and vice versa. For example comorbidity is a barrier, but not having comorbidity is not necessarily an asset.

Another addition made to the conceptual framework is: acceptance. It is placed in the middle of the model, as it appears crucial and has a central role in self-management of dietary practices.

The assets are placed within the circle and stimulate acceptance internally. The barriers are placed outside the circle, they depress acceptance externally. Acceptance of the disease is important in order to start self-managing dietary practices.

Everyday life context

Diabetes self-management cannot be seen separately from everyday life context. Jutterström et al. (2012) confirmed this with the fourth turning point: "Have the power to change the outcome". This means finding the balance between life and disease management in everyday life. It is crucial to assist people in accepting their disease by reflecting on their lives with the disease, and on the way their lifestyle decisions influence the progress of the disease.

This research shows the influence of age, sex and profession in everyday life context. These factors influence the way someone deals with his/her disease and with his/her assets and barriers. For example, a participant who is a truck driver faced barriers such as availability of healthy food in roadside restaurants. When healthy food was available the participant needed to face a language barrier to be able to order. These are important barriers for the truck driver, but cannot be generalized. It is important to realize that everyone is an individual living within his/her own everyday life context.

There was a big overlap between the findings in literature and in the interviews. The literature mentioned barriers in dietary management such as, doubts and difficulties in dietary practices, looking at short term consequences instead of long-term benefits of dietary practices and organizing and motivation for dietary practices. However, there were also factors that did not apply in the everyday life context of Dutch adults. For example, food insecurity was not the case in the everyday life context of Dutch adults. The same goes for having an older age, which was stated in the literature as an asset to follow a recommend diet for diabetes. The interviews showed contradiction. Older participants found it less important to follow a strict diabetes diet in their everyday life. This shows the importance of investigating factors for dietary self-management in the everyday life context.

Home assignment

The home assignment was started primarily as a tool to help participants to think about their assets and barriers. However, it resulted in a visual demonstration of how participants thought about self-management of dietary practices. The participants were not, or only marginally, aware of what was going well and what was difficult in managing their dietary practices. Participants approached self-management of dietary practices in a different way than health professionals do. They were less aware of the importance of health, they rather focused on having and keeping their own choices in food.

The home assignment could also be regarded as a small intervention. It helped participants in becoming more aware of factors that contribute and limit them in self-management of dietary practices.

8.3 Strengths and limitations

Both strengths and limitations of the study designs are identified. These will be discussed below.

Literature review

A strength of the literature review is the fact that it was carried out systematically. Studies were selected with clear inclusion/exclusion criteria and were assessed in accordance with a quality assessment checklist (appendix 1 and 2). Only studies with medium and high scores were included. This guaranteed sufficient quality. And yet, despite the inclusion criteria, some studies were included which were too specific to meet the relevance of the research population of this research (e.g. African American women). This proved to be a limitation.

Participants

The recruitment of the participants was both a strength as well as a limitation. Participants were recruited with the help of Opella, Hospital Gelderse Vallei or a dietician. This is a strength because three different sources were used to select participants and this decreased selection bias. Oddly enough it was also a limitation because all participants had recently sought contact with a health professional because of the difficulties they had experienced with (self-)managing their illness and/or complications caused by their illness. This makes the participants less representative for the whole research population.

Another participant-related limitation is the fact that the researcher had no access to the medical data of participants or to some sort of food diary. Access to this would have given an indication in participants' health status. The researcher had no actual perception of how

healthy the participants were and therefore had to estimate this without measurable facts. The number of participants interviewed for this research might look like a limitation. Eleven participants may be considered to be an over limited sample for meaningful data. However, data saturation reached.

Home assignment

The home assignment, prior to the actual interviews can be seen as a strength. It gave an insight into the participants' perception of their disease as well as into their way of thinking. However, a limitation might have been that the home assignment for some of the participants was too abstract and theoretical. It was for participants difficult to reflect on what is difficult in dietary self-management. Therefore, the idea of helping the participant prior to the actual interview to reflect on the factors that influence his/her self-management, might not have worked out as intended. Even though not all participants understood the home assignment, it was continuously applied during all the interviews. This contributes to the internal validity of this research.

Interviews

Strengths and limitations of the interviews can also be identified.
A strength of the interviews was the informal ambiance in which the interviews took place. They were conducted in the participants' own home environment. Before the interview an introductory meeting took place to become acquainted with the interviewee. This made it easier for participants to speak frankly about their disease which resulted in a better insight and profound information. However, a limitation influencing the internal validity was the biases during the interview. During a few interviews the partner of participants joined in. This could have influenced the participants' answers and might have created 'the social desirability bias'. Another bias from the researcher's side might have been the 'questions and wording bias', because the researcher sometimes asked leading questions which might also have influenced the answers that the participants gave.

8.4 Recommendations for research and practice

This research is aimed at exploring the factors that influence self-management of dietary practices in everyday life among Dutch adults diagnosed with T2DM. Implications for both further research as well as for practice will be discussed below:

Research:

- More research with the same Dutch target group is relevant, but recruitment should be carried out by different sources. This would enhance the generalizability of the target group as it will broaden the recruitment of participants who e.g. do not have complications with their diabetes.
- More research with a younger target group. It is expected that this group has a different point of view towards diabetes and can possibly gain a lot of health benefits when understanding the important factors of self-management in one's life with diabetes.
- More research with the same target group on the broader aspect of diabetes self-management. Including all aspects of a healthy lifestyle (e.g. physical activity) and medication management, because these are also of importance for the overall self-management of T2DM.

Practice:

- It is important to create more customer-focused care for T2DM adults, to empower these adults by increasing their knowledge and making them more aware of the importance of self-managing T2DM. Empowering T2DM adults in such way that they are willing to change their own lifestyle. Focusing on the acceptance of the disease is therefore important. A method that could be helpful is motivational interviewing. This method explores people's motivation to change and can strengthen the self-efficacy of patients (Ekong & Kavookjian, 2015; Rollnick, Miller, Butler, & Aloia, 2008). Family-based interventions might also be useful, because of the importance of social support and the everyday life context of adults diagnosed with T2DM.
- It is important to develop a more tailored education for T2DM patients. It is essential that adults diagnosed with T2DM participate in their own health care. It facilitates them to express feelings, explore problems and find solutions for their problems. It may also help patients to identify their problems, to detect their knowledge gap and to discuss their opportunities or barriers they have for goal-setting and behavioural

change (Coppola, Sasso, Bagnasco, Giustina, & Gazzaruso, 2016; Jutterström et al., 2012). This will help to increase their ability to autonomously manage their diabetes.

- It is important to make support groups more adapted for the patients who join them. Health educators should evaluate the individual patient's level of education and knowledge when composing these support groups (Coppola et al., 2016). This will increase the chance that patients experience these groups as a positive contribution to how to deal with their problems.
- It is important to continue providing information to the target group. A constant focus on the fact that food is important for diabetes self-management will increase patients' knowledge on diabetes and proper dietary management. Patients find it helpful to receive ongoing education in order to fill the information gap (Murrock et al., 2013), while at the same time they do not always feel that they can talk about it with their health professional. This barrier should be removed.

References

- Aikens, J. E., Bingham, R., & Piette, J. D. (2005). Patient-provider communication and self-care behavior among type 2 diabetes patients. *The Diabetes Educator*, *31*(5), 681-690.
- Baan C.A., & Poos M.J.J.C. (2013). *Neemt het aantal mensen met diabetes mellitus toe of af?* Retrieved at 21-09-2016 from http://www.nationaalkompas.nl/gezondheid-en-ziektBoorse/ziekten-en-aandoeningen/endocriene-voedings-en-stofwisselingsziekten-en-immuniteitsstoornissen/diabetes-mellitus/trend/
- Boorsma, A., (2013). *Streng dieet 'geneest' diabetes.* Retrieved at 15-09-2016 from http://www.sciencepalooza.nl/2013/09/streng-dieet-geneest-diabeet/
- Booth, A. O., Lowis, C., Dean, M., Hunter, S. J., & McKinley, M. C. (2013). Diet and physical activity in the self-management of type 2 diabetes: barriers and facilitators identified by patients and health professionals. *Primary health care research & development*, *14*(3), 293-306.
- Boulton, M., Fitzpatrick, R., & Swinburn, C. (1996). Qualitative research in health care: II. A structured review and evaluation of studies. *Journal of evaluation in clinical practice*, *2*(3), 171-179.
- Bouwman, L. I. (2009). *Personalized nutrition advice: an everyday life perspective*.
- Brandle, M., Zhou, H., Smith, B. R., Marriott, D., Burke, R., Tabaei, B. P., & Herman, W. H. (2003). The direct medical cost of type 2 diabetes. *Diabetes care*, *26*(8), 2300-2304.
- Breland, J. Y., McAndrew, L. M., Gross, R. L., Leventhal, H., & Horowitz, C. R. (2013). Challenges to healthy eating for people with diabetes in a low-income, minority neighborhood. *Diabetes Care*, *36*(10), 2895-2901.
- Clark, M., & Hampson, S. E. (2001). Implementing a psychological intervention to improve lifestyle self-management in patients with Type 2 diabetes. *Patient education and counselling*, *42*(3), 247-256.
- Comellas, M., Walker, E. A., Movsas, S., Merkin, S., Zonszein, J., & Strelnick, H. (2010). Training community health promoters to implement diabetes self-management support programs for urban minority adults. *The Diabetes Educator*, *36(*1), 141-151.
- Coppola, A., Sasso, L., Bagnasco, A., Giustina, A., & Gazzaruso, C. (2016). The role of patient education in the prevention and management of type 2 diabetes: an overview. *Endocrine*, *53*(1), 18-27.
- Diabetes Fonds (2016a). *Begeleiding bij diabetes type 2*. Retrieved at 12-10-16 from https://www.diabetesfonds.nl/over-diabetes/dagelijks-leven/begeleiding-bij-diabetes-type-2
- Diabetes Fonds (2016b*). Diabetes in cijfers*. Retrieved at 20-09-2016 from https://www.diabetesfonds.nl/over-diabetes/diabetes-in-het-algemeen/diabetes-in-ijfers?gclid=C
- Diabetes Fonds (2016c). *Symptomen van diabetes*. Retrieved at 12-10-2016 from https://www.diabetesfonds.nl/over-diabetes/heb-ik-diabetes/symptomen-van-diabetes
- Diabetesvereniging Nederland (DVN), (2011). *Diabetes Zorgwijzer; een overzicht van de zorg voor volwassenen met diabetes type 2.* Retrieved at 7-9-2016 from https://www.dvn.nl/files/site/DVN%20Zorgwijzer%20type%202%20herzien%202011.pdf
- Ekong, G., & Kavookjian, J. (2015). Motivational interviewing and outcomes in adults with type 2 diabetes: A systematic review. *Patient education and counselling*, *99*(6), 944-952.
- Furler, J., Walker, C., Blackberry, I., Dunning, T., Sulaiman, N., Dunbar, J., ... & Young, D. (2008). The emotional context of self-management in chronic illness: a qualitative study of the role of health professional support in the self-management of type 2 diabetes. *BMC Health Services Research*, *8*(1), 214.
- Gatt, S., & Sammut, R. (2008). An exploratory study of predictors of self-care behaviour in persons with type 2 diabetes. *International Journal of Nursing Studies*, *45*(10), 1525-1533.
- Gibbs, G. R., (2007). "Thematic coding and categorizing". *Analyzing Qualitative Data*. *London*: SAGE, 38-56.
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British dental journal*, *204*(6), 291-295.
- Glasgow, R. E., Toobert, D. J., Barrera, M., Jr., & Strycker, L. A. (2004). Assessment of problem-solving: a key to successful diabetes self-management. *Journal of Behavioral Medicine*, *27*(5), 477-490.
- Gorter, K. J., Tuytel, G. H., de Leeuw, J. R., van der Bijl, J. J., Bensing, J. M., & Rutten, G. E. (2010). Preferences and opinions of patients with Type 2 diabetes on education and self-care: a cross-sectional survey. *Diabetic Medicine*, *27*(1), 85-91.
- Graffigna, G., Barello, S., Libreri, C., & Bosio, C. A. (2014). How to engage type-2 diabetic patients in their own health management: implications for clinical practice. *BMC Public Health*, *14*, 648.
- Heide, I. van der, Uiters, E., Rademakers, J., Struijs, J.N., Schuit, A. J., & Baan, C, A. (2014). Associations among health literacy, diabetes knowledge, and self-management behavior in adults with diabetes: results of a Dutch cross-sectional study. *Journal of Health Communication 19*, 115–131.
- Henry, H. K., & Schor, E. L. (2015). Supporting self-management of chronic health problems. *Pediatrics*, *135*(5), 789-792.
- Hernandez-Tejada, M. A., Campbell, J. A., Walker, R. J., Smalls, B. L., Davis, K. S., & Egede, L. E. (2012). Diabetes empowerment, medication adherence and self-care behaviors in adults with type 2 diabetes. *Diabetes Technology & Therapeutics*, *14*(7), 630-634.
- Holman, H. & Lorig, K. (2004). Patient self-management: A key to effectiveness and efficiency in care of chronic disease. *Public health reports*, *119*, 239-243.
- Jacob, S., & Serrano-Gil, M. (2010). Engaging and empowering patients to manage their type 2 diabetes, part II: Initiatives for success. *Advances in therapy*, *27*(10), 665,680.
- Jallinoja, P., Pajari, P., & Absetz, P. (2008). Repertoires of lifestyle change and self-responsibility among participants in an intervention to prevent type 2 diabetes. *Scandinavian Journal of Caring Sciences*, *22*(3), 455-462.
- Jarvis, J., Skinner, T. C., Carey, M. E., & Davies, M. J. (2010). How can structured self- management patient education improve outcomes in people with type 2 diabetes?. Diabetes, *Obesity and Metabolism, 12(1)*, 12-19.
- Jönsson, B. (2002). Revealing the cost of Type II diabetes in Europe. *Diabetologia*, *45*(7), 5-12.
- Jutterström, L., Isaksson, U., Sandström, H., & Hörnsten, Å. (2012). Turning points in self-management of type 2 diabetes. *European Diabetes Nursing*, *9*(2), 46.
- Lamprinos, I., Demski, H., Mantwill, S., Kabak, Y., Hildebrand, C., & Ploessnig, M. (2016). Modular ICT-based patient empowerment framework for self-management of diabetes: Design perspectives and validation results. *International journal of medical informatics*, *91*, 31-43.
- Laranjo, L., Neves, A. L., Costa, A., Ribeiro, R. T., Couto, L., & Sá, A. B. (2015). Facilitators, barriers and expectations in the self-management of type 2 diabetes - A qualitative study from Portugal. *European Journal of General Practice*, *21*(2), 103-110.
- Lefcourt, H. M. (Ed.). (2014). *Locus of control: Current trends in theory & research*. Psychology Press.

- Ligthart, S., van Herpt, T. T., Leening, M. J., Kavousi, M., Hofman, A., Stricker, B. H., & Dehghan, A. (2016). Lifetime risk of developing impaired glucose metabolism and eventual progression from prediabetes to type 2 diabetes: a prospective cohort study. *The lancet Diabetes & endocrinology*, *4*(1), 44-51.
- Lindström, B., & Eriksson, M. (2005). Salutogenesis. *Journal of Epidemiology and community health*, *59(*6), 440-442.
- Lorig, K. R., & Holman, H. R. (2003). Self-management education: history, definition, outcomes, and mechanisms. *Annals of behavioral medicine*, *26*(1), 1-7.
- Mayo Clinic (2016). *Type 2 diabetes symptoms and causes*. Retrieved at 21-12-2016 from http://www.mayoclinic.org/diseases-conditions/type-2-diabetes/symptoms-causes/dxc-20169861
- McLean, J. (2011). *Asset based approaches for health improvement: redressing the balance*. UK: Glasgow Centre for Population Health.
- Morgan, A., Ziglio, E., & Davies, M. (2010). *Health assets in a global context: theory, methods, action*. Springer Science & Business Media.
- Morgan, A., & Ziglio, E. (2007). Revitalising the evidence base for public health: an assets model. *Promotion & Education*, *14*(2), 17-22.
- Morgan, A., & Ziglio, E. (2010). *Revitalising the public health evidence base: An asset model. In Health assets in a global context* (pp. 3-16*)*. Springer New York.
- Murrock, C. J., Taylor, E., & Marino, D. (2013). Dietary Challenges of Managing Type 2 Diabetes in African-American Women. *Women & health 53(*2), 173-184.
- Nederlandse Diabetes Federatie (NDF) (2013). *Incidentie en prevalentie.* Retrieved at 22-09-2016 from http://www.zorgstandaarddiabetes.nl/extrapage/incidentie-en-prevalentie/
- Nederlandse Diabetes Federatie (NDF). (2015). *Diabetes type 2 volwassenen*. Retrieved at 16-09 from http://www.zorgstandaarddiabetes.nl/wp-content/uploads/2015/08/NDF-Zorgstandaard-diabetes-type-2-Volwassenen-2015.pdf
- Omisakin, F.D and Ncama, B. P. (2011). Self, self-care and self-management concepts: implications for self-management education. *Educational Research. 2*(12). 1733-1737.
- Richard, A., & Shea, K. (2011). Delineation of self-care and associated concepts. *Journal of Nursing Scholarship*, *43*,255-264.
- Rollnick, S., Miller, W. R., Butler, C. C., & Aloia, M. S. (2008). Motivational interviewing in health care: helping patients change behavior.
- Rotegård, A. K., Moore, S. M., Fagermoen, M. S., & Ruland, C. M. (2010). Health assets: A concept analysis. *International Journal of nursing studies,47*(4), 513-525.
- Rotegård, A. K., & Ruland, C. M. (2010). Patient centeredness in terminologies: Coverage of health assets concepts in the International Classification of Nursing Practice. *Journal of biomedical informatics*, *43*(5), 805-811.
- Rutten, G. E. H. M., De Grauw, W. J. C., Nijpels, G., Houweling, S. T., Van de Laar, F. A., Bilo, H. J., ... & Burgers, J. S. (2013). NHG-Standaard Diabetes mellitus type 2 (derde herziening). *Huisarts Wet*, *56*(10), 512-525.
- Sandén-Eriksson, B. (2000). Coping with type-2 diabetes: the role of sense of coherence compared with active management. *Journal of Advanced Nursing*, *31*(6), 1393-1397.
- Schoenberg, N. E., Traywick, L. S., Jacobs-Lawson, J., & Kart, C. S. (2008). Diabetes self-care among a multiethnic sample of older adults. *Journal of Cross-Cultural Gerontology,, 23*(4), 361-376.
- Schulman-Green, D., Jaser, S., Martin, F., Alonzo, A., Grey, M., McCorkle, R., ... & Whittemore, R. (2012). Processes of self-management in chronic illness. *Journal of Nursing Scholarship*, *44*(2), 136-144.
- Schulze, M.B., & Hu, F.B. (2005). Primary prevention of diabetes: what can be done and how much can be prevented? *Annu Rev Public Health*, *26*, 445-467.
- Simon-Tuval, T., Shmueli, A., & Harman-Boehm, I. (2016). Adherence to Self-Care Behaviors among Patients with Type 2 Diabetes-The Role of Risk Preferences. *Value Health*, *19*(6), 844-851.
- Skovdal, M. & Cornish, F. (2017). *Qualitative Research for Development: a guide for practitioners*. Practical action publishing
- Smalls, B. L., Gregory, C. M., Zoller, J. S., & Egede, L. E. (2014). Effect of neighborhood factors on diabetes self-care behaviors in adults with type 2 diabetes. *Diabetes research and clinical practice*, *106(3), 435-442.*
- Swan, E. (2016). *Understanding healthful eating from a salutogenic perspective. (PhD-thesis)*, Wageningen University, Wageningen.
- Thomas, B. H., Ciliska, D., Dobbins, M., & Micucci, S. (2004). A process for systematically reviewing the literature: providing the research evidence for public health nursing interventions. *Worldviews on Evidence- Based Nursing*, *1*(3), 176-184.
- Tol, A., Shojaeezadeh, D., Eslami, A., Alhani, F., Mohajeritehrani, M., Baghbanian, A., & Sharifirad, G. (2012). Evaluation of self-care practices and relative components among type 2 diabetic patients. *Journal of Education and Health Promotion*, *1*, 19.
- Walker, R. J., Gebregziabher, M., Martin-Harris, B., & Egede, L. E. (2015). Understanding the influence of psychological and socioeconomic factors on diabetes self-care using structured equation modeling. *Patient Educ Couns*, *98*(1), 34-40.
- Wardian, J., & Sun, F. (2014). Factors associated with diabetes-related distress: implications for diabetes self-management. *Social* Work in Health Care, 53(4), 364-381.
- Weaver, R. R., Lemonde, M., Payman, N., & Goodman, W. M. (2014). Health capabilities and diabetes self-management: the impact of economic, social, and cultural resources. *Social Science & Medicine*, *102*, 58-68.
- Wellard, S. J., Rennie, S., & King, R. (2008). Perceptions of people with type 2 diabetes about self-management and the efficacy of community based services. *Contemporary Nurse*, *29*(2), 218-226.
- Wiesmann, U., & Hannich, H. J. (2010). A salutogenic analysis of healthy aging in active elderly persons. *Research on Aging*, *32*(3), 349-371.
- Wild, S., Roglic, G., Green, A., Sicree, R., & King, H. (2004). Global prevalence of diabetes estimates for the year 2000 and projections for 2030. *Diabetes care*, *27*(5), 1047-1053.
- Wilkinson, A, Whitehead, L (2009). Evolution of the concept of self-care and implications for nurses: A literature review. *International Journal of Nursing. Studies. 46*(8), 1143-1147.
- Wilkinson, A., Whitehead, L., & Ritchie, L. (2014). Factors influencing the ability to self-manage diabetes for adults living with type 1 or 2 diabetes. *International journal of nursing studies*, *51*(1), 111-122.
- Woerkum, C. van der, & Bouwman, L. (2012). 'Getting things done': an everyday-life perspective towards bridging the gap between intentions and practices in health-related behavior. *Health promotion international*, *29*(2), 278-286.
- World Health Organization (WHO) (2016). *Diet.* Retrieved at 7-9-2016 from http://www.who.int/topics/diet/en/

Appendices

1. Quality assessment criteria (qualitative research)

Introduction	1. Is the aim of the study clear? (i.e. clearly formulated at the beginning and consistent with the way data were collected and analysed) 2. Is a qualitative approach appropriate to the aim? (i.e. aim conceived in terms of investigating 'what' or 'how')
Sample and generalizability	3. Are the criteria for selecting the sample clearly described? (i.e. exclusion and inclusion criteria specified) 4. Is the method of recruitment clear? (i.e. an account of from where, by whom and how those potentially included in the sample were contacted) 5. Are the characteristics of the sample adequately described? (i.e. age, gender, ethnicity, social class and other relevant demographic characteristics) 6. Is the final sample adequate and appropriate? (I. e. large and diverse enough for the aims of the study to be fulfilled)
Methods of data collection	7. Is the fieldwork adequately described? (i.e. an account of where data were collected, by whom, in what context) 8. Are methods of data collection adequately described? (i.e. an account of ways the data were elicited, and the type and range of questions) 9. Are the data collected systematically? (i.e. evidence of consistent use of interview guide or rationale for ceasing questioning) 10. Are the data collected sensitively? (i. e. evidence of flexible approach, responsiveness to participants' agendas, following up questions and adequate time given) 11. Are careful records of data kept? (i.e. audio/video recordings and field notes which can be independently inspected)
Data analysis	12. Are the processes of data analysis adequately described? (i.e. an account of how data were processed and interpreted; of how concepts, themes or categories were developed) 13. Is evidence provided in support of the analysis? (i.e. excerpts from original data, summaries of examples, or numerical data presented as evidence for interpretation made) 14. Is sufficient original material presented? (i.e. original material not just a token illustration) 15. Is there evidence that supporting material is representative? (n= 49) (i. e. excerpts are named or numbered and sources given) 16. Is there evidence of efforts to establish validity?

Source: (Boulton et al., 1996).

2. Quality assessment criteria (quantitative research)

A) Selection bias

1. Are the individuals selected to participate in the study likely to be representative of the target population?
2. What percentage of selected individuals agreed to participate?

Strong: The selected individuals are very likely to be representative of the target population and there is greater than 80% participation.
Moderate: The selected individuals are at least somewhat likely to be representative of the target population, and there is 60 - 79% participation.
Weak: The selected individuals are not likely to be representative of the target population, or there is less than 60% participation. Or selection is not described and the level of participation is not described.

B) Study Design

1. Indicate the study design (RCT, CCT, Cohort analytic (two group pre + post), Case-control, Cohort (one group pre + post (before and after), Interrupted time series)
2. Was the study described as randomized? If no, go to Component C.
3. If yes, was the method of randomization described? (See dictionary)
4. If yes, was the method appropriate? (See dictionary)

Strong: articles that described RCTs and CCTs.
Moderate: articles that described a cohort analytic study, a case control study, a cohort design, or an interrupted time series.
Weak: articles that used any other method or did not state the method used.

C) Confounders

1. Were there important differences between groups prior to the intervention?
2. If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

Strong: that controlled for at least 80% of relevant confounders.
Moderate: studies that controlled for 60 – 79% of relevant confounders.
Weak: will be assigned when less than 60% of relevant confounders were controlled or control of confounders was not described.

D) Blinding

1. Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?
2. Were the study participants aware of the research question?

Strong: The outcome assessor is not aware of the intervention status of participants; and the study participants are not aware of the research question.
Moderate: The outcome assessor is not aware of the intervention status of participants; or the study participants are not aware of the research question; or blinding is not described.
Weak: The outcome assessor is aware of the intervention status of participants; and the study participants are aware of the research question.

E) Data collection methods

1. Were data collection tools shown to be valid?
2. Were data collection tools shown to be reliable?

Strong: The data collection tools have been shown to be valid; and the data collection tools have been shown to be reliable.
Moderate: The data collection tools have been shown to be valid, and the data collection tools have not been shown to be reliable, or reliability is not described .
Weak: The data collection tools have not been shown to be valid or both reliability and validity are not described.

F) Withdrawals and drop-outs

1. Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?
2. Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

Strong: will be assigned when the follow-up rate is 80% or greater.
Moderate: will be assigned when the follow-up rate is 60 – 79%.
Weak: will be assigned when a follow-up rate is less than 60% or if the withdrawals and drop-outs were not described.

Global rating:

Strong: no weak ratings.
Moderate: one weak rating.
Weak: two or more weak ratings.

Source: (Thomas et al., 2004),

3. Quality assessment scores

Quality assessment of qualitative studies

Authors (year)	Quality points
Lamprinos et al. (2016)	11
Gorter et al. (2010)	14
Breland, McAndrew, Gross, Leventhal, & Horowitz (2013)	13
Comellas et al. (2010)	11
Graffigna, Barello, Libreri & Bosio (2014)	15
Wellard, Rennie, & King (2008)	10
Weaver, Lemonde, Payman, & Goodman (2014)	14
Laranjo et al. (2015)	14
Murrock, Taylor, & Marino (2013)	14
Schoenberg, Traywick, Jacobs-Lawson, & Kart (2008)	15

Quality assessment of quantitative studies

Authors (year)	Quality
Aikens, Bingham, & Piette (2005)	Strong
Clark & Hampson (2001)	Strong
Gatt & Sammut (2008)	Moderate
Glasgow, Toobert, Barrera, & Strycker (2004)	Moderate
Hernandez-Tejada et al. (2012)	Moderate
Simon-Tuval, Shmueli, & Harman-Boehm (2016)	Moderate
Smalls, Gregory, Zoller, & Egede (2014)	Moderate
Tol et al. (2012)	Moderate
Walker, Gebregziabher, Martin-Harris, & Egede (2015)	Moderate
Wardian & Sun (2014)	Strong
Gorter et al. (2010)	Moderate

4. Included literature table: perspective of the patient

Authors (year). ***title***	**Type study**	**Study purpose**	**Sample size/population**	**Health assets**	**Explanation**	**Barriers**
Aikens, Bingham, & Piette, (2005). *Patient-Provider Communication and Self-care Behaviour Among Type 2 Diabetes Patients*	Cross-sectional via telephone assessments	To determine whether diabetes self-care behaviours mediate the association Between PPC and diabetes outcomes	Ethnically diverse sample of 752 patients with type 2 diabetes recruited via 3 health systems	- Patient-provider communication (PPC)	- General PPC was positively related to diabetes outcomes mental functioning and physical functioning. - Diabetes-specific PPC was significantly related to glycaemic control. - Eating behaviour was related to both glycaemic control and mental functioning.	- More than clear communication is required to establish and maintain effective patterns of diabetes self-care. - Studies show that even well-intentioned health professionals often fail to communicate about self-management effectively with their diabetes patients, many health professionals are unaware of their patients' self-management priorities and goals.
Clark & Hampson (2001). *Implementing a psychological intervention to improve lifestyle self-management in patients with Type 2 diabetes*	Randomised controlled trials of lifestyle interventions	To develop such a brief, tailored, self-management intervention to improve adherence to recommended lifestyle changes in T2DM	100 participants aged 40–70 years with Type 2 diabetes, intervention group	- Knowledge - Patient empowerment	- Collaborative problem-solving and mutually negotiated goals are generated that actively involve patients in the decision making process. - Individual involvement, which reflects current trends towards increasing patient empowerment, needs to be developed especially within the primary care setting, which is where the majority of T2DM patients are treated.	- Patients perceived their diabetes as only slightly serious and were only slightly worried about its threat to their future health. - Participants had the greatest difficulty with substituting and replacing high fat foods and avoiding frying foods.
Gatt & Sammut (2008). *An exploratory study of predictors of self-care behaviour in persons with type 2 diabetes*/	Literature review and longitudinal descriptive survey design (first stage: structured interview, second stage: structured telephone interview)	To identify factors related to self-care behaviour of persons with type 2 diabetes	100 Maltese, over 50 years, diagnosed with type 2 diabetes at least 6 months beforehand	- Attitude - Self-efficacy - Subjective norm	- Attitude is an important determinant of active self-care in persons diagnosed with diabetes. - Self-efficacy has been consistently shown to be related to better self-care management in people with type 2 diabetes. - Attitudes, subjective norm, perceived behavioural intention are important predictors of intent to carry out self-care behaviour in persons with type 2 diabetes. - Attitude was the main predictor of healthy eating intention.	- Low scores in terms of control over behaviour were similarly found in relation to dietary adherence. This may indicate that individuals with type 2 diabetes are more likely to perform self-care behaviours which require the least effort and lifestyle change. - Participants' behavioural intentions were strongest for medication taking, was also the most frequently performed self-care behaviour whilst physical activity and dietary adherence were the least performed behaviours.

Glasgow, Toobert, Barrera, & Strycker, (2004). *Assessment of Problem-Solving: A Key to Successful Diabetes Self-Management*	Randomized controlled trial (evaluation of a multiple lifestyle behavior change program)	To describe the adaptation and validation of a problem-solving instrument (DPSI) for adult type 2 diabetes patients.	Postmenopausal women with type 2 diabetes (N = 279)	- Problem-solving	- The most commonly used strategies were "compromise" and rely on established routines - Good problem-solvers should report fewer problems associated with type 2 diabetes and are likely to experience some success in incorporating healthy behaviours into their lifestyles.	- By far the most common obstacles reported were "stress" and having physical symptoms that interfered with self-management.
Hernandez-Tejada, Campbell, Walker, Smalls, Davis, & Egede, (2012). *Diabetes Empowerment, Medication Adherence and Self-Care Behaviours in Adults with Type 2 Diabetes*	Cross-sectional study (quantitative)	Evaluated the effect of diabetes empowerment on medication adherence and self-care behaviors in adults with type 2 diabetes.	378 subjects with type 2 diabetes recruited from two primary care clinics in the south-eastern United States were examined	- Self-efficacy - Empowerment	- Diabetes empowerment was associated with increased medication adherence, increased knowledge, and effective self-care behaviours. - Empowerment must be included in diabetes education interventions because knowledge alone does not produce self-care changes. - When applied to diabetes: empowerment refers to the ability to make decisions about the control of one's disease, defined by having both the knowledge required to make informed decisions as well as resources to implement these decisions. - Emphasis on empowerment and self-efficacy is important in order to improve the outcomes in the diabetes self-management.	-
Simon-Tuval, Shmueli, & Harman-Boehm (2016). *Adherence to Self-Care Behaviors among Patients with Type 2 Diabetes—The Role of Risk Preferences*	Cross-sectional study (quantitative)	Analyse whether the degree of risk aversion is associated with adherence of adult diabetic patients to self-care behaviours	Patients with type 2 diabetes (n = 457)	- Personal factors	- Risk-seeking is associated with low adherence to diabetes self-management in general and to specific modalities including low adherence to a healthful eating plan, consumption of low-fat food, exercise, blood glucose monitoring, and foot care. - No observed association between risk-seeking and adherence to consumption of fruits and vegetables.	- Nonadherence to self-care behaviours stems from a number of patient-related factors, including a decrease in motivation, self-efficacy, health literacy, and impaired disease perception.
Smalls, Gregory, Zoller, & Egede, (2014). *Effect of neighbourhood factors on diabetes self-care behaviours in adults with type 2 diabetes*	Cross-sectional study (quantitative)	Examine the effect of neighbourhood factors on diabetes self-care in adults with type 2 diabetes.	615 participants from academic medical centre and a Veterans affairs medical centre in the south-eastern US.	- Neighbour-hood characteristics - Social support - Access food	- Previous studies have shown that socio-environmental factors, specifically neighbourhood characteristics, can impact health outcomes of those with chronic illness, including type 2 diabetes. - Type 2 diabetes self-care behaviour was significantly associated with social support and access to healthy food - Access to healthy food and social support may be important targets for future interventions in individuals with type 2 diabetes when trying to improve patients' self-care behaviours.	- Neighbourhood characteristics that have been identified as barriers to type 2 diabetes self-care behaviours include, but are not limited to, crime, violence, social cohesion, social support, and lack of resources - Neighbourhood violence and neighbourhood aesthetics latent variables did not have a statistically significant association with type 2 diabetes self-care behaviours.
Tol, Shojaeezadeh, Eslami, Alhani, Mohajeritehrani, Baghbanian, & Sharifirad, (2012). *Evaluation of self- care practices and relative components among type 2 diabetic patients*	cross- sectio nal study (quantitative)	To assess self-care practices and their relative components among type 2 diabetic patients	140 patients	- Personal factors (gender, education)	- Gender of participants had significant relation with general and specific diet. - Level of education had significant association with specific diet. Type of treatment regimen had significant relation with general diet.	-

Walker, Gebregziabher, Martin-Harris, & Egede. (2014). *Understanding the influence of psychological and socioeconomic factors on diabetes self-care using structured equation modeling*	Cross-sectional study (quantitative)	To develop and test latent variables using SEM to provide a better understanding of the social determinants of health that influence diabetes self-care	615 patients from two adult primary care clinics in the south-eastern United States,	- Self-efficacy - Social support	- Lower psychological distress, higher social support and higher self-efficacy were significantly related to diabetes self-care psychological distress was negatively associated with self-care, while self-efficacy and social support was positively associated with self-care behaviours. - Psychosocial factors are more strongly associated with self-care than social status factors. Psychosocial factors can be separated into three latent constructs: psychological distress, social support and self-efficacy. - Better self-care is associated with lower psychological distress, higher social support, and higher self-efficacy.	-
Lamprinos, Demski, Mantwill, Kabak Hildebrand, & Ploessnig, (2016). *Modular ICT-based patient empowerment framework for self-management of diabetes: Design perspectives and validation results*	Pilot study	To explore the impact of an ICT-based patient empowerment framework in diabetes self-management.	Participation of 60 patients and 12 health professionals	- ICT	- An ICT-based patient empowerment framework that facilitates self-management pathways (SMP). The SMP is a cyclical process that includes medical consultations followed by self-management goal setting, then self-management actions, then feedback collection, and finally evaluation and self-management readjustment. - The ICT framework made them more aware of their eating behaviour and that it made them try harder to comply with their diets. - The ICT system did have a positive effect on their diabetes and that it helped them to better handle their disease. Patients considered two important changes in this regard: nutrition control and physical activity. Had paid more attention to their lunch breaks and to regular intake of meals since the start of the self-management tools. -Some made adjustments to their dietary habits	-The application was not all that easy to smoothly incorporate into their daily living - Sociocultural backgrounds significantly affect the role and impact of ICT in the self-management of diseases such as diabetes.
Gorter, Tuytel, de Leeuw, van der Bijl, Bensing, & Rutten, (2010). *Preferences and opinions of patients with Type 2 diabetes on education and self-care: a cross-sectional survey.*	Cross-sectional study (quantitative)	To study the association between peoples' preferred setting of education, preferred educator, preferred self-care activity and least preferred self-care activity, on the one hand, and their characteristics, preferences and opinions on the other	994 individuals via general practitioners (GPs) (n = 80) and endocrinologists (n = 13)	-Patients weight	- Participants who considered themselves overweight indicated that keeping to a healthy diet was their preferred self-care activity. - Healthcare providers should take patients' perceived weight into account when they discuss lifestyle advice, especially because dietary self-management is often seen as a burden. - Taking medication was not considered particularly burdensome by people with a low educational level and longer duration of diabetes. Age was not a determinant of any preference.	- Taking medication or keeping to a healthy diet were considered most burdensome by people with eating disinhibition.

5. Included literature table: perspective of the provider

Title/authors (year)	Type study	Study purpose	Sample size/population	Health assets	Explanation	Barriers
Breland, McAndrew, Gross, Leventhal, & Horowitz, (2013) . *Challenges to healthy eating for people with diabetes in a low-income, minority neighbourhood*	Cross-sectional study (qualitative)	Further understanding about types of foods eaten, food preparation, sources of foods and meals, communication with providers, and effects of race and ethnicity on eating in this population.	37 black/Latino adults with diabetes in Harlem/ New York	-Resources -Knowledge -Short term focussed - Stress	- Health professionals need to understand how patients view diabetes and effective self-management, including acknowledging that racial discrimination and stress may be associated with the development of diabetes and can affect its management.	- *The food environment limited participants' access to healthy foods;* the cost, quality, and availability of healthy foods influenced their ability to maintain a healthy diet. lack of access, money, transportation, and time were barriers to forming action plans to access healthy foods. By contrast, less healthy, although not always good-quality foods were convenient and readily available. - *Understanding of diabetes and communication with health professionals about healthy eating was limited and abstract;* Participants understood that diet affects diabetes, but were unconvinced that dietary changes lower blood glucose levels. Participants generally wanted information about healthy eating but believed that health professionals rarely discussed diet and that when these discussions occurred, dietary advice was typically impractical, abstract, and unrelated to participants' views of food. felt as they were treated generically. - *The short-term, negative consequences of healthy eating outweighed benefits;* The experienced-based common sense logic of location, social context and observed risks of hypoglycaemia undermined the acceptance of nutritional information and healthy eating. - *Stress, from poverty and discrimination,* was seen as a causal factor for both poor eating habits and diabetes. Racism and economic discrimination were woven throughout descriptions of stress, diet, and illness. - Participants followed their common sense to guide their diabetes management and improve their health since healthy eating to control diabetes does *not provide immediate results.*
Comellas, Walker, Mavsas, Merkin, Zonszein, & Stelknick, (2010). *Training Community Health Promoters to Implement Diabetes Self-Management Support Programs for Urban Minority Adults.*	Pilot evaluation study	The goal of the intervention was to include themes that had emerged in recent focus group and survey research in the target population.	17 adults with diabetes participated in this pilot evaluation.	-Problem-solving -Action planning	- Goal setting has been shown in previous self-management studies to help individuals develop a sense of self efficacy. - Myths and realities, diet, and medications and the importance of identifying social supports were discussed. - valued the social support received through the program, but to brief. Results indicate significant improvements including diabetes self-care items and eating more fruit/vegetables	-Training curriculum was developed for peers who were called community health promoters (CHPs), that is, people with diabetes (or diabetes in their immediate family) who are trained to facilitate "diabetes discussion circles" for self-management support for people in the community. This can be influential resources for motivating people to learn from a peer's personal experiences through group discussions of diabetes-related topics

Graffigna, Barello, Libreri, & Bosio, (2014) *How to engage type-2 diabetic patients in their own health management: implications for clinical practice/*	Cross-sectional study (qualitative)	Explore the reasons and for their disengagement and elements which may hinder (or foster) the development of patient engagement in their care process.	29 Type-2 uncontrolled diabetes patients were asked to keep a one-week diary related to their experience of disease management	- Knowledge - Under-standing - Relationship with food - Doctor-patient relationship	- The doctor-patient relationship appears to be a key in offering the patients the emotional support they need.	- Lack of knowledge: reported doubts and held superficial knowledge related to their health condition and their treatment. - The patients have difficulty understanding the rationale of the diet regimens prescribed by the doctor. Patients often report difficulty in translating treatment into the concrete frame of their daily life. In particular, they show an incomplete understanding of the reasons behind the need for following the therapy and complying with a new lifestyle regime. - Food is strongly emotional and at the representational and symbolic levels. This health condition tends to make patients feel more like patients, rather than persons, due to its totalizing effect on the individuals' life.
Serrano-Gil & Jacob (2010). *Engaging and Empowering Patients to Manage Their Type 2 Diabetes, Part II: Initiatives for Success.*	Literature review	Describes some of the many and varied initiatives designed to engage and empower patients to self-manage their T2D	-	- Psycho-social support -Meaningfull /self-efficacy	- The wider community needs to become engaged in providing psychosocial support to help those with T2D self-manage their condition. specific social support interventions positively affect patient self-care and diabetes outcomes. - Behavioural changes that encourage individuals to effectively self-manage their diabetes are more likely to be adopted if the changes are personally meaningful and high self-efficacy is present. -Needs to encourage self-efficacy so that patients are empowered to adopt required behaviours to fulfil their expectations, thus reinforcing their engagement with the program. Program should engage target audience. - Enhancing self-management skills and confidence by encouraging a problem-solving approach allows patients to construct an action plan, and can empower, motivate and engage individuals to improve their health outcomes, whatever their health literacy status. Strategies as ask-tell-ask, closing the loop, to get the information they need. - The best way for healthcare professionals is to embrace the idea of self-management support through collaborative activities, rather than directive ones.	- It was unclear what resources need to be directed at the educators to ensure successful delivery of these educational programs. - Technology increases the amount of information of all aspects of T2D management, not all of this information is easily accessible to all socioeconomic groups or geographical regions.
Wardian & Sun, (2014). *Factors Associated With Diabetes-Related Distress: Implications for Diabetes Self-Management.*	Cross-sectional study (quantitative)	To further knowledge by identifying psychological factors, social support, and behavioural factors associated with diabetes-related distress in a diverse sample of people with T2DM.	267 participants	- Healthful eating -Distress	- Following a healthful eating plan is associated with lower diabetes-related distress. Providing resources that enable patients to be successful in eating a healthful diet may be worth the investment. - Helping people with diabetes obtain reliable information about diet and portion control and identify where they can obtain healthy food without breaking their budget can be invaluable. Moreover, referrals to dieticians or programs designed to support people in making dietary changes may not just reduce their waistlines, but may have the added benefit of reducing distress. - high self-efficacy may be associated with reduction in	-

					diabetes related distress and increased confidence in performing self-management tasks necessary to improve health outcomes.	
Wellard, Rennie, & King, (2008). *Perceptions of people with type 2diabetes about self-management and the efficacy of community based services/*	Cross-sectional study (qualitative interpretative design)	Explored issues people with type 2 diabetes experienced in their self-management practices and access to regional community based services. sought to understand how people managed their diabetes in this context	Four individuals aged55–65 years, who had been diagnosed with type 2 diabetes for at least two years, lived in regional Victoria	- Limited access resources. - Feeling judged - Spousal - Capable of info searching	- All participants were self-sufficient in selecting diabetes information resources that suited their needs and kept them informed. They used arrange of media to inform themselves about diabetes. TV and the internet were popular sources of information. - Support or the lack of support from immediate and extended family affected their diabetes self-management choices. - Spousal relationships were very supportive and seen as encouragement to continue 'healthy eating', Spouses were reported as active in discussing food choices and meal sizes. - Food was identified as an important factor in the lives of participants and influenced their social relationships. Dietary restrictions often made participants feel uncomfortable at social events, as they had to decide whether to accept offered foods that were not healthy choices. - All participants developed their own strategies to overcome food barriers in social situations.	-Participants spoke of limitations in access and quality of community based services. - Family relationships, alternative sources of information and food choices influenced the way participants lived with diabetes. - Both podiatry and dietetic services were described as costly, and the attitudes of the professionals deterred regular use. Dietetic services were reported as not adding new knowledge and furthermore, inexperienced young dieticians contributed to the participants' frustration. - Participants reported often feeling judged about their food choices by family and friends who seemed unaware of their diabetes and dietary needs. - Participants also conveyed a belief that people in the general community lack awareness about diabetes dietary routines and factors that affect their management practices.
Weaver, Lemonade, Payman, & Goodman (2014). *Health capabilities and diabetes self-management: The impact of economic, social, and cultural resources.*	Cross sectional study (qualitative)	Explores how economic, social, and cultural resources shape the health capability of people with diabetes, focusing specifically on dietary practices.	45 people with diabetes from a primary care clinic in Ontario (Canada)	-Poverty -Social factors -Cultural resources	- Positive social support from family members in meal preparation, along with monitoring consumption favours sound diabetes management. - Nutritional knowledge is convertible to dietary choices, and educational interventions have been shown to improve dietary behaviours. - Cultural factors such as taste, value or commitment given to health, often the result of early socialization or from health-related experiences, appear to influence dietary choice and behaviour suggests. - Social networks were constituted mainly by a few family members and friends - Low resource group faces economic challenges with buying food. In the medium resource group, the social milieu played a mixed role, sometimes supporting proper dieting, sometimes not. - Medium-resource group: Sufficient access to healthy foods, Family contexts that offered varied support, Activity levels that varied: many worked, engaged in various community activities, while health or finances restricted others to less costly, homebound pursuits; and motivation and ability to seek dietary information, and high trust in information received from personal contacts. High resource group is characterized by: Ready access to healthy foods irrespective of costs, a social	- Poverty or underemployment contributes to food insecurity, the risk of hunger, and a cycle of under- and over-consumption of what tends to be calorically dense, low fibre and high glycaemic foods. - Wives and mothers play the traditional role in food preparation; the tendency to imitate or harmonize with the behaviours of others can undermine healthy eating. - Low income group is characterized by: (1) limited ability to afford and access healthy foods; (2) social ties that do not support or sometimes undermine a healthy diet; (3) low social engagement outside the household that can depress motivation to maintain health , healthy diet, (4) Limited access to information resources (e.g., people, computer know-how) that might provide information or answer questions about dietary management. Low resource group means: low economic resources: work, money social: activities, friends family, cultural: get your information, which school, degree

					environment that mostly encourages and monitors dietary management, and does not indirectly sabotage management by bringing in or consuming unhealthy foods. Ready access to trusted sources for information about appropriate dietary management. Meaningful social activities that motivate the management of diabetes and other health problems.	
Laranjo, Neves, Costa, Ribeiro, Couto, & Sá, (2015). *Facilitators, barriers and expectations in the self-management of type 2 diabetes—a qualitative study from Portugal*/	Cross-sectional study (qualitative)	To assess the facilitators, barriers and expectations in the self-management of type 2 DM, as perceived by patients	Three focus groups, Having the diagnosis of type 2 DM at the electronic medical record and being over 18 years old.	-Social contacts/social ties -Tailored guidance.	- Some sources of information regarded by patients as facilitators were: family members, friends or acquaintances with diabetes; healthcare professionals; their own experience in dealing with the disease; the media (e.g. television, magazines); and the booklets and magazines offered by APDP-Diabetes. - Family and social connections were seen either as facilitators in certain situations, or as barriers in others, depending on the circumstances. - In general, participants who had a friend or family member that helped them with some aspect of self-management considered them as facilitators. - Tailored guidance and specific information about diet and physical exercise seem to be important in goal setting and habit modification, and should be regularly provided. Considerations for policy makers include the need to facilitate access to healthy foods.	- Diet was the most problematic self-management behaviour, as referred by the majority of participants. - Barriers in changing dietary habits, which were grouped in four main categories: decisional, food quality, food quantity and dietary schedule. Most of participants mentioned decisional aspects (such as lack of motivation, craving particular food). - In terms of quality, the cost of healthy foods and having to learn how to cook healthy recipes were mentioned as common barriers to improving the quality of the diet. - Several myths, doubts and knowledge gaps regarding specific types of foods were identified. It was common for participants to correctly identify general aspects of a healthy diet, but also to reveal confusion and lack of understanding about how to implement it daily when making their food choices and when preparing their meals. A common myth was the belief that some foods were 'forbidden' for people with diabetes. - Participants mentioned some barriers related to family and social aspects. The most commonly mentioned one was the difficulty in maintaining a healthy diet during holidays and social events. -The lack of support by family members, sometimes even resembling sabotage of their efforts was mentioned. Female participants frequently said it was hard to have to cook for others in the household who were not motivated to eat the meals they had to prepare for themselves. -In general, participants expressed the need for more information about T2DM.

Murrock, Taylor, & Marino, (2013). *Dietary Challenges of Managing Type 2 Diabetes in African-American Women*/	Cross-sectional study (qualitative)	Explore the challenge of self-management of diet in African-American women living with type 2 diabetes.	24 african-american women with type 2 diabetes	-Decision making, - Knowledge - Support	- Dietary management is the cornerstone of diabetes self-management and following appropriate dietary guidelines may result in good glycaemic control, weight loss, and blood pressure management Such dietary management requires many decisions several times each day to determine what to eat, when to eat, and how much to eat.	- Frequent difficulties/struggles of managing diabetes. Not understanding how to be flexible with their meal planning to incorporate these foods and still manage their diabetes. - need for individualized guidance, view their own dietary needs as being separate from family needs, which required additional planning, preparation, and financial resources. Frustration with the diabetes education they received as it was not individualized to meet their specific needs to help them manage their diabetes: (hurried, fragmented and not helpful). - Strong desire for some type of support in diabetes. Did not feel that they really had a clear understanding of how to manage their diabetes or where to turn for support when they needed it. Participants often mentioned that health professionals provided the emotional support that was lacking from family and friends. - Misinformation or gaps in diabetes education. Most participants thought it would very helpful to have some form of continuing education to fill the information gap - Increasing the use of interactive communication techniques and technologies (e.g., radio, television, telephone, email, video, and computer links) to disseminate information and communicate with a wider audience has been shown to help address health literacy deficits and encourage self-efficacy.
Schoenberg, Traywick, Jacobs-Lawson, Kart, (2008). *Diabetes Self-care among a Multi-ethnic Sample of Older Adults.*	Cross-sectional study (qualitative)	Examine patterns of self-care among four groups at elevated risk from diabetes, focusing on the questions: (1) what are the patterns and frequency of diabetes self-care practices and (2) what explanations do people give for their self-care behaviours or why do they engage in these patterns?	80 persons, age 55 + , diagnosed with type 2 diabetes from each of the four groups(per group 20)—African Americans, Mexican Americans, Native Americans, and rural Whites	- Social location - Health status - Cognitive factors - Information source	- Researchers have suggested that a range of factors account for self-care behaviours, including social location (age, gender, and socioeconomic status), health status (e.g., depression, co-morbidities) and cognitive factors (e.g., self-efficacy, health beliefs). - The only other sociodemographic difference in self-care pertained to age, with older participants being more likely to follow a recommended diet for those with diabetes. - Most participants (68%) indicated that their physician or other allopathic health care provider (nurse, pharmacist) was their primary source for diabetes information. Other primary sources of information included media (25% of overall sample); friends and family (4%) and other or common sense (3%).	- Those with lower socioeconomic status frequently encounter poor quality /insufficient patient counselling on self-care and a lack of specialist care, compromising self-care and diabetes outcomes. - Participants described a medication-taking imperative fostered by their own self-efficacy and perceived effectiveness of the medications. - The respect/authority afforded to most providers reinforced the importance of recommended self-care behaviours, among these medications and, to a lesser extent, diet, foot care, and BGM. Third, many participants voiced - Lack of familiarity with and harboured many concerns about unconventional approaches. - Most described the challenges with affording blood sugar testing equipment or the foods that they have been advised to eat for optimal glycaemic control. - Since physicians prescribe medications and, at most, only recommend other self-care components, participants may prioritize medications over dietary or exercise regimens.

6. Research invitation

Wageningen, 13/12/16

Beste deelnemer,

Dit onderzoek van de leerstoelgroep Gezondheid en Maatschappij, onderdeel van de Wageningen universiteit, houdt zich bezig met het ontdekken wat er nodig is om gezond te eten bij diabetes type 2.

Uw ervaringen en gedachtes, kortom uw verhaal over diabetes en voedingsgewoontes geeft belangrijke informatie voor dit onderzoek.

Het onderzoek bestaat uit drie delen.

1. Een ontmoetingsafspraak, hierin wordt het onderzoek wat duidelijker mondeling uitgelegd. Er wordt een algemene vragenlijst ingevuld en een thuisopdracht uitgelegd als voorbereiding op het interview. Dit duurt ongeveer 10 minuten.
2. Een thuisopdracht waarbij er wordt gekeken naar hoe u omgaat met diabetes en eten. Deze thuis opdracht wordt uitgebreider uitgelegd in de algemene ontmoetingsafspraak.
3. Een interview met Ester Speth, lid van het onderzoeksteam. Zij bespreekt de thuisopdracht en stelt vragen over hoe u op dit moment omgaat met eten in uw alledaagse leven. Het interview zal ongeveer een uur duren en wordt opgenomen met een recorder.

Alle ontmoetingen vinden plaats bij u thuis of een plek waar u zich op het gemak voelt.

Uw antwoorden worden geanalyseerd en gebruikt voor een afstudeeronderzoek. Alle verhalen, opmerkingen en reacties zijn vertrouwelijk en alleen de onderzoeker heeft toegang tot de persoonlijke informatie die verkregen is in de interviews. Uw echte naam wordt niet gebruikt in het verslag, hierdoor bent u niet te herkennen.

Hartelijke dank voor uw deelname,
Het onderzoeksteam.

Contactgegevens onderzoekers:

Dr. Ir. Laura Bouwman
&

Ester Speth
MSc student Health & Society- Wageningen Universiteit

☎ 06-81074823
✉ester.speth@wur.nl

7. General questionnaire

Algemene vragenlijst

Beantwoord de volgende 8 vragen. Vul het juiste antwoord in door het markeren van de bijbehorende met een X en het schrijven op de gestippelde lijnen indien nodig.

1. **Leeftijd**: ..... jaar oud

2. **Geslacht**: □Vrouw ☐Man

3. **Gediagnosticeerd met diabetes type 2 sinds**

datum: ……

4. **Heeft u een baan?**

□ Nee □ Ja

→ Wat voor soort baan? .....

5. Wat is uw hoogste niveau van onderwijs?

□Basisschool □VMBO □HAVO/VWO □MBO □HBO □WO

□ Onderwijs niet voltooid □ Geen onderwijs gevolgd □ Anders, namelijk.....

6. Wat is de samenstelling van uw huishouden?

□Partner □Partner en kinderen □Alleen met kinderen □Alleen □Anders, namelijk

7. Hoeveel kinderen heeft u?

..... kinderen

8. Door wie bent u in contact gekomen met dit onderzoek?

.....

9. Wilt u een samenvatting van de resultaten van het onderzoek ontvangen?

□ Nee

□ Ja, stuur deze naar het volgende adres of e-mail:

.....

8. Home assignment

Thuisopdracht

Eten doe je elke dag. Er zijn misschien momenten op een dag waarbij gezond eten u makkelijk afgaat en momenten waarop dit lastig is.

Hoe gaat u om met (gezond) eten in uw dagelijks leven?

Uitleg:
Op de volgende pagina ziet u de dagen van de week en twee kolommen. Met bovenstaande dikgedrukte vraag in gedachten wil ik u vragen deze kolommen in te vullen

Wat zorgt er bijvoorbeeld op een dag voor dat u gezond eet?
Dit schrijft u in de kolom: "*Wat gaat er goed?"*
En wat zorgt er bijvoorbeeld op een dag voor dat het allemaal wat moeilijker is?
Dit schrijft u in de kolom: "*Wat is er lastig?"*

Er zijn geen goede of foute antwoorden dus u kunt alles opschrijven wat in u opkomt. Er kunnen in uw leven verschillende zaken zijn die helpen om gezond te kunnen eten. Dit kan heel breed zijn. Denk hierbij bijvoorbeeld aan uzelf, uw omgeving, verschillende instanties, etc.…

Niet elk vakje hoeft ingevuld te worden. Maar in één vakje kunnen ook meerdere dingen ingevuld worden. Ga hier dus vrij mee om.

Ik wens u veel succes en zie u graag bij het interview!

Mocht u nog vragen hebben dan kunt u altijd contact opnemen met mij.

Contactgegevens onderzoekers:

Dr. Ir. Laura Bouwman
&

Ester Speth
MSc student Health & Society- Wageningen Universiteit

☎ 06-81074823
✉ester.speth@wur.nl

	Wat gaat er goed?	Wat is een lastig?
Maandag	-	-
Dinsdag	-	-
Woensdag	-	-
Donderdag	-	-
Vrijdag	-	-
Zaterdag	-	-
Zondag	-	-

9. Informed consent

Het zelf managen van eetgewoontes bij diabetes type 2

Toestemmingsverklaringformulier

- Deze studie maakt deel uit van een onderzoek vanuit de leerstoelgroep Gezondheid & Maatschappij aan de Wageningen Universiteit. De studie wordt begeleid door Laura Bouwman, universitair docente.
- Deze studie onderzoekt wat er nodig is om gezond te eten bij diabetes type 2.
- Hiervoor vragen wij u wat u heeft veranderd aan uw manier van eten na het krijgen van de diagnose diabetes type 2 en hoe u op dit moment omgaat met eten in uw alledaagse leven.
- Het onderzoek bestaat uit een thuisopdracht en een interview door studente Ester Speth.
- Het interview wordt opgenomen met audio apparatuur.
- Deelname aan dit onderzoek is geheel vrijwillig, het is mogelijk om te stoppen wanneer u dat wenst.
- Alle persoonsgegevens worden vertrouwelijk behandeld – alleen onderzoeker en de onderzoeksleider kunnen uw identiteit achterhalen, maar in publicaties en verwerking van onderzoeksgegevens zijn deze geanonimiseerd”

Ik verklaar op een voor mij duidelijke wijze te zijn ingelicht over de aard en methode van het onderzoek. Ik weet dat mijn naam en identiteit vertrouwelijk blijven en dat deze geheel anoniem worden verwerkt in het onderzoek

Ik stem geheel vrijwillig in met deelname aan dit onderzoek. Ik behoud me daarbij het recht voor om op elk moment zonder opgaaf van redenen mijn deelname aan dit onderzoek te beëindigen.

_____	_____	_____
Naam deelnemer	handtekening	datum

Ester Speth	_____	_____
Naam onderzoeker	handtekening	datum

Dr. ir. Laura Bouwman		_____
Naam onderzoeksleider	handtekening	datum

10. Introductory meeting

Aim	Process	Content in Dutch
Introduction and explaining the context of the study	- Introduce researcher - Explain study - Explain why participants is chosen	Hallo, mijn naam is Ester Speth en ben tweedejaars master student van de opleiding gezondheid en maatschappij. Voor mijn opleiding doe ik een afstudeer opdracht samen met de leerstoelgroep gezondheid en maatschappij van de Wageningen universiteit. Voor dit onderzoek kijk ik naar wat ervoor zorgt dat iemand die gediagnosticeerd is met diabetes type 2 gezond kan eten. Nu ben ik met u in contact gekomen met u. De reden hiervoor is omdat u langer dan een jaar geleden gediagnosticeerd bent met diabetes type 2. Dit zorgt ervoor dat u ervaring heeft met hoe het is om om te gaan met diabetes en de aanbevolen gezonde voeding. Hier zou ik graag met u naar kijken.
Explore background participant	- Fill in standard questionnaire	- Om te beginnen zou ik graag wat standaard informatie over u ontvangen. Daarvoor heb ik een vragenlijst, zou u die willen invullen. - Bedankt voor het invullen.
Planning interview	- Setting a date for the interview	Dan zou ik graag kijken naar een datum voor het afnemen van de interviews. (voorkeur heeft voor mij over een week, is dat mogelijk).
Explore healthy success and barriers to dietary habits in daily life	- Explaining their home assignment	Als voorbereiding op ons interview zou ik u willen vragen om de aankomende week na te denken over hoe u omgaat met gezond eten in uw dagelijkse leven. Ik heb een blad bij mij waarop u dit kunt noteren. Er zijn twee kolommen op de ene kant schrijft u wat goed gaat. De andere kant de uitdagingen. Er zijn geen goede of foute antwoorden dus u kunt alles opschrijven wat in u opkomt. Er kunnen in uw leven verschillende zaken zijn die helpen om gezond te kunnen eten. Dit kan heel breed zijn. Denk hierbij bijvoorbeeld aan uzelf, uw omgeving, verschillende instanties, etc. Niet elk vakje hoeft ingevuld te worden en in één vakje kunnen ook meerdere dingen ingevuld worden. Ga hier dus vrij mee om. Het staat hier ook nog allemaal op papier.
Closing introductory meeting	- Asking if everything is clear - Thanking the participant and saying goodbye	Is het voor u duidelijk wat er allemaal gaat gebeuren? Heeft u nog vragen? Mochten er nog vragen bij u opkomen dan kunt u altijd contact met mij opnemen. Dan wil ik u alvast bedanken, erg leuk dat u mee wilt doen met mijn onderzoek en dan zie ik u bij de volgende afspraak. Nog een fijne dag verder.

11. In-depth interview

Process	Content
- Starting with small talk - Asking informal about the home assignment - Sign informed consent	Hallo, (praten over willekeurig onderwerp) Is het allemaal goed gegaan de afgelopen dagen met de thuis opdracht? Voordat ik daadwerkelijk wil beginnen met het interview wil ik u vragen om een toestemmingverklaring te tekenen. Dit verklaart dat u begrijpt wat er gebeurt met het onderzoek en dat u het hier mee eens bent. Is alles duidelijk?
- Interview questions: Asking questions about what changed with regards to food after being diagnosed with diabetes type 2	Wat betekende het voor u toen u gediagnosticeerd werd met diabetes type 2? ± 10 min - Voor uw eetgewoontes? - Kunt u aangeven wat er veranderde?
- Make a connection between home assignment and interview questions	Hoe gaat u nu om met gezond eten in uw dagelijkse leven? ± 15 min - Wat gaat er goed? (successen) - Waar bent u trots op? - Hoe heeft u dat geleerd? Hoe komt het dat dit lukt? zelf/mensen/organisatie? - Wanneer (historisch)? - Waar (geografisch)? - Met wie (sociale)? - Eten (welke handeling bij eten)?
- Make a connection between home assignment and interview questions	Hoe gaat u nu om met gezond eten in uw dagelijkse leven? - Wat vindt u lastig? - Waarom vindt u dit lastig? - Hoe gaat u hier mee om? - Waar loopt u tegen aan bij de adviezen over gezond eten met diabetes? - Wat heeft u nodig om deze uitdaging aan te gaan?
- Closing interview - Any addition by participant - Asking for feedback (home assignment/interview) - Thanking participant and giving present.	Bedankt, alle vragen zijn besproken. Zijn er nog zaken die u graag toevoegt of dingen die niet besproken zijn en belangrijk zijn voor u? - Heeft u nog feedback voor het interview? - Wat vond u van de thuisopdracht? Was het duidelijk? - Heeft u verder nog vragen? Dan wil ik u nogmaals bedanken voor uw deelnamen. Als bedankje heb ik een kleinigheidje voor u. VVV-bon geven.

12. Home assignment participant 1, 4, 5, 9 and 11

	Wat gaat er goed?	Wat is er lastig?
Maandag	-	-
Dinsdag	-	-
Woensdag	-	-
Donderdag	-	-
Vrijdag	-	-
Zaterdag	-	-
Zondag	-	-

Huisopdracht Hoe gaat u om met gezond eten in uw dagelijkse leven Leerstoelgroep Gezondheid en Maatschappij, Wageningen Universiteit

	Wat gaat er goed?	Wat is er lastig?
Maandag	-	-
Dinsdag 3-01-'17	ontbijt - 4 scheppen havermout + 1 bruine boterham 2 glazen thee + 2 glazen water voor medicijnen. 10.30 - koffie met de laatste appelflap. 12.30 - 2 bruine boterhammen met 20% kaas + [illegible] 1 glas melk + 1 appel. 15 uur - 2 kopjes thee met chocolaatje. 16.30 - kopje thee zonder suiker + laatste oliebol. 17.30 - sperciebonen + [illegible] + aardappel + 1 [illegible] yoghurt met schepje vla (0% + suikervrij) + water bij het eten 20.00 koffie	- neem 's morgens [illegible] + 1 uitgeperste sinaasappel. Dat mag volgens diëtiste niet meer vanwege vele stukjes. Weet nu niet wat ik wel moet nemen bij de levertraan. - wat ik 's morgens op brood moet doen. meestal [illegible] kaas. - de appelflap + oliebol omdat ik die eigenlijk niet mag hebben!
Woensdag 4-01-'17	ontbijt: zie Dinsdag. 10.30 - 2 koffie + koekje 12.30 - 2 bruine boterhammen met komkommersalade + glas warme melk + 1 banaan 15.00 - op visite geweest - plakje taart + 2 thee + ½ glaasje wijn met + 2 stukjes stokbrood met [illegible] + water 18.00 - snijbonen + 1 aardappel + 1 gekookt ei. yoghurt. 20.00 - koffie - [illegible] (halfvolle [illegible])	- Om op visite te gaan en dan te moeten zeggen dat je geen taart [illegible] eten en andere dingen die je krijgt aangeboden, die ze speciaal hebben gemaakt voor de visite.
Donderdag 5-01-'17	ontbijt: zie Dinsdag. 10.30: 1 koffie + 1 thee + koekje 12.30: 2 bruine boterhammen, met 1 zoute haring + 1 met tomaat. 1 glas melk + 1 appel. 15.00: 2 kopjes thee + 1 kopje koffie. 18.00: gekookte [illegible] + 1 aardappel + stukje kip. + kwark als toetje. 20.00: koffie	- geen lastige dingen gehad.
Vrijdag 6-01-'17	ontbijt: zie Dinsdag 10.30 - koffie 12.30 - 2 Wasa knäckebröd + 1 boterham met [illegible] makreel + 1 appel. + karnemelk. 16.00 - 1 thee + om 16.00 uur 1 koffie 18.00 - spruitjes + 1 aardappel + stukje kip. + kwark. 20.00 koffie en later wat pinda's + water limonade (veel water en weinig [illegible])	- geen lastige dingen gehad.
Zaterdag 7-01-'17	ontbijt: zie dinsdag. 10.00: 2 koffie + 1 knäckebröd. 12.30 - 2 bruine boterhammen met makreel en kaas 20% + 1 glas melk - en een appel. 15.00 - 2 thee + speculaasje 18.00: rode kool + gebakken aardappels + gebraden kippenpoot + kwark + 0% vla + kwark 20.00 1 koffie + glaasje waterlimonade	- de gebakken aardappels waren heerlijk maar het was wel wat meer dan de [illegible] aardappel die ik gewoon ben om te eten. Dat was wel lastig.
Zondag 8-01-'17 verjaardag	ontbijt - 4 scheppen havermout - 1 bruine boterham met smeerkaas - 1 ei gekookt. 11.00 - 1 koffie + mini stukje appeltaart + 1 thee. 13.00 - 2 boterhammen, [illegible] + rookvlees 1 beker melk. 16.00 - 2 thee + pindarotsje. 18.00 - Lasagne met spinazie bakje vanille yoghurt (halfvol) 20.00 1 koffie + waterlimonade ([illegible])	- op een verjaardag is het soms lastig om iets wat er aangeboden wordt af te slaan.

Huisopdracht Hoe gaat u om met gezond eten in uw dagelijkse leven Leerstoelgroep Gezondheid en Maatschappij, Wageningen Universiteit

14. Home assignment participant 3

	Wat gaat er goed?	Wat is er lastig?
Maandag	van maandag t/m vrijdag gaat het best goed met gezond eten en de tussendoortjes	- uiteten met collega's moeilijk om dan gezond te eten
Dinsdag	-	- op het werk collega jarig dus taart ik neem nooit ook al zou ik bij wijze van spreken wel de hele taart lusten
Woensdag	weegschaal geeft teveel kilo's aan dus extra gemotiveerd om gezond te eten en vanavond maar weer sporten	-
Donderdag	-	- thuis gewerkt, zittend werk toch nog teveel energie verbruikt (was ophangen, koffie halen beneden enzo) en een hypo gekregen dan moet je eten (veranderend)
Vrijdag	-	- in de avond kwam onze zoon eten, klein beetje ongezond gegeten, is moeilijk als je bezoek krijgt om dan iets anders te nemen wat gezonder is. ik ben dol op koken en bakken
Zaterdag	- gezonde hapjes bij de borrel in de avond	- buiten de deur geluncht wel gezonde salade genomen met vis maar wel een wijntje erbij in de middag en avond wijntjes gedronken en ongezond gegeten
Zondag	-	-

15. Home assignment participant 6

Wat gaat er goed

Donderdag 26 januari 2016

Stuk fruit Mandarijn

Vrijdag 27 januari

Sandaard iedere morgen een klein glas Jus d'orange.

Gerookte forel op brood

Zaterdag 28 januari 2017

Zoute haring

Zondag 29 januari 2017 t/m nu

Flesje rode wijn open getrokken.

Als je je begeeft in de wereld van de gezonde voeding dan is er veel voor een diabeet mogelijk. Het is rekenen met koolhydraten en eventueel corrigeren met insuline.

Wat is lastig

Donderdag 26 januari 2016

Berekenen van fruitsuikers. Bij de warme maaltijd te hoge bloedsuiker. Tijdens de maaltijd teveel gespoten waardoor later op de avond een Hyper.

Vrijdag 27 januari

Vette dag. Een maal per week moet dat kunnen. Wij praten over patat/frikandellen/croquetten) Soms uit de olie soms uit de Air-fryer.

Zaterdag 28 januari 2017

Je verwennen bij de koffie met een saucijzenbroodje.

Zondag 29 januari 2017 t/m nu

Soms moeilijk om een gezonde maaltijd samen te stellen i.v.m. veel tegenstrijdigheden

Wel of geen koolhydraten. Verandering van de schijf van vijf (ik ben daar mee groot geworden en inmiddels 68 jaar.)

De tegenstrijdigheden v.w.b. adviezen van Goeroes en Wetenschappers.

Diabeten die van de insuline afkomen als zij geen koolhydraten meer eten. Ik ben opgegroeid met brood en aardappelen.

Dr. Frank met zijn eiwit dieet

Enz enz Dit alles geeft veel verwarring en ervaar ik als lastig.

Het specifiek bijhouden van een schema met de vraag, wat gaat er goed? En wat is lastig? Is voor mij al een probleem op zich.

16. Home assignment participant 7

	Wat gaat er goed?	Wat is er lastig?
Maandag	- Medicijnen goed ingenomen	- Eigenlijk niets
Dinsdag	- Bijna alles (behalve zie daar →	- Injectie na lunch vergeten
Woensdag	- voldoende fruit gegeten	- Om minder te eten, als het zo lekker is
Donderdag	- alles	- niets
Vrijdag	- gewone dag (prima)	- niets
Zaterdag	- uit eten geweest	- iets te weinig gespoten. suikerspiegel 12,1
Zondag	- alles prima	- vandaag niets.

Huisopdracht Hoe gaat u om met gezond eten in uw dagelijkse leven Leerstoelgroep Gezondheid en Maatschappij, Wageningen Universiteit

	Wat gaat er goed?	Wat is er lastig?
Maandag 30-01-2017	boodschappen gedaan Was gedaan gewandeld	onrustige nacht gehad.
Dinsdag 31-01-2017	- was gedaan. Eten gemaakt Boodschappen gedaan	- Erg moe
Woensdag 01-02-2017	- Visite gehad. Eten gekookt.	- wandelen niks. geen zin.
Donderdag 02-02.	- Bloed prikken [illegible] Boodschappen Eten koken was doen	- Hypo gehad. geen wandeling gedaan.
Vrijdag 27-01-2017	eten koken	bewegen lastig visite / hapjes enz.
Zaterdag 28-01-2017	wandelen over de markt wageningen.	bloedsuiker hoog twijfel insuline plek
Zondag 29-01-2017	naar kerk geweest	geen zin in wandelen

Huisopdracht Hoe gaat u om met gezond eten in uw dagelijkse leven — Leerstoelgroep Gezondheid en Maatschappij, Wageningen Universiteit

18. Home assignment participant 10

	Wat gaat er goed?	Wat is er lastig?
Maandag 6	- normale dag avond jeu de boules	- —
Dinsdag 7	- normale dag	-
Woensdag 1	- 11⁰⁰ gesprek Ester Speth middag Jeu de boules	- jarige oudkoeken e.d.
Donderdag 2	- middag dochter Bennekom, opvangen kleinkinderen uit school avond kinderen wegbrengen/ophalen van de gasten.	- avondeten bij dochter en eten "wattle potschaft" Metformine-pil vergeten
Vrijdag 3	- Witten" jarig	- avond verjaardag broer, taart, snacks e.d. "Rokershol"
Zaterdag 4	- Middag, dochter Bennekom samen met andere dochter, man en alle kleinkinderen	- avondeten "in 'n alien Chinees"
Zondag 5	- namiddag verjaardag overbuurman	- uitgenodigd, koffie, taart, snacks e.d.

Huisopdracht Hoe gaat u om met gezond eten in uw dagelijkse leven   Leerstoelgroep Gezondheid en Maatschappij, Wageningen Universiteit

19. Used citations in Dutch

Participant 1:

- Ik heb nu een motivatie me kinderen een vriendin en mijn eigen kinderen. Je wordt wat bewuster.
- Je wordt een beetje in het diepe gegooid van ja wat is wijsheid.
- De keerzijde van het verhaal is dat het alternatief wel vaak drie keer zo duur is al. ja dan moet je ook in het huishoud boekje kijken van ja jongens wat is realistisch.

Participant 2:

- Nou meer het bedenken vind ik wel lastig. Het bereiden niet en wij eten alles dus dat is wel makkelijk.

Participant 3:

- Maar diabetes is een hele eenzame ziekte he. Je moet het allemaal alleen doen.
- Weetje als ik bij internist kwam kreeg ik altijd een pluim van goed bezig maar ja ondertussen heb ik ook een hartaanval gehad en een operatie.

Participant 4:

- We hadden een keer iemand van Opella en toen gingen we boodschappen doen. De helft mochten we niet hebben, dat maken we zelf wel uit. Dat hoeft zij niet te bepalen. Die hebben we er meteen uitgeknikkerd.
- Goh daar denk ik eigenlijk niet overna. Wij eten gewoon wat wij lekker vinden, wat wij willen eten.

Participant 5:

- Ik eet gewoon wat ik lekker vind en dat vind ik belangrijk. Dan ga ik maar een jaar eerder dood, dat vind ik best.

Participant 6:

- Ik vind het vervelend als mensen zich met mijn dieet bemoeien.
- Eigenlijk kan je gewoon alles eten, alleen moet je meer spuiten.
- Maar dan moet het wel de mensen zelf zijn en niet de partner die antwoord geeft, want daar heb ik niks aan. Dan voel ik mij er niet bij betrokken.
- Je hebt een loep nodig om het te lezen. Dat is niet bedoel voor mij denk ik dan.

Participant 7:

- Wij proberen de medicijnen aan te passen op wat ik eten.
- Hij doet ook niet alsof je ziek bent. Soms praten we opeens over zeilen. Dat maakt het prettig.

Participant 8:

- Ik eet gewoon mee. Ik neem wel een stukje taart, maar niet zo groot als hun.

Participant 10:

- Maar ook over voeding dan is dat weer slecht en dan is dat weer slecht

20. Thank you letter participants

Beste deelnemer,

In de winter van 2016-2017 heeft u deelgenomen aan mijn afstudeeronderzoek over hoe je gezond eet als je diabetes type 2 hebt. Hierbij is er gekeken naar factoren die het makkelijker of moeilijker maken om een gezond dieet vol te houden.

Tijdens deelname aan dit onderzoek heeft u aangegeven graag de conclusies van het onderzoek te ontvangen, vandaar dat u deze brief krijgt.

Door middel van literatuurstudie en interviews zijn verschillende factoren gevonden die bijdrage aan en gezond dieet. Echter zijn er ook verschillende factoren gevonden die een gezond dieet volgen moeilijker maken.
De belangrijkste factoren worden hieronder kort besproken.

Acceptatie
Om gezond te eten met diabetes type 2 is acceptatie van de ziekte van belang. Het accepteren van de ziekte helpt met het ontwikkelen/accepteren van factoren die bijdragen aan een gezond dieet. Zoals een positieve houding en steun/hulp van andere (bijv. vrienden, familie en gezondheidsprofessionals). Acceptatie draagt bij met het omgaan van (dagelijkse) moeilijkheden die volwassen met diabetes type 2 hebben.

Houding
Iemands houding, hoe iemand tegenover zijn ziekte staat, is van belang of iemand zelf gezond gaat eten. Hierbij moet iemand met diabetes type 2 wel vertrouwen hebben in het feit dat die gezond kan eten. Meer vertrouwen zorgt ervoor dat iemand beter in staat is gezonde eetgewoontes te maken. Het gebrek aan kennis en zelfvertrouwen over hoe en waarom je gezond moet eten zijn belemmerende factor voor zowel iemands houding als gezond eetgewoontes.

Steun
Het krijgen van steun is belangrijk om gezonde eetgewoontes met diabetes type 2 te hebben. Uit dit onderzoek blijkt dat met name de steun van de partner bijdraagt aan gezond eten, maar men ontvangt ook steun van vrienden, familie en gezondheidsprofessionals (bijv. huisarts, diëtist etc.).
Echter blijkt uit dit onderzoek ook dat er een gebrek aan steun is. Volwassenen met diabetes type 2 hebben soms het gevoel dat mensen hen niet steunen om gezond te eten. Sociale gebeurtenissen, zoals verjaardagen, etentjes etc. maken het moeilijker om gezond te blijven eten. Eten wordt namelijk geassocieerd met gezelligheid.
Er wordt ook weinig gesproken over voeding bij gezondheidsprofessionals en als erover wordt gesproken is dit vaak onduidelijk en niet afgestemd op het individu. Deze beperkte communicatie met gezondheidsprofessionals is een beperking voor gezonde eetgewoontes.

Gebruik van medicatie
Het gebruik van medicatie helpt om gemakkelijker om te gaan met diabetes. Het kan echter wel een belemmerend factor zijn om een gezond dieet vol te houden. Medicatie helpt met het reguleren van glucose levels, dit maakt het minder noodzakelijk om dit via gezonde voeding te doen.

Het dagelijkse leven
De bovenstaande factoren zijn van belang, maar deze factoren staan niet los van het dagelijkse leven van iemand. Zo zijn iemands leeftijd, geslacht en beroep van belang om factoren beter te begrijpen en om uiteindelijk een gezond dieet vol te houden.

Deze studie is uitgevoerd om meer inzicht te krijgen in wat in het dagelijkse leven bijdraagt en wat belemmeringen zijn om een gezond dieet te volgen met diabetes type 2. Dit onderzoek is verkennend geweest en er moet zeker meer onderzoek gedaan worden hiernaar. Gelukkig wordt er de aankomende vier jaar vanuit de Wageningen universiteit hier verder onderzoek naar gedaan.

Via deze weg wil ik u nogmaals bedanken voor het meewerken aan mijn onderzoek en wens ik u al het beste.

Mocht u nog verdere vragen hebben dan kunt u deze altijd mailen naar:
ester.speth@wur.nl

Met vriendelijke groeten,
Ester Speth