

Diabetes and obesity in primary health care

**– a condition beyond physiological
factors**

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“When I meet St. Peter and he asks me what I have done with my life, I will tell him that I spent my time dieting.”

“I feel like a small sponge on society, a little fatty. I will be a cost to society, I need diabetes injections and yes, I have neglected myself.”

Quotes from informants in the thesis

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ABSTRACT

Aims: The objectives of this thesis are to illustrate how obese and normal-weight individuals with type 2 diabetes (T2DM) experience their health status and health care interactions and to highlight the diabetes team (doctor, nurse, dietician, physiotherapist) approach to treating obese individuals with T2DM.

Methods: Studies I and IV were qualitative interview studies. In study I, the informants were individuals with T2DM and normal weight or obesity. The analysis method was content analysis (n=28). In study IV, interviews were conducted with seven groups and three individual members of a diabetes team. The grounded theory (GT) method was used to analyse the transcribed interviews.

Studies II (n = 287) and III (n= 339) were cross-sectional studies. In study II, health-related quality of life (HRQL) was measured with the Short Form 36 (SF 36) and Well-Being Questionnaire (W-BQ12). Attitudes towards disease and treatment were measured with the Diabetes Attitude Scale (DAS) and Diabetes Treatment Satisfaction Questionnaire (DTSQs). In study III, the Hospital Anxiety and Depression Scale (HADS) and the Beck Depression Inventory II (BDI-II) were employed to estimate the subjects' symptoms of depression and anxiety. The Mann–Whitney U-test was used to examine differences between normal-weight and obese individuals with T2DM and between women and men.

Results: The informants felt supported and secure when their care encounters were based on the perspective of the individual. When the encounter was based on the health care perspective, it created feelings of being stuck, defiance, guilt and shame. The health care professionals' main concerns were

to give professional, individualised care and to find the right balance between coaching and caution. T2DM and obesity were associated with decreased HRQL and increased risk of anxiety and depression in both genders. These associations influence health care professional-patient interactions and affect the individual's coping with his or her illness.

General conclusion and implications: Health care professionals in primary health care (PHC) must consider each individual with T2DM's life situation, including physical, mental, cultural and social dimensions and the differences between the genders. Care plans must focus on the individual's specific situation.

Keywords: Anxiety, depression, diabetes type 2, gender, health care professional, health related quality of life, obesity, patient, primary health care

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SAMMANFATTNING PÅ SVENSKA

Diabetes och fetma i primärvården – en livssituation med mer än fysiska dimensioner

Syfte: Målen med denna avhandling var att belysa hur individer med T2DM uppfattar sin hälsosituation och mötet med diabetesteamet samt att belysa hur diabetesteamet (läkare, sjuksköterska, dietist, sjukgymnast) möter dessa människors olika behov i vårdmötet.

Metod: Studie I och IV var intervju studier med kvalitativ ansats. I studie I intervjuades individer med T2DM och normalvikt eller fetma (n=28). Intervjuerna analyserades med kvalitativ innehållsanalys. I studie IV genomfördes sju gruppintervjuer och tre individuella intervjuer, med medlemmar i diabetesteam. I denna studie användes Grounded Theory som analysmetod. Studie II (n=287) och III (n=339) var tvärsnittsstudier. I studie II mättes den hälsorelaterade livskvaliteten (HRQL) med Short Form (SF 36) och Well-Being Questionnaire (W-BQ12). Attityd till sjukdom och behandling uppskattades med Diabetes Attitude Scale (DAS) och Diabetes Treatment Satisfaction Scale (DTSQs). I studie III mättes upplevelse av symptom på ångest, oro och depression med Hospital Anxiety and Depression Scale (HADS) och Beck Depression Inventory II (BDI-II). Mann-Whitney U-test användes för att beräkna skillnader mellan individer med T2DM och normalvikt eller fetma och mellan kvinnor och män.

Resultat: När vårdmötet genomfördes utifrån individens perspektiv gav det individen med T2DM en känsla av att få stöd och känna sig säker i att hantera sjukdomen. När vårdmötet utfördes utifrån ett hälso- och sjukvårdsperspektiv upplevdes känslor av att sitta fast i problemen, skuld och skam och ett motstånd till att lösa problemen. För hälso- och sjukvårdspersonalen var huvudproblemet hur de skulle kunna ge stöd och finna rätt problemlösningsstrategi för varje individ med T2DM och fetma. Detta innebar att de balanserade mellan att coacha och att vara medkännande. Resultatet visade även att det fanns ett samband mellan nedsatt HRQL, ångest, oro och depression hos båda könen.

Sammanfattning och implikation: Det emotionella och fysiska välmåendet hos individer med T2DM och fetma påverkar vårdmötet i primärvården och förmågan att hantera sjukdomen i det dagliga livet. Vård och behandling bör utformas utifrån individens specifika situation, där hänsyn tas till fysiska, mentala, kulturella och sociala perspektiv samt även kvinnor och mäns skilda behov.

Nyckelord: Diabetes typ 2, depression, fetma, hälso- och sjukvårdspersonal, kön, livskvalitet, patient, primärvård, ångest och oro

LIST OF PAPERS

This thesis is based on the following studies, referred to in the text by their Roman numerals.

- I. Svenningsson, I., Gedda, B., Marklund, B. (2011). Experiences of the encounter with the diabetes team -A comparison between obese and normal-weight type 2 diabetic patients. *Patient Educ Couns.* 82(1) 58-62.
- II. Svenningsson, I., Attvall, S., Marklund, B., Gedda, B. (2011). Type 2 diabetes: perceptions of quality of life and attitudes towards diabetes from a gender perspective. *Scandinavian Journal of Caring Sciences.* Mar 1. doi: 10.1111/j.1471-6712.2011.00879.x.
- III. Svenningsson, I., Björkelund, C., Marklund, B., Gedda, B. (2011). Anxiety and depression in obese and normal-weight individuals with diabetes type 2: A gender perspective. Accepted for publication. *Scandinavian Journal of Caring Sciences.*
- IV. Svenningsson, I., Hallberg, L.M., Gedda, B. (2011). Health care professionals meeting with individuals with Type 2 diabetes and obesity:-Balancing coaching and caution. *Int J Qualitative Stud Health Well-being.* 6: 7129 - doi: 10.3402/qhw.v6i2.7129.

CONTENT

ABBREVIATIONS	IV
1 INTRODUCTION	1
2 BACKGROUND	2
2.1 Diabetes	2
2.2 Obesity.....	2
2.3 Diabesity.....	3
2.4 Living with diabetes	4
2.5 Living with obesity	5
2.6 Living with diabesity	6
2.7 Primary Health Care	6
2.8 Public health and health promotion in primary health care	8
2.9 Interactions in the health care setting	9
2.9.1 Treating individuals with diabetes.....	10
2.9.2 Treating obesity	11
2.9.3 Treating individuals with diabesity.....	11
3 AIMS OF THE THESIS	13
3.1 General aim	13
3.2 Specific aims	13
4 METHODS	14
4.1 Qualitative studies (I, IV).....	15
4.1.1 Study I.....	15
4.1.2 Study IV.....	18
4.2 Quantitative studies (II, III)	19
4.2.1 Design and setting.....	19
4.2.2 Subjects and procedure (II).....	19
4.2.3 Subjects and procedure (III)	19
4.2.4 Instruments and statistical analysis (II, III).....	19
4.2.5 Data collection.....	21

4.3	Ethical considerations.....	21
5	RESULTS.....	22
5.1	Diabetes in PHCCs (I, IV).....	22
5.2	Emotional status of individuals with T2DM (II, III).....	24
5.3	Physical status of individuals with T2DM (II).....	30
5.4	Attitudes towards disease and treatment satisfaction (II).....	31
6	GENERAL DISCUSSION.....	33
6.1	Methodological considerations – qualitative studies.....	33
6.1.1	Study I.....	33
6.1.2	Study IV.....	33
6.2	Methodological considerations – quantitative studies.....	34
6.3	Living with diabetes.....	37
6.3.1	Emotional and physical consequences in daily life.....	37
6.3.2	Social and cultural dimensions of daily life.....	38
6.4	The health care consultation.....	39
6.4.1	The individual.....	39
6.4.2	The health care provider.....	40
7	CONCLUSION.....	44
8	IMPLICATIONS.....	46
8.1	Clinical implications.....	46
8.2	Research implications.....	48
9	ACKNOWLEDGEMENT.....	49
10	REFERENCES.....	51

ABBREVIATIONS

BDI II	Beck Depression Inventory
BMI	Body Mass Index
CHD	Coronary Heart Disease
DAS	Diabetes Attitude Scale
DTSQ	Diabetes Treatment Satisfaction Questionnaire
GT	Grounded theory
HADS	Hospital Anxiety and Depression Scale
HADA	Hospital Anxiety and Depression Anxiety
HADD	Hospital Anxiety and Depression Depression
HRQL	Health-Related Quality of Life
PHC	Primary Health Care
PHCC	Primary Health Care Centres
QoL	Quality of Life
SF 36	Short Form 36
T1DM	Diabetes Mellitus Type 1
T2DM	Diabetes Mellitus Type 2
W-BQ12	Well-Being Questionnaire 12

1 INTRODUCTION

This thesis arose from my own experience as a specialist PHC nurse in diabetes care, where I met people who were struggling with T2DM and obesity. I felt that these people faced a more difficult situation than normal-weight individuals with diabetes because obesity complicated their situation. They had to work on lifestyle changes because weight loss was one of the necessary steps to prevent disease progression. It was not uncommon for me to meet with patients several times to discuss the necessary steps for them to take, but often, we did not settle on a care plan for them to make these changes, and both parties became frustrated. These individuals often found weight loss impossible, so they needed increased medical treatment that would subsequently cause them to gain additional weight. I started this work to improve our understanding of treatments for individuals with T2DM and obesity.

2 BACKGROUND

2.1 Diabetes

The number of people diagnosed with diabetes in 199 countries around the world has risen from 153 million in 1980 to 347 million in 2008. The ageing and growing population has contributed to this increase, but there is also an epidemiological component with increased fasting glucose (Danaei et al., 2011). The incidence of diabetes in the Swedish population is 5 per cent in women and 7 per cent in men aged 18-84 years (The National Board of Health and Welfare, 2011), of which 85-90% is T2DM (Gudbjörnsdottir et al., 2011).

Diabetes mellitus is a metabolic disorder characterised by hyperglycemia with multiple aetiologies, including disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action or both. Diabetes type 1 (T1DM) is associated with autoimmune and non-autoimmune beta-cell destruction, whereas T2DM is related to insulin resistance and insulin hypo-secretion. The stages of T2DM range from normoglycemia to a severe stage at which insulin is required for survival (Alberti & Zimmet, 1998). Diabetes and hyperglycemia are important causes of mortality and morbidity globally (Danaei et al., 2011) because they cause vascular diseases (Danaei, Lawes, Vander Hoorn, Murray & Ezzati, 2006; Nakagami, 2004).

A significant number of individuals with T2DM are undiagnosed and thus untreated, it has also been shown that a significant number of people do not have healthy levels of blood glucose, blood pressure and serum cholesterol, placing them at increased risk for developing vascular complications. These shortcomings of diagnosis, treatment and control reflect lost opportunities for reducing the growing global burden of diabetes (Gakidou et al., 2011).

2.2 Obesity

Overweight and obesity are increasing worldwide as a result of a more sedentary lifestyle and increased intake of food with high calorie content (Haslam & James, 2005). Overweight and obesity are defined in terms of body mass index (BMI). BMI is defined as an individual's weight in kilograms divided by the square of his or her height in metres (kg/m^2). In adults, overweight is defined as a BMI of 25.0 to 29.9 kg/m^2 , obesity is defined as a BMI ≥ 30.0 kg/m^2 (World Health Organisation, 2011; Poirier et al., 2006).

Excess bodyweight is a major public health problem. In 2008, it was estimated that 1.46 billion adults had a BMI of 25 kg/m² or greater, and 503 million of these (205 million men and 297 million women) were obese. The global mean BMI has increased by 0.4-0.5 kg/m² per decade, with differences across geographical regions and between the sexes (Finucane et al., 2011).

In Sweden, the prevalence of obesity is still low compared to other countries (World Health Organisation, 2000), but it has doubled in adults in the last two decades and is now approximately 10% in both men and women (Neovius, Janson & Rossner, 2006). The increase in weight is more pronounced for men than for women (Berg et al., 2005).

Obesity is strongly associated with several major health risk factors (Mokdad et al., 2003), and increased BMI has harmful effects on life expectancy and health care costs. Excess weight is an important risk factor for mortality and morbidity from cardiovascular diseases, diabetes, cancers, and musculoskeletal disorders. It is estimated that excess weight causes approximately 3 million deaths every year worldwide (World Health Organisation, 2009; Whitlock et al., 2009).

It is unclear how to intervene to reverse the increasing obesity trend. Research shows that dietary and lifestyle changes and pharmacological weight loss interventions only yield modest weight loss in the short term, and their long-term effectiveness is not clear (Douketis, Macie, Thabane & Williamson, 2005). If overweight or obese individuals lose a modest amount of weight, their risk for developing chronic health problems decreases (Franz et al., 2007).

2.3 Diabesity

As the prevalences of overweight and obesity increase globally, concern has grown about a global diabetes epidemic because diabetes and obesity are closely related to each other (Abegunde, Mathers, Adam, Ortegón & Strong, 2007; Danaei et al., 2011; Haslam & James, 2005). Obesity is a risk factor for developing T2DM (Danaei et al., 2011), and it is estimated that approximately 90 % of people with T2DM are overweight or obese (Stevens et al., 2001).

“Diabesity” is a term for diabetes when it occurs in the context of obesity (Farag & Gaballa, 2011; Haslam & James, 2005). Since Zimmet, 1976 introduced the term (Pincock, 2006), its use in the clinical literature has

steadily increased (Colagiuri, 2010). A PubMed search for “diabesity” in September 2011 resulted in 96 hits.

Coexisting T2DM and obesity presents a complex challenge as each of these two diseases has a broad range of complications (Colagiuri, 2010). In addition, obesity is linked to the development of additional comorbidities that can further complicate disease management, such as mobility problems associated with osteoarthritis, obstructive sleep apnoea and clinical depression. Treatment of comorbid hypertension and the use of tricyclics in individuals with anxiety and depression may confound the diabetes treatment (Colagiuri, 2010).

A study using the Swedish National Diabetes Register (NDR) showed that overweight and obesity increased the risk of coronary heart disease (CHD) and cardiovascular disease in patients with T2DM (Eeg-Olofsson et al., 2009). It has also been shown that this group of individuals had higher frequencies of hypertension, dyslipidemia and microalbuminuria, which are cardiovascular risk factors (Eliasson, Cederholm, Nilsson & Gudbjornsdottir, 2005; Ridderstrale, Gudbjornsdottir, Eliasson, Nilsson & Cederholm, 2006).

2.4 Living with diabetes

People suffering from a chronic illness often face the challenge of making many changes in their daily lives. They have to learn about their disease and its treatment as well as integrate new practices into their routine. Beyond this, there is also a sense of powerlessness associated with having a chronic illness that can mean affect one’s QoL (Aujoulat, d’Hoore & Deccache, 2007). Illness management varies over time. Individuals with diabetes must reconcile their desires for daily life with their illness management practices and emotional difficulties (Ingadottir & Halldorsdottir, 2008).

Decreased psychological wellbeing is common among people with diabetes, and people with T2DM have a 24 % higher risk of developing depression (Nouwen et al., 2010). Diabetes and depression are disabling conditions, and having both diseases has a severe impact on HRQL. The risk for depression is greatest in people with micro-and macro-vascular disease (Gough, Kragh, Ploug & Hammer, 2009). It has been shown that the effect of depression on QoL is greater than that of diabetes (Goldney, Phillips, Fisher & Wilson, 2004). The combination of diabetes and depression reduces HRQL and increases the risk of both morbidity and mortality in individuals with T2DM (Kleefstra et al., 2008). Depression is associated with poor self-care, impaired glycemic control, poor microvascular and macrovascular outcomes (Egede,

Ellis & Grubaugh, 2009; Egede, Nietert & Zheng, 2005; Katon, Fan, Unutzer, Taylor, Pincus & Schoenbaum, 2008; Katon, 2008; Lin et al., 2009; Lustman, Anderson, Freedland, de Groot, Carney & Clouse, 2000).

A study of individuals with T2DM within PHC revealed that the effect on HRQL is due to comorbidities, such as vascular complications, and that a significantly decreased QoL is associated with symptomatic complications (Wexler et al., 2006).

2.5 Living with obesity

Obesity is a physiological and psychological burden for affected individuals (Conradt, Dierk, Schlumberger, Rauh, Hebebrand & Rief, 2008). In the general population, obesity is related to symptoms of depression and anxiety, and this relation becomes more evident with increasing BMI (Luppino et al., 2010; Scott, McGee, Wells & Oakley Browne, 2008). Decreased HRQL is also related to elevated BMI in both men and women, and nearly all physical and mental aspects of HRQL are adversely affected (Fontaine & Barofsky, 2001; Soltoft, Hammer & Kragh, 2009). The impaired HRQL in obese people is due to specific problems relating to mobility, pain, and/or discomfort (Soltoft et al., 2009), not to obesity alone (Forhan, Vrkljan & MacDermid, 2009), but obesity also confers an increased risk of T2DM, coronary heart disease and hypertension (Trueman et al. 2010). It is possible to influence HRQL in obese individuals, and it increases if weight loss is maintained (Fontaine & Barofsky, 2001; Kolotkin, Crosby, Williams, Hartley & Nicol, 2001).

Obese and overweight individuals are often stigmatised (Teachman, Gapinski, Brownell, Rawlins & Jeyaram, 2003) and experience feelings of shame and negative emotional reactions (Conradt et al., 2008). Obese individuals, regardless of the level of their obesity, become distressed about being obese in evaluative situations, whether they involve self-evaluation or evaluation by others. For example, they may experience distress in situations where they cannot perform like a normal-weight individual, such as in situations related to physical functioning, such as moving and exercising, and when buying clothes (Conradt et al., 2008). Such situations could also take place within a health care setting, where it has been shown that obese or overweight people delay or cancel visits with health care providers because they feel embarrassed about their weight. They know that being weighed is part of the visit, so they postpone seeking care until they have lost weight (Puhl & Heuer, 2009).

2.6 Living with diabetes

T2DM and obesity each have adverse effects on an individual's health. For individuals diagnosed with both T2DM and obesity, the situation is probably more complex, the health impact of the two conditions combined is extensive and includes long-term diabetic complications, reduced HRQL and reduced life expectancy. Chronic stress contributes to the development of diabetes, and researchers have demonstrated an association between chronic stress, depression and sleeping trouble difficulties in individuals diagnosed with both T2DM and obesity (Farag & Gaballa, 2010). Studies have demonstrated a relation between T2DM, depression and increasing BMI (Perveen, Otho, Siddiqi, Hatcher & Rafique, 2010). The link between T2DM, obesity and depression (Labad et al. 2009) demonstrates the emotional impact of diabetes. Studies also show that people with T2DM and a high BMI experience difficulty in managing their diabetes (Kacerovsky-Bielesz & Roden, 2009; Wallston, Rothman & Cherrington, 2007). Individuals with T2DM and high BMI find it more difficult to control their weight, as reflected in a poorer diet and a more sedentary lifestyle (Wallston et al., 2007). Managing T2DM without consideration of the underlying excess weight is insufficient, and the cornerstones of diabetes treatment are diet and physical activity (Haslam, 2010). Several of the medical treatment agents for diabetes cause weight gain and other treatment-associated adverse effects that can undermine therapeutic benefits. In particular, weight gain is problematic for people with T2DM because even a modest increase in weight can increase insulin resistance. Weight gain is an important issue for people undergoing diabetes treatment and can be a barrier to starting therapy (Colagiuri, 2010).

2.7 Primary Health Care

PHC is the cornerstone of the health services system in many countries (Starfield, Shi & Macinko, 2005) and is a level of care that is defined in the Swedish Health Care Act (<http://www.notisum.se/rnp/sls/lag/19820763.htm>). Four main features characterise PHC, first contact access for each new need, long-term person-focused care, comprehensive care and coordinated care (Starfield, 1998). The basic idea is that patients should visit the PHC first for health care that does not require hospital resources. Individuals' general and mental health is related to continuity and accessibility in PHC (Shi, Starfield, Politzer & Regan, 2002).

The primary care level is the natural platform for continuous care in T2DM, whereas hospitals treat people with T1DM and more complex cases of T2DM. Diabetes care in PHC is often organised by a diabetes team, in which

a specialist diabetes nurse and a general practitioner have central roles in patient care, other members can include dieticians, foot care therapists and physical therapists. The health care provided in PHC should be based on the individual's life situation, health status and needs and adopt a prevention and health promotion approach (National Board of Health and Welfare, 2011).

The NDR was started in 1996 in response to the demands of the St. Vincent Declaration for Quality Assurance in Diabetes Care (Gudbjornsdottir, Cederholm, Nilsson & Eliasson, 2003). One of the aims of the register is to compile yearly data from PHC or hospital visits for every individual with diabetes, including demographic data and information on diabetes duration, treatment modalities, risk factors and complications. This database provides opportunities to explore diabetes care in Sweden and in individual primary health care centres (PHCC) (Gudbjornsdottir et al., 2003) and to examine the development of diabetes care since the register began.

There is a gender difference in the content and context of seeking care within PHCCs. Men and women show different patterns of health behaviour and women make the majority of health care visits because they are more aware of health issues and are more likely to have emotional problems and report worse health (Tabenkin et al. 2004). Researchers have shown that gender disparities are embedded in the health care system (Celik, Lagro-Janssen, Widdershoven & Abma, 2010).

Primary care must adapt to social changes and new research findings. Because an individual patient may have several health conditions, health care professionals must be person-focused instead of disease-focused. An individual's circumstances contribute to his or her well-being just as his or her medical conditions do (Starfield, 2001).

Adherence to a treatment regimen is a major problem worldwide. Only 50 per cent of people with a chronic disease in developed countries adhere to their prescribed treatment, and this percentage is even lower in developing countries. Many patients experience difficulty in following treatment recommendations, leading to poor health outcomes, several potentially life-threatening risks and decreased HRQL (World Health Organisation, 2003; Attree, 2001). The main difference between adherence and compliance is that adherence needs the patient's agreement (World Health Organisation, 2003). Adherence involves two partners, the health care professionals who prescribe the treatment and the patients who have to comply with it in daily life (Ingadottir & Halldorsdottir, 2008). The terms "compliance" and "adherence" are traditionally used; instead, "self-care" and "self-management" are often

discussed, a change that is indicative of a paradigm shift in research and practice (Ingadottir & Halldorsdottir, 2008).

2.8 Public health and health promotion in primary health care

PHC influences health-promotion and helps to prevent illness and death (Starfield et al., 2005). Health promotion and prevention are an important task for PHC because a large percentage of the population visits a primary care clinic every year, providing opportunities to discuss health behaviour with each individual (Stange et al., 1998; Whitlock, Orleans, Pender & Allan, 2002). A majority of people seeking PHC demonstrate at least one unhealthy behaviour, including being a smoker, being overweight or obese, being inactive or having poor eating habits. Providing relevant information to address the patient's concerns constitutes an opportunity for health care providers to talk about health behaviours more generally (Cohen, Clark, Lawson, Casucci & Flocke; Flocke, Kelly & Highland, 2009). Counselling regarding lifestyle changes can make a difference in patients' lives (Etz et al., 2008).

Chronic illnesses are becoming more prevalent, and most people diagnosed with a chronic illness receive most of their care from PHC. Many individuals have more than one chronic illness, and treating these individuals requires a holistic view of the individual's situation and special knowledge of the behavioural changes. Effective chronic illness care in PHC involves multiple professionals who organise and coordinate the individual's care. They help the individual to set goals and solve problems related to self-management and adjust his or her treatment to optimise control of the disease and increase wellbeing (Rothman & Wagner, 2003). Individuals' general health is perceived to be better when they are receiving care in specially designed clinics within PHC (Wagner et al., 2001). In the national guidelines for diabetes, the National Board of Health and Welfare makes a number of recommendations that the Agency considers to be particularly important for health care authorities. For nurses, training in self-management should be an important part of diabetes care, including providing support, advice and training, allowing the individual to be involved in care and decision making and helping him or her to make informed self-care decisions. Group education is also an important way to improve self-management skills in individuals with diabetes (National Board of Health and Welfare, 2010).

2.9 Interactions in the health care setting

The individual's experience of interpersonal interaction in a health care consultation is crucial for how the quality of care is perceived. Good communication between a health care provider and a patient is a necessary part of good clinical practice and high-quality health care (Bertakis & Azari, 2007; Street, Gordon, Ward, Krupat & Kravitz 2005; World Health Organisation, 2003). It influences the patient's understanding of and involvement in treatment and care decisions (Stevenson, Cox, Britten & Dundar 2004). Without good communication, the patient will not feel cared for. The interactions between professionals and patients are influenced by contextual factors, and each person's behaviour may constrain or facilitate the others (Street et al., 2005). The patient's ability to follow the recommended treatment increases when the patient and the health care provider are equal partners in the health care relationship, recognising each other's abilities, actively discussing important issues in an open atmosphere, and expressing their views and concerns about factors that can influence the patient's outcomes (Stevenson et al., 2004; World Health Organisation, 2003).

Gender is one of many factors that can influence communication with health care providers. Women are more willing to express negative emotional feelings and concerns than men, which influences their interactions with health care professionals (Street et al., 2005). Women also want more overall information (Stewart, Abbey, Shnek, Irvine & Grace 2004). Health care providers are more likely to discuss prevention and perform screening tasks associated with disease prevention with female patients during their primary care visits. This gender difference may be due in part to patients' health beliefs and health-seeking behaviour, with women being more aware and desirous of preventive services than men are (Bertakis & Azari, 2007).

Living with a chronic disease creates special circumstances for the individual. Interactions with health care professionals are important for the individual's quality of life, and professionals need to convey respect, trust, empathy and knowledge in their interactions with patients who have a chronic disease (Cooper, Booth & Gill, 2003). When patients do not feel involved in their care and are not given the opportunity to express their concerns, they can develop misunderstandings that lead to non-adherence to the prescribed treatment and unnecessary medical interventions (Stevenson et al., 2004). In a consultation with an individual with a chronic disease, health professionals face different challenges compared to diagnosing an individual with an acute disease. For an individual with an acute disease, it might be appropriate to leave the responsibility for the care to the health care provider. However, for an individual with chronic illness, who is responsible for more than 95 per

cent of his or her own care, health care professionals have very little control over illness management. Therefore, they may become frustrated or upset when the patient does not comply with or adhere to the care plan set out for them (Anderson, Funnell, Fitzgerald & Marrero, 2000).

2.9.1 Treating individuals with diabetes

In national guidelines, the overall goal for the treatment of diabetes is to prevent complications while preserving a good quality of life for the patient. According to the Swedish national guidelines, the goal of diabetes care should be based on each individual's needs and account for the person's QoL and ability to cope with a particular treatment. The individual should also be offered enough information so that he/she can consider the proposed care and treatment. Nursing and medical treatment are therefore essential for the patient to achieve optimal physical, mental and social well-being (National Board of Health and Welfare, 2010).

People with diabetes face many paradoxes and contradictory messages as they work to remain independent and maintain control over their life. Adhering strictly to the diabetes treatment regimen may mean losing control over one's life, but failing to adhere to the regimen can mean losing control over one's body because of subsequent diabetic complications. Health care professionals often tell patients to take responsibility and do what they have to do to manage their own illness (Ingadottir & Halldorsdottir, 2008).

Individuals with T2DM and health care professionals may have different views of how the behavioural changes that are necessary to manage diabetes should be approached. Health care providers prioritise the disease over the individual's daily life, but the individual has to prioritise his or her daily life before the disease. This difference creates a problem even if both parties have the same goal of good metabolic control (Ingadottir & Halldorsdottir, 2008; Zoffmann & Kirkevold, 2005). Health care professionals need to understand patients' thoughts, feelings and internal states and how patients are influenced by external factors (Kasila, Poskiparta, Karhila & Kettunen, 2003). If the care provider acts as a superior and engages in one-way communication, it limits the individual's ability to take responsibility for his or her disease (Adolfsson, Starrin, Smide & Wikblad, 2008). Not being able to manage one's illness well enough may cause feelings of shame, guilt and frustration. Many individuals struggle to manage their illness more or less on their own, and there is a tendency to delay seeking help until very late to avoid losing one's independence (Ingadottir & Halldorsdottir, 2008).

2.9.2 Treating obesity

Treating obesity is a low priority in PHC, and health care professionals are ambivalent about whether obesity should be treated within PHC, especially if no concomitant disease is present. There is uncertainty among health care professionals regarding whether the health care system or the individual is responsible for obesity treatment (Hansson, Rasmussen & Ahlstrom, 2011). Obesity is often not discussed in health care consultations, and most individuals with obesity do not receive an obesity diagnosis or weight-related counselling. The obesity diagnosis and counselling are more common among those patients who have co-morbid risk factors (Bleich, Pickett-Blakely & Cooper, 2010). Obesity creates a conflict for health care providers, who want to maintain a good relationship with the individual but lack faith in existing treatment options (Epstein & Ogden, 2005).

Obesity treatment in primary health care must be improved, and evidence-based guidelines and the organisation need to be enhanced (Hansson, Rasmussen & Ahlstrom, 2011). However, it is possible to treat obesity, and doing so within primary health care has positive effects on the individual (Trueman et al. 2010).

Studies show that stigmatisation of obese people is relatively common within the health care services, and physicians often focus on weight as the sole cause of obese patients' health problems (Drury & Louis, 2002). Weight bias increases vulnerability to depression, low self-esteem, poor body image, maladaptive eating behaviours and exercise avoidance and may impair efforts to adopt a healthy lifestyle and increase unhealthy eating patterns (Puhl & Heuer 2009). A Swedish study showed that the likelihood that obese people felt stigmatised during their interactions with health care professionals increased with increasing BMI. In addition, severely obese women who experienced stigma when using health care services showed larger increases in weight compared to severely obese women who did not report experiencing stigma. Stigmatising experiences combined with low self-esteem are strongly associated with weight gain. It is more common for women to feel stigmatised than men, but the prevalence of stigma increases in both sexes with increasing weight (Hansson, Naslund & Rasmussen, 2010).

2.9.3 Treating individuals with diabetes

Obese individuals who have diabetes may feel responsible for their illness. Negative attitudes towards obesity among health care providers can cause problems in diabetes management. The feeling of being stigmatised and psychological distress, such as low self-esteem and depression, in addition to

unsuccessful attempts to lose weight, make it difficult for obese individuals with T2DM to lose weight. Thus, these individuals are labelled as noncompliant, adding a burden of guilt related to their diseases and an increasing feeling of being stigmatised (Teixeira & Budd, 2010; Strine et al., 2008). The extent to which obesity stigma deters T2DM individuals from seeking care is largely unknown. Health care professionals need to be aware of their own attitudes toward obesity when treating individuals with T2DM to identify barriers to diabetes care (Teixeira & Budd, 2010).

Having either diabetes or obesity affects both physical and mental well-being. Having both diseases likely adds extra burden for the individual. Little is known about the consequences of diabetes, it is important to understand how it influences the individual's situation and coping mechanisms and how health care providers should meet these individuals' needs in the health care setting.

3 AIMS OF THE THESIS

3.1 General aim

The aims of this thesis are to illustrate how obese and normal-weight individuals with type 2 diabetes experience their health status and health care interactions and to highlight the diabetes team (doctor, nurse, dietician, physiotherapist) approach to treating individuals with type 2 diabetes and obesity.

3.2 Specific aims

Study I

To highlight and compare obese and normal-weight individuals with T2DM perceptions and reported behaviours in terms of their care encounter with the diabetes team.

Study II

To compare obese and normal-weight people with T2DM, with a focus on their attitudes towards the disease, QoL and treatment from a gender perspective.

Study III

To describe the prevalence of symptoms of anxiety and depression in groups of obese and normal-weight individuals with T2DM who are undergoing primary care and to investigate possible differences between the groups and between genders.

Study IV

To generate a theory grounded in empirical data derived from a deeper understanding of health care professionals' main concerns when they consult with individuals with T2DM and obesity and how they handle these concerns.

4 METHODS

The dissertation comprises two qualitative studies and two quantitative studies. Table 1 provides an overview of the studies included.

Table 1. Methods used in the studies in this thesis.

Study	I	II	III	IV
Design	Exploratory qualitative	Cross sectional	Cross sectional	Exploratory qualitative
Study groups	Individuals with T2DM and obesity* or normal weight,** ages 30-75	Individuals with T2DM and obesity* or normal weight,** ages 30-75	Individuals with T2DM and obesity* or normal weight,** ages 30-75	Professional members of the diabetes team
Data collection method	Individual interviews	Questionnaires	Questionnaires	Individual and group interviews
Data analysis	Qualitative content analysis	Descriptive	Descriptive	Grounded theory

*BMI 30-40

**BMI 18.5-25

The selection process and inclusion criteria for studies I-IV are shown in figure 1.

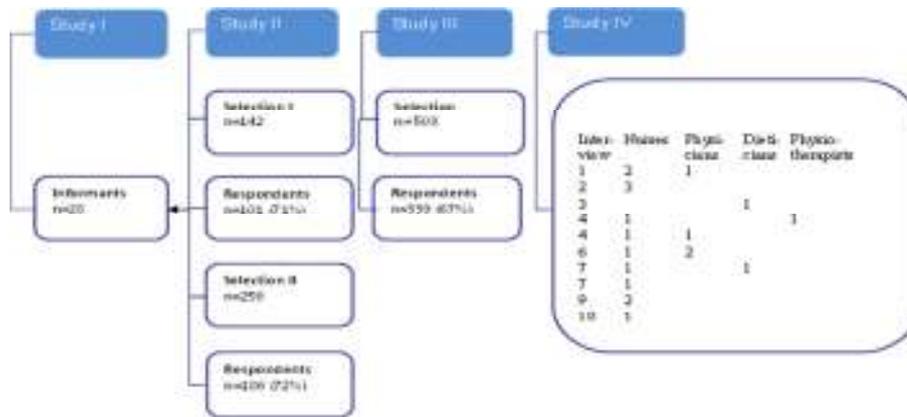


Figure 1. The selection process and inclusion criteria for studies I-IV. The studies I, II and III include individuals with T2DM of normal weight (BMI 18.5–25), aged 30–75 years, and individuals with T2DM and obesity (BMI 30–40), aged 30–75 years, with an equal gender distribution. These individuals were recruited from a primary care area on the west coast of Sweden. Study IV recruited health care professionals who are members of a diabetes care team.

4.1 Qualitative studies (I, IV)

Multiple factors affect qualitative studies' validity, and these have to be discussed openly. The first is the researcher's effect on the study, including how the data were collected and the consequences of the chosen approach for the study's outcome, as well as how data are handled, analysed and interpreted (Malterud, 2001).

4.1.1 Study I

Design

Study I was an interview study using an inductive approach.

Informants and inclusion criteria

The selection process is described in figure 1. The interviews took place during spring 2008. The informants were selected from a questionnaire study that formed part of the same project (study II). These individuals were recruited from a primary care area on the west coast of Sweden. The participants, who returned the questionnaires first were consecutively selected, see figure 1.

Data analysis

Qualitative content analysis was used to analyse the transcribed interviews because it offers tools to highlight the meaning of a phenomenon. By asking what interviewees' responses demonstrate about a phenomenon, the researcher can move between the data and his or her own perspective and gain an understanding of the phenomenon. Interpreting the data offers an opportunity to go beyond mere description and to understand the result's significance, including whether the results make sense, to explain phenomena, or to enable the researcher to draw conclusions and reflect on the findings (Patton, 2002).

Content analysis can be divided into manifest and latent interpretation. Latent analysis enables the researcher to interpret the data in greater depth, unlike in manifest content analysis, where the interpretation is more literal (Krippendorff, 2004). In this study, content analysis, according to Graneheim and Lundman (2004), was used to analyse the transcribed texts. Both manifest and latent interpretations were used. There is always a degree of interpretation when analysing a text, but it varies in the level and depth of abstraction (Graneheim & Lundman 2004).

Qualitative analysis is often inductive in the first steps, especially when developing the codes, categories, patterns and themes (Baxter, 1994; Patton, 2002). When the patterns, themes and categories have been established and found to be reliable and valid, the final step in the analysis can be deductive. To prevent the first author's pre-existing understanding from affecting the analysis, reflexivity was used (Malterud, 2001). Discussions with the members of the research team were on-going during the whole research process. This approach can be seen as triangulation as the members of the research team have different professions and different backgrounds (Graneheim & Lundman, 2004).

The analysis was based on question areas, which guided the analysis. The question areas included how each individual perceived the characteristics of a good health care consultation and those of one that was not as good. The analysis was performed in the following steps:

- The interviews were first read through to obtain a sense of the whole. Then, the informants' experiences in health care encounters were extracted and brought together into one text.
- Meaning units were identified. The meaning units are intended to provide answers to the question of how patients viewed a good meeting and a less successful meeting with the diabetes team at the PHCC. The meaning units were abstracted and labelled with codes.

- The various codes were compared and sorted into two categories with subcategories (Graneheim & Lundman, 2004).

An example of the analysis process is given in table 2.

Table 2. Example of the qualitative content analysis process

Meaning unit	Condensation	Code	Subcategory	Category
I feel a little bit, though I am an adult and old; I feel that I am a little social parasite, a tiny stonecrop.....yes, because of my weight.. I will cost society money, I do it now, I must have diabetes syringes and yes you've mismanaged your health, society says to me, reading, watching television, you hear this and it's always this argument when...	I feel that I am a little social parasite, a tiny stonecrop, yes because of my weight. I will cost society money, you've mismanaged your health, society says to me	It's my own fault and I will become a social burden	Guilt and shame	Encounter from health care perspective
I came to the orthopaedic surgeon in Gothenburg ,then ...then he says to me "how would it be if you lost a few kilos". Then I was so sad because it was not what I was looking for, but that was because I had sore knees...so he said "go home", and he gave me advice on diets, and yes, I said I've had that experience so many times that I never went back therefor	...then he says to me "how would it be if you lost a few kilos". Then I was so sad because it was not what I was looking for, but that was because I had sore knees...so he said "go home", and he gave me advice on diets,	My overweight was a contributing factor to my sore knee	Guilt	
it sounds awful but it feels like a shameful disease, and I think it was very dependent on this here that they laid out the text in such a way that you pity yourself for having diabetes and I had too much excess weightyes I felt embarrassed like you and it is in me and it still affects me, now I have gained weight, and it is terrible, this sense of shame, it almost feels as if I have syphilis	it feels like a shameful disease, and I think it was very dependent on this here that they laid out the text in such a way that you pity yourself for having diabetes and I had too much excess weight. I felt embarrassed like you and it is in me and it still affects me, now I have gained weight, and it is terrible, this sense of shame, it almost feels as if I have syphilis	The way in which health workers describe the reason for the obesity makes people view obesity as a shameful disease	Guilt, shame Embarrassment	

4.1.2 Study IV

Design

The method used in this study was the classical version of grounded theory (GT) (Glaser & Strauss, 1967). The method aims to inductively generate concepts, models or theories that explain what is happening in the area of interest. This goal is achieved by systematically and continually comparing and examining the variations in and similarities and differences between codes, categories, attributes and sets of empirical data (Hallberg, 2006). The classical version of GT seems to be positioned similarly to positivism, although Glaser and Strauss never declared their epistemological perspective explicitly (Hallberg, 2006).

Sampling procedure and study participants

The study was based on interviews with health care professionals who work with T2DM individuals in health care settings. To examine health care professionals' experiences in treating individuals with T2DM and obesity, we selected diabetes teams working in primary health care and county medical care settings in an area in western Sweden. We sought to maximise variation of experiences (Hallberg, 2006) by choosing caregivers and professionals from different disciplines as informants; i.e., open sampling was used initially, followed by theoretical sampling. We conducted seven group interviews and three individual interviews to deepen and enrich the data (figure 1). After seven interviews, signs of similarities in the information appeared; however, another three interviews were conducted to reach saturation. All informants had more than 15 years' experience as health care professionals. Data collection was conducted during 2009 and 2010.

Data analysis

The interviews were analysed as soon as each interview was transcribed, in accordance with the guidelines for GT (Glaser & Strauss, 1967). Initially, each interview was read through to gain a sense of the wholeness of the content and its meaning. During the initial coding, which was performed line by line, close to the data, actions were identified and compared. Using the informants' words, we ensured that these codes were grounded in the data. Codes with similar meanings were then grouped together to form comprehensive categories, which were labelled on a more abstract level. Data were compared with data and categories with categories to better understand their properties (subcategories). The relationships between the categories were sought and organised into an emerging theory. Throughout the process, codes and preliminary categories were compared, modified and eventually given new names. Memos were written throughout the process to develop the

analyses and the emerging theory. When a core category was identified, theoretical sampling was used to saturate related categories explaining how the main concern was managed. Theoretical sampling can be conducted by returning to previously collected data for further analysis and/or by conducting additional interviews. The first author (IS) conducted the first phase of the analysis, and codes, categories and emerging theories were continually discussed with BG and LH.

4.2 Quantitative studies (II, III)

4.2.1 Design and setting

Two cross-sectional studies were conducted during 2007–2008 (study II) and 2010 (study III). The participants were recruited from PHCC on the west coast of Sweden.

4.2.2 Subjects and procedure (II)

All PHCCs in an area of western Sweden were asked to participate. The diabetes nurses in each healthcare clinic asked those individuals with T2DM who met the inclusion criteria if they were interested in participating in the study. They recruited 142 T2DM individuals, which was not considered sufficient. Because the first selection method did not recruit a satisfactory number of individuals, we decided on a second selection procedure. Using the local diabetes register, which included information for four PHCCs, we selected all people meeting the inclusion criteria, see figure 1 (n=259). The total number of participants in the study was 401.

4.2.3 Subjects and procedure (III)

All PHCCs in an area of western Sweden were asked to participate in the study; nine centers accepted. As the procedure required an equal number of individuals in both groups and the number of obese people with T2DM in the register was much greater than the number of normal-weight people with T2DM, every third individual in the obese group was selected, see figure 1.

4.2.4 Instruments and statistical analysis (II, III)

All instruments used in the studies are well known and have demonstrated reliability and validity. The instruments and statistical analysis used in the studies are described in table 3.

Table 3. Instruments used in the study II and III

Tool	Variables	Item/Description	Study	Cronbach's alpha	Statistical analysis	P-value	Reference
SF-36	General measure of HRQL	36 items, including questions about the physical, mental and social aspects of everyday life. It includes eight dimensions: physical functioning (PF), role-physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role-emotional (RE) and mental health (MH). There are two summary scores representing overall indices of physical and mental health, respectively: the physical component summary score (PCS), comprising PF, RP, BP, and GH, and the mental component summary score (MCS), comprising VT, SF, RE, and MH.	II	0.79-0.93	Descriptively presented. A Mann-Whitney U-test was used in study II and III.	0.01	Sullivan, Karlsson et al., 1995
W-BQ12	HRQL in individuals with diabetes	Twelve items in four main categories: negative wellbeing, positive wellbeing, energy and GH. Scale 0-3.	II	0.88	"	0.01	Pouwer, van der Ploeg et al., 1999; Bradley, 2000
DAS	Attitudes towards diabetes	Seven bipolar scales with paired adjectives: constrained-free, weak-strong, tense-relaxed, unsafe-safe, independent-dependent, dominant-submissive and difficult-easy. These are grouped into three factors: self-esteem-autonomy, object evaluation and self-strength/vulnerability.	II	0.93	"	0.01	Wikblad, Wibel et al., 1990
DTSQ	Satisfaction with diabetes treatments	Six questions scored from 0-6, where a higher score indicates a more positive attitude towards treatment.	II	0.87	"	0.01	Bradley & Lewis, 1990
HADS-D	Symptoms of depression	Seven items rated on a four-point Likert scale ranging from 0-3. The scores are categorised as non-depressed 0-7, possible depression 8-10 and probable depression 11-21.	III	0.89-0.93	"	0.05	Zigmond & Snaith, 1983
HADS-A	Symptoms of anxiety	Seven items rated on a four-point Likert scale ranging from 0-3. The scores are categorised as non-anxious 0-7, possible anxiety 8-10 and probable anxiety 11-21.	III	0.89-0.93	"	0.05	Zigmond & Snaith, 1983
BDI-II	Symptoms of depression	Twenty-one items with scores ranging from 0 (absent) to 3 (severe or persistent presence of symptom). The BDI is scored by adding ratings for the 21 items to yield a total score that can range from 0 to 63. The scores are classified as non-cases (minimal depression) 0-13, possible cases (mild depression) 14-19, probable cases (moderate depression) 20-28 and probable cases (severe depression) 29-63.	III	0.93	"	0.05	Arnaud, Meagher, Norris & Bramson, 2001 Beck, Steer & Brown, 1996

4.2.5 Data collection

All questionnaires, together with study information, were distributed to the home addresses of those individuals included in the study. Those who were willing to participate in the study sent the questionnaires back to the research leader. Two reminders were sent out.

4.3 Ethical considerations

Ethical approval was granted by the Regional Ethical Review Board in Gothenburg, Sweden, for studies I-II (number 322-07), study III (number 691-09) and study IV (number 406-08). Ethical principles based on the Helsinki declaration were followed. All participants received written information about the aim and utility of the studies. In the interview studies (I, IV), the participants also received the same information verbally. All participants in the interview study gave their written informed consent. Studies II and III were approved by the head of the Personal Data Act (PUL) in PHC in western Sweden. A data file containing survey data was set up, each survey was numbered, and only the research manager had access to the link between information on the individual and the survey. After the completion of the studies, the list was destroyed. In all studies, the informants were guaranteed confidentiality and informed that they were free to end the study at any time for any reason. The participants were informed that all information they gave would be handled confidentially and that no information would be traceable to a single individual.

5 RESULTS

5.1 Diabetes in PHCCs (I, IV)

The experiences of individuals with T2DM and obesity revealed that when the care encounters took place from a health care perspective, there were no opportunities for individual support (study I). This gave the individuals feelings of *being stuck*, *defiance*, *guilt and shame* (table 4).

Table 4. The categories and sub-categories that emerged from the interviews with obese and normal-weight individuals with T2DM

	Encounters from a health care perspective	Encounters from the perspective of the individual
Obese	Being stuck Defiance Guilt and shame	Security Emotional support
Normal weight	To be left Despair Confusion	Security Emotional support

The obese individuals with T2DM felt that the diabetes team constantly stressed the need to lose weight, repeating the same general advice without providing specific details about what could help them to make progress. The weight loss goal was perceived as unattainable, and they felt *stuck*. The care providers' attitude was important for the way in which individuals with T2DM and obesity assimilated the information. When they felt that a caregiver was not responsive to their needs and lifestyle advice was given in an authoritarian way, they felt *defiance* and developed different strategies to remain in control of the situation. *Guilt and shame* resulted from a feeling that the obesity was self-inflicted, especially among the obese women who had fought against their weight for most of their lives. When the patients received no support in finding strategies that could lead to life-long routines, they accepted "their situations" (study I).

Health care professionals felt that they tried hard to give professional, individualised care and to find the best and most convenient strategies for treating each individual with diabetes without threatening the individual's integrity (study IV). Based on their professional knowledge and experience,

the health care professionals' task is to guide each individual to a better health situation while seriously considering the individual's perspective, situation and resources. They achieved this goal by "*balancing coaching and caution*", which was identified as the core category in the data. The core category was related to three categories with subcategories forming a pattern of behaviour: *Coaching and supporting*, *Ambivalence and uncertainty* and *Adjusting intentions*. These categories explained the core category (figure 2) (study IV).

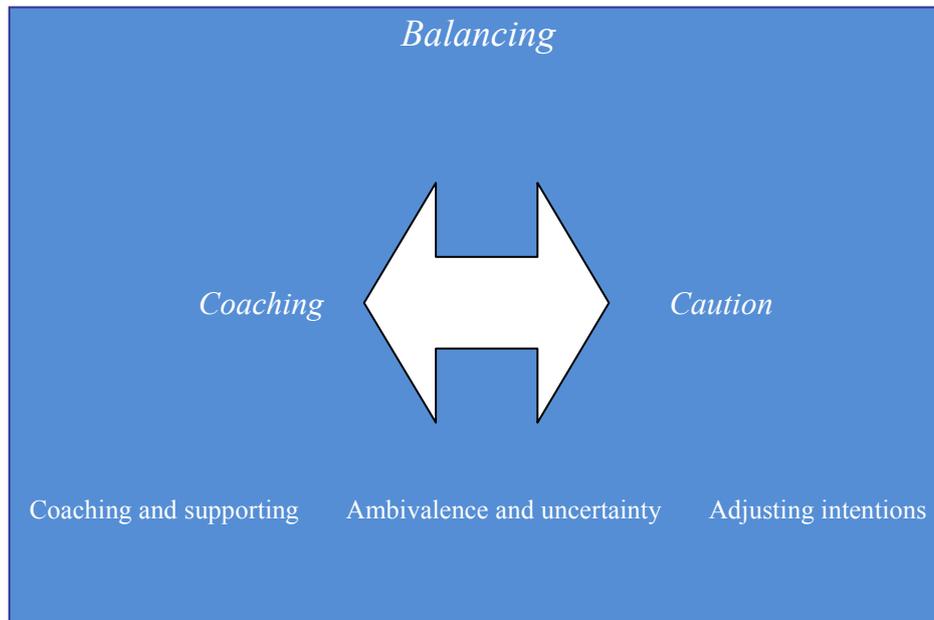


Figure 2. The main concern of health care professionals caring for people with diabetes and obesity is to provide individualised and helpful care. This is achieved by balancing coaching and caution.

The care providers *balanced coaching and caution* with a strong feeling of responsibility and an unspoken need to be successful in helping the patient to lose weight. Their strategies included describing the steps that need to be taken, explaining the links between actions and results, and affirming the individual's promising steps towards a healthier lifestyle. To achieve this, the individual's autonomy should be kept in focus to avoid threatening his or her integrity, which was a professional challenge in *Coaching and supporting* the individual (study IV).

When an obese person with diabetes did not achieve the necessary lifestyle changes despite repeated attempts, health care professionals experienced *ambivalence and uncertainty*. They then researched and tried different strategies without knowing whether they would help the individual. This process was experienced as an experiment involving feelings of insecurity and failure when health providers blamed themselves for not being able to communicate with their patient in an effective way. Although they aim never to stop searching for a solution, the health professionals reached a point at which they were unable to progress further in their efforts to improve the patient's health condition. When this happened, they had to *adjust their intentions*, and some professionals considered taking the role of a cautious companion in an effort not to abandon the individual or to hurt or blame him or her (study IV).

When the health care professionals succeeded in their coaching and support strategies (study IV), the individual with T2DM gained a feeling of *emotional support* and a feeling of *security* that they could handle the situation (study I).

For the normal-weight individuals with T2DM, treatment encounters resulted in a feeling of *being left* when health professionals focused on laboratory values and risks associated with previous habits. The care provider and the individual did not always have corresponding perceptions of the illness situation (study I). The complications being mentioned frequently led to a feeling of despair. Feelings of confusion were created when different care providers gave different information about the illness.

When the consultations adopted the perspective of the individual, the normal-weight individuals with T2DM gained the same feelings of *security* and *emotional support* as the obese individuals with T2DM. The patients felt that they had control over the situation because they had gained knowledge from the health care encounter and had access to the care they wanted (study I).

5.2 Emotional status of individuals with T2DM (II, III)

The instruments used in study II were the SF 36, W-BQ12, DAS and DTSQs, and those in study III were the HADA, HADD and BDI-II; see table 3.

Both studies II and III demonstrated an association between T2DM, obesity and emotional wellbeing. Obese individuals of both genders with T2DM showed decreased emotional wellbeing compared to normal-weight

individuals with T2DM, which was related to decreased QoL (tables 5,6) and increased symptoms of anxiety and depression (table 7).

The results also revealed a gender difference in the perception of QoL (study II), obese females with diabetes experienced more limitations in daily life, as indicated by decreased scores on the role-emotional subscale compared to obese males with diabetes. Obese men showed reduced vitality scores compared to normal-weight men. Compared to normal-weight females with diabetes, obese women had lower vitality scores and more body pain (table 5). The negative emotional impact for obese females with diabetes was also demonstrated by the results of the W-BQ12 questionnaire (table 6) (study II).

Diabetes and obesity in primary health care

Table 5. Comparison between normal-weight and obese diabetic patients of both sexes measured by means of the Medical Outcomes Short Form questionnaire (SF 36)

Scale	BMI 18,5-25 n=124		BMI 30-40 n=163		BMI 18,5-25 n=74		BMI 30-40 n=91		BMI 18,5-25/ BMI 30-40		BMI 18,5-25/ BMI 30-40	
	Median/Mean±SD	p-value	Median/Mean±SD	p-value	Female n=50 Median/Mean±SD	Male n=74 Median/Mean±SD	Female n=72 Median/Mean±SD	Male n=91 Median/Mean±SD	Female/Male p-value	Female/Male p-value	Male p-value	Female p-value
PF	90.0/82.7±19.5	< 0.0001	80.0/73.9±23.3	< 0.0001	85.0/78.2±22.9	95.0/85.8±16.2	75.0/68.4±24.3	85.0/78.4±21.5	0.005	0.005	0.008	0.011
RP	100.0/75.8±38.0	0.024	100.0/66.1±40.9	0.024	100.0/71.9±41.7	100.0/78.4±35.4	75.0/60.6±42.5	100.0/70.5±39.3	0.442	0.124	0.154	0.105
BP	84.0/74.8±26.6	< 0.0001	62.0/62.0±28.7	< 0.0001	84.0/72.3±28.1	84.0/76.6±25.6	51.0/56.0±27.5	72.0/66.8±29.0	0.394	0.012	0.030	0.002
GH	72.0/67.2±23.3	0.005	62.0/60.6±20.2	0.005	67.0/65.5±22.6	77.0/68.3±23.9	60.0/56.8±19.8	67.0/63.7±20.0	0.458	0.035	0.067	0.059
VT	75.0/68.0±24.0	< 0.0001	60.0/57.1±24.2	< 0.0001	65.0/66.2±23.4	75.0/69.2±24.5	50.0/53.2±23.7	65.0/60.1±24.3	0.419	0.048	0.010	0.005
SF	100.0/86.6±20.0	0.114	100.0/82.4±23.7	0.114	100.0/85.8±21.6	100.0/87.2±19.1	87.5/78.1±26.9	100.0/86.0±20.3	0.956	0.102	0.651	0.083
RE	100.0/82.1±32.5	0.536	100.0/77.9±36.7	0.536	100.0/80.6±35.6	100.0/83.1±30.5	100.0/69.5±40.0	100.0/84.9±32.2	0.909	0.005	0.296	0.092
MH	84.0/79.7±17.7	0.093	80.0/74.5±22.3	0.093	80.0/76.7±19.2	88.0/81.8±16.4	76.0/71.1±25.0	80.0/77.3±19.6	0.156	0.185	0.154	0.353
PCS	51.3/47.0±10.7	< 0.0001	45.4/42.3±11.1	< 0.0001	50.9/45.5±12.9	51.4/48.1±8.9	41.3/40.1±11.3	46.0/44.1±10.7	0.525	0.015	0.015	0.004
MCS	52.9/49.5±10.0	0.180	51.2/47.9±11.5	0.180	51.7/48.8±10.7	53.4/49.9±9.5	50.0/45.8±13.7	52.1/49.7±8.9	0.726	0.186	0.532	0.202

Table 6. Comparison between normal-weight and obese individuals with T2DM of both sexes by scores on the Well-Being Questionnaire (W-BQ12)

Main	BMI 18,5-25 n=124		BMI 30-40 n=163		BMI 18,5-25 n=74		BMI 30-40 n=91		BMI 18,5-25/ 25/ BMI 30-40		BMI 30-40/ 25/ BMI 30-40	
	Median/	Mean±SD	Median/	Mean±SD	Median/	Mean±SD	Median/	Mean±SD	p-value	Female/ Male	p-value	Female/ Male
Negative wellbeing	0.0/1.7±3.3	1.0/1.9±2.7	1.0/1.4±2.0	0.0/1.9±3.9	0.674	2.0/2.8/3.3	0.0/1.3±1.9	0.005	0.866	0.054		
Positive wellbeing	8.0/8.3±2.9	8.0/8.0±3.1	8.0/8.0±2.8	9.0/8.4±2.9	0.333	8.0/7.6±3.0	9.0/8.3±3.1	0.110	0.935	0.518		
Energy	8.0/7.6±2.9	7.0/6.8±2.9	7.5/7.5±2.6	8.0/7.7±3.2	0.541	6.0/6.3±2.7	7.0/7.2±3.0	0.034	0.284	0.024		
General wellbeing	27.0/26.1±7.4	26.0/24.9±7.6	27.0/26.0±6.3	28.5/26.1±8.0	0.489	24.0/23.1±7.8	27.0/26.3±7.1	0.010	0.833	0.074		

Table 7. Differences in mean HADS and BDI-II scores between normal-weight and obese diabetic individuals according to sex

Scales	BMI 18.5-25		BMI 30-40		BMI 18.5-25		BMI 30-40		BMI 18.5-25/ BMI 30-40		BMI 18.5-25/ BMI 30-40	
	n=180	n = 159	n = 75	n = 105	n = 66	n = 93	Female/ Male	Female/ Male	Female/ Male	Female/ Male	Female/ Male	Female/ Male
	Median/Mean/SD	Median/Mean/SD	Median/Mean/SD	Median/Mean/SD	Median/Mean/SD	Median/Mean/SD	P-value	P-value	Median/Mean/SD	Median/Mean/SD	P-value	P-value
HADS-A	4.0/4.5±4.3	5.0/5.2±4.1	4.0/5.4±4.8	3.0/3.8±3.7	5.8/6.1±3.9	4.0/4.5±4.1	0.038	0.005	4.0/4.5±4.1	4.0/4.5±4.1	0.279	0.106
HADS-D	3.0/4.0±3.8	4.0/4.5±3.5	3.0/4.3±4.1	3.0/3.7±3.6	4.0/5.3±3.6	3.0/3.9±3.4	0.435	0.010	3.0/3.9±3.4	3.0/3.9±3.4	0.616	0.052
BDI-II	6.0/8.9±9.1	9.0/10.5±8.8	8.0/10.7±10.5	5.0/7.7±8.0	13.0/13.8±8.8	5.5/8.3±8.1	0.061	0.000	5.5/8.3±8.1	5.5/8.3±8.1	0.549	0.010

Table 8. Prevalence of BDI-II, HADS-A and HADS-D scores in normal and obese individuals with T2DM presented as the mean percentages

Questionnaire	Total		BMI 18.5-25		BMI 30-40		BMI 18.5-25		BMI 30-40	
	BMI 18.5-25 n = 180 %	Total BMI 30-40 n = 159 %	Female n = 75 %	Male n = 105 %	Female n = 66 %	Male n = 93 %	Female n = 75 %	Male n = 105 %	Female n = 66 %	Male n = 93 %
BDI-II										
Non-cases	79.2	69.3	72.9	83.7	56.7	77.8				
Possible cases	8.3	12.7	8.6	8.2	15.0	11.1				
Probable cases	12.5	18.0	18.6	8.2	28.3	11.1				
HAD-A										
Non-cases	78.9	74.2	72.0	83.8	69.7	77.4				
Possible cases	11.1	16.4	12.0	10.5	18.2	15.1				
Probable cases	10.0	9.4	16.0	5.7	12.1	7.5				
HAD-D										
Non-cases	83.3	75.5	77.3	87.6	69.7	79.6				
Possible cases	8.9	17.6	14.7	4.8	19.7	16.1				
Probable cases	7.8	6.9	8.3	7.6	10.6	4.3				

No differences between normal-weight and obese individuals with T2DM were observed in symptoms of anxiety (measured by the HAD-A) or depression (measured by the HAD-D). Significant differences were observed in symptoms of depression as measured by BDI-II with higher scores for obese individuals with T2DM. When normal-weight males and females with T2DM were compared, significant differences were observed in symptoms of anxiety with females presenting higher scores. Significant differences in symptoms of depression and anxiety were observed between obese females and males with T2DM with the females displaying significantly higher scores than their obese male counterparts. No differences were detected between normal-weight and obese men with T2DM. Obese females with T2DM scored higher than normal-weight females on symptoms of depression (table 7) (study III).

As depicted in table 8, the obese individuals with T2DM were more likely to experience anxiety than the normal-weight individuals with T2DM. The obese individuals with T2DM also experienced more symptoms of depression compared with the normal-weight individuals. When comparing normal-weight females and males with T2DM, the females presented more symptoms of anxiety and depression. Obese females with T2DM exhibited much greater anxiety and depression than did obese males (study III).

The results of study III demonstrate that more than one in three women and one in five men with T2DM and obesity present symptoms of anxiety and depression. In the normal-weight group, the females presented more symptoms of anxiety than did their male counterparts (table 8).

5.3 Physical status of individuals with T2DM (II)

Males and females showed different impacts of the physical dimensions of perception of QoL. The obese females with T2DM experienced more limitations in daily life compared to the obese males. Obese men had reduced physical scores compared to normal-weight men. Compared to normal-weight females with diabetes, obese women had more severe physical impacts (table 5).

5.4 Attitudes towards disease and treatment satisfaction (II)

Obese females with diabetes felt that the disease was more overwhelming and difficult to handle in comparison to obese males with diabetes (table 9). There was no difference between the groups in terms of how they experienced treatment (study II).

Table 9. Comparison between Diabetes Attitude Scale (DAS) scores in normal-weight and obese diabetic patients

Factors	BMI 18,5-25		BMI 30-40		BMI 18-25		BMI 30-40		BMI 18,5-25/ BMI 30-40			
	Median/Mean±SD	p-value	Median/Mean±SD	p-value	Female / Male	Male	Female / Male	Male	Female / Male	p-value		
Self-esteem/ Autonomy	12.0/10.7±2.7	0.256	11.0/10.3±2.9	0.256	10.5/10.4±2.9	12.0/10.9±2.5	0.371	10.0/9.9±3.2	11.0/10.6±2.6	0.263	0.405	0.489
Object evaluation	10.0/10.0±3.4	0.786	11.0/10.2±3.2	0.786	10.0/9.6±3.9	11.0/10.4±3.0	0.409	10.0/9.5±3.3	12.0/10.8±2.9	0.010	0.312	0.768
Selfstrength/ Vulnerability/	15.0/14.9±4.1	0.249	14.0/14.3±4.0	0.249	13.0/13.8±4.5	16.0/15.6±3.8	0.029	14.0/13.8±4.3	14.0/14.7±3.6	0.348	0.086	0.789

6 GENERAL DISCUSSION

6.1 Methodological considerations – qualitative studies

According to Malterud (2001) the standards for qualitative inquiry are relevance, validity and reflexivity. This section discusses the method in terms of these aspects.

6.1.1 Study I

Although the sample was randomly selected from another study, the informants had different experiences, were different ages, came from different types of health care settings and varied from having been diagnosed with diabetes relatively recently to having been diagnosed for many years. The varied sample, its interpretation and recognition of the context improve the transferability and utility of the findings beyond the context of the study setting (Malterud, 2001). The interview texts were rich, and the informants very freely shared their thoughts about what characterises a good or poor visit with a health care professional. The number of informants is less important for external validity than the saturation of data required to provide sufficiently detailed descriptions of the phenomena under study. Thus, the aim in the present study was that the data be exhaustive rather than purposive. The findings were relevant to the purpose of the study, and the relevance and internal validity of the data were demonstrated (Malterud, 2001). If an interviewer has extensive knowledge about the issue and the context being studied, as the first author did, he or she may not ask enough questions if the informant's meaning seems clear. The investigator always affects the research process, so reflexivity was used, and the results were discussed with the research team during the research process to avoid bias (Malterud, 2001). We believe that the results of the study can be transferred to other groups of individuals with chronic diseases and others for whom lifestyle changes are prescribed within the PHC. The criteria of external validity and transferability are thus fulfilled (Malterud, 2001).

6.1.2 Study IV

The classical version of grounded theory (GT) was chosen in this study (Glaser & Strauss, 1967) because it could inductively produce new knowledge in this complex area.

As explained in the introduction (page 1), managing both obesity and T2DM is difficult both for individuals and for health care professionals. Therefore, it is important that these patients' situation be better understood, and a qualitative approach seemed to offer the tools necessary to find new perspectives on the problem. In GT, the researcher consults people who have specific knowledge about the problem (Glaser & Strauss, 1967). In this case, the informants were professionals who treat individuals with obesity and T2DM and who have insight into the problems these individuals face. To ensure that the first author's preconceptions would not affect the research process, reflexivity was used continuously throughout the process by continually discussing the procedure with the research team. To ensure the study's validity, the informant's quotations are included in the text (Malterud, 2001). The analysis process followed the guidelines for the classical version of GT (Glaser & Strauss, 1967), the core of which is the constant comparative method (Hallberg, 2006).

We believe that the results of this study contribute to a deeper understanding of treating T2DM and obesity by determining health care professionals' main concerns. They aim to provide professional care and find the right strategy for treating each individual patient, thereby satisfying the criterion of relevance (Malterud, 2001).

6.2 Methodological considerations – quantitative studies

All instruments used in the study are well known and have established validity and reliability (table 3, page 20). The cross-sectional sample is comprised of individuals within a PHC area in western Sweden.

The strength of these studies is that different dimensions of physical and emotional functioning and attitudes towards disease are measured. Further, the data provide information about the differences between normal-weight and obese individuals with T2DM, including the effects of gender.

QoL is a multidimensional parameter comprising perceptions of one's own physical, emotional and social well-being, including both cognitive and emotional components (Rubin & Peyrot, 1999). In study II, psychological well-being, health status and satisfaction were measured to assess QoL. In combination, these factors can provide information about the effects of disease on people with T2DM (Speight, Reaney & Barnard, 2009). The SF 36 was used as a general measure of HRQL. The concept of quality of life is important in Swedish society (Sullivan et al., 1995). To obtain reliable

information on the emotional wellbeing of individuals with diabetes, the W-BQ12 was used, which is easy to administer and has been proven to be effective in evaluating HRQL among people with diabetes (Bradley, 2000; Pouwer, van der Ploeg, Ader, Heine & Snoek, 1999). The W-BQ12 is thought to minimise the confounding of diabetic symptomatology with the somatic symptoms of depression and anxiety (Bradley & Lewis, 1990). DAS has also proven to be valid in a Swedish sample (Wikblad et al., 1990). The DTSQs consists of questions dealing with different aspects of the individual's attitude towards diabetes treatment and is reliable and valid when measuring quality of life as a complement to metabolic variables when evaluating new treatments, in education programmes and other interventions, or in the routine auditing of established methods of treatment (Bradley & Lewis, 1990).

In study II, the selection process was not optimal because it used two different methods. The first recruitment method, where diabetes nurses working in the PHC recruited individuals who met the inclusion criteria, yielded 142 participants. This quantity was not considered sufficient, so a second selection process was used as well. It was not possible to analyse data on patients who were recruited by the first method but declined to participate.

As study II indicated that depression could contribute to decreased HRQL in the study sample, it was decided to do a follow-up screening for the prevalence of anxiety and depression. The HADS is acceptable to respondents and easy to complete, and it has yielded high response rates in earlier studies. The questionnaire is reliable and shows good item-total correlation within the two sub-scales. The internal consistencies (Cronbach's alpha) are acceptable; see table 3. The two subscales of the HADS measure anxiety (HAD-A) and depression (HAD-D) and have demonstrated correlations with other criteria for these symptoms. The HADS can detect anxiety and depression significantly better than non-psychiatric physicians can. It discriminates well between samples with high, medium and low prevalences of anxiety and depressive disorders. It does not give a diagnosis, but instead gives a dimensional representation of mood. It is sensitive to mild disturbances without relying on somatic symptoms. The scale is able to differentiate groups with different prevalences or intensities of anxiety and depression for the purpose of scientific research (Herrmann, 1997).

BDI-II is a revised version of the 21-item Beck Depression Inventory (BDI), which assesses the severity of depression in adults and adolescents (Beck et al., 1996). The BDI-II is an updated version that accounts for both increases and decreases in appetite, weight and sleep. It is a sensitive and moderately

specific screen for depression and is reliable and valid for assessing depression in a primary care setting. The BDI-II is easy and quick for patients to complete and will not disturb their physical symptoms (Arnau et al., 2001). Importantly, depression screening does not diagnose depression, but only provides an indication of the severity of symptoms over a period of time (Sharp & Lipsky, 2002). The use of screening instruments is only one step in the identification of individuals who may be depressed, and it must be augmented with interviews (Roy, Lloyd, Pouwer, Holt & Sartorius, 2011).

The non-parametric Mann-Whitney U-test was used to test for significant differences between the groups. Non-parametric tests are used when the data are nominal or ordinal, and they do not make assumptions about the underlying population distribution. Although the P-value is traditionally set at 5 % in scientific research, a P-value of 1 % was used in study II to ensure that the results are robust.

The response rates in studies II and III were 72 % and 67 %, respectively. Response rates in postal surveys are declining, although reminders are known to improve them (Cook, Dickinson & Eccles, 2009) and were sent in studies II and III. However, the response rate was higher in study II than in study III, so it seems to be easier to complete questionnaires including questions about the impact of physical symptoms on emotional wellbeing than it is to answer questions about anxiety and depression separately. A non-respondent analysis was possible in study II, but not in study III, which can be seen as a limitation. However, non-response analysis is difficult and expensive, and it requires assessing whether non-responders would have answered the questionnaire systematically differently from responders. Even if the non-responders' age and gender are known, it is difficult to know how they might have answered the questionnaire because of unknown characteristics. However, all non-respondents analysis is guesswork and cannot be replaced by high response rates (Cook et al. 2009). Taking into account the overall purpose of the thesis, available theoretical knowledge of the problem and available resources, the response rates were considered sufficient. The results are based on self-reports, which means that we cannot exclude recall bias; the reported data may be over- or underreported (Streiner & Norman, 2001).

In these studies, neither the duration of the disease nor the existences of long-term complications were investigated, which can be seen as a limitation. People with complications of T2DM exhibit a higher prevalence of decreased psychological wellbeing compared with people with diabetes who have no complications (Adriaanse & Bosmans, 2010; Pouwer et al., 1999). Age and demographic and psychosocial factors also influence HRQL (Rubin &

Peyrot, 1999). The treatment mode and duration of diabetes were also not considered.

No information was available regarding on-going treatment of depression, which can affect the outcomes.

6.3 Living with diabetes

This portion of the discussion focuses on the physical, emotional, social and cultural effects of T2DM and obesity on daily life.

6.3.1 Emotional and physical consequences in daily life

Obese individuals with T2DM are limited in their daily mental and physical functioning (study II, III). Although they know that they must diet and exercise, they find it difficult to engage in these activities (study I). Not being able to do physical exercise can increase the risk of poor emotional wellbeing because functional limitations have been observed to contribute to the risk of developing depression (Pouwer et al., 2003). When T2DM is added to the limitations of being obese, it increases the risk for depression and decreased HRQL, influencing the individual's ability to enact the lifestyle changes necessary for weight loss and better metabolic control (study I-IV). Researchers have shown that diabetes increases the risk of depression, which influences the individual's physical and mental functioning and his or her overall quality of life (Paschalides, Wearden, Dunkerley, Bundy, Davies & Dickens, 2004; Penckofer, Ferrans, Velsor-Friedrich & Savoy, 2007).

Diabetes and obesity each reduce HRQL separately, and having both diabetes and obesity results in further decreased HRQL (Gough et al., 2009) for patients of both genders (Wallston, Rothman, & Cherrington, 2007). If an individual does not have the ability and the energy to make necessary changes in his or her life, both illnesses may worsen, there is a proven link among diabetes, depression and impaired metabolic control in men (Paschalides et al., 2004). In addition, poor metabolic control has been reported to exacerbate depression in individuals with T2DM (Lustman & Clouse, 2005). Men and women seem to cope with the demands of their illnesses in different ways, the females report feelings of guilt and shame, but the males resolve to do as well as they can, with the result being that neither men nor women will succeed in weight loss. One of the reasons why they do not succeed is because they do not have enough energy to handle all of the demands placed on them, which further increases the women's sense of

failure. The men do not express bad feelings about dealing with all of the demands on them (study I).

The trend of decreased emotional wellbeing was most evident among females with T2DM and obesity (study II, III). The suggestion that obese females with T2DM felt diabetes to be an extra burden is supported by the results showing that they experienced the disease as being more difficult to manage compared with obese males with T2DM and normal-weight men and women with T2DM (study II). Obesity negatively affects self-esteem in women (Zabelina, Erickson, Kolotkin & Crosby, 2009), and psychosocial stress may affect the ability to manage the disease (Rubin & Peyrot, 1999; Uden, Elofsson, Andreasson, Hillered, Eriksson & Brismar, 2008), which can prevent women from achieving metabolic control (Kacerovsky-Bielez et al., 2009). Neither obese men with T2DM nor health care professionals indicated that men are emotionally affected by having both T2DM and obesity (study I, IV). However, it is clear that both genders are emotionally affected (Pouwer et al., 2010) because one in five obese men and one in three obese women with T2DM show symptoms of anxiety or depression (study III), and both genders have decreased energy (study II).

6.3.2 Social and cultural dimensions of daily life

In study I, the obese individuals reported that they felt stigmatised by the people around them, which affected how they think about and cope with their obesity and prevented many from seeking health care. Obese individuals appear to embrace the general perception of obesity as self-inflicted (Rogge, Greenwald & Golden, 2004). One factor that subordinates an individual in a relationship is obesity, and some people feel that it is acceptable to make derogatory and insulting comments about an obese person's weight because he may blame himself (Rogge, Greenwald & Golden, 2004). This attitude is a problem for women in particular, who expressed sensitivity about the comments that people make about their weight (study I). The feeling of being stigmatised also affects how these individuals handle their disease and its demands. Research has shown that stigmatisation affects the stigmatised individual's health (Stuber, Meyer & Link, 2008). Obesity can make a person reluctant to participate in physical activities because feeling compared with normal-weight individuals, either by oneself or by others, creates a feeling that one is being stigmatised (Conradt, Dierk, Schlumberger, Rauh, Hebebrand & Rief, 2008). The increased physical pain associated with obesity can also influence the ability to participate in physical activities, which further impairs the individual from improving his or her metabolic control and weight loss (study II).

Many of the women in the study have been dieting for their whole lives. They blame themselves for their obesity and experience feelings of failure because they have not been able to lose weight or maintain weight loss (study I). From a social construction perspective, obesity is not only a problem about losing weight, it is also a problem when one is successful in weight loss and must avoid gaining weight again. Regaining weight after losing it is viewed as a personal failure (Rogge et al., 2004). The women in the study perceived themselves as having caused an illness that will produce health care costs (study I). Society's values can also affect how men and women perceive their weight, and being overweight may not be an emotional problem for men. A study of overweight and obese men without diabetes (Sabinsky, Toft, Raben & Holm, 2007) revealed that they were motivated to lose weight by the wish to increase their fitness and strength. Being slim and having a healthy lifestyle were less important. The men were also ambiguous about whether their masculinity would be threatened by being slim. The men expressed that becoming slim is not a subject that men discuss.

6.4 The health care consultation

6.4.1 The individual

When a health care consultation is based on the individual's situation and potential for improvement, handling the situation seems more manageable. When the physical impact of a chronic illness and ways to cope with it are discussed with a health care provider, the patient can make informed choices in many situations, conferring increased self-esteem (study I). It is not only healthy lifestyle advice that is important; it is also important how advice and support are given (Jackson, Coe, Cheater & Wroe, 2007). For many individuals with T2DM, health care providers are an important source of emotional support. The feeling of joint responsibility is important in that individuals are able to make decisions based on discussion with their health care provider, giving them a feeling of control (study I). Respecting each patient's autonomy and allowing patients to develop their own treatment plans improve the odds of achieving better weight loss outcomes (Butterworth, 2008).

When individuals with T2DM do not receive emotional support and when advice is given without considering the individual's abilities and life situation, it is not possible for the individual to put the knowledge into practical use. Not knowing how to address one's weight problem creates a sense of frustration and a feeling of being abandoned (study I). When the patient is not involved in deciding how the problem should be solved, their

perception of the care worsens, resulting in decreased QoL (Pera, 2011). It becomes impossible for the patient and health care provider to meet as equal partners and the patients feels that he or she is at a disadvantage and cannot assimilate the information provided by the health care provider (study I).

There is a risk that obese individuals with T2DM will feel violated and act irrationally and deal with their experiences of the treatment setting in a way that is contrary to the care provider's intention (Puhl & Brownell, 2006). When a patient is left with many questions and no understanding of how to handle the problem, he or she experiences frustration and a feeling of lost control (study I). The individual's ability to take responsibility is limited and contributes to the feelings of doubt when he or she is unable to translate the health care provider's advice to his or her own situation (Adolfsson, Starrin, Smide & Wikblad, 2008; Ward, Gray & Paranjape, 2009). Differing views between the individual and the health care providers of how the individual's problems should be solved is not uncommon (Puhl & Brownell, 2006; Zoffmann & Kirkevold, 2005). The emotional burden among obese individuals with T2DM and decreased HRQL, loss of energy and physical symptoms (study II, III) influence how these individuals interact with health care providers and how well they are able to make the necessary lifestyle changes (study I). It has been shown that depression constitutes an additional burden for individuals with diabetes, and comorbid diabetes and depression are associated with non-adherence to self-care and medical treatment (Gonzalez et al., 2008; Lin et al., 2004).

The obese women with T2DM experienced the weight discussion as even more of a sensitive issue than the men did. Many of the obese females with T2DM have been dieting for their whole lives and experience feelings of failure when their attempts at weight loss are unsuccessful (study I). Such experiences carry long-term emotional consequences for the individual (Thomas et al. 2008) and may even influence what they experience and how they interact in the health care setting. When the caregiver's sole focus is on the patient's weight, the patient may feel judged because of her obesity. The result is a feeling of failure when weight loss does not work (Conradt et al., 2008).

6.4.2 The health care provider

A good consultation

When the health care provider acts as an equal partner and succeeds in creating a trusting relationship, individuals with T2DM feel more confident in their ability to manage the illness (studies I, IV). This result is in line with previous research (Adolfsson et al., 2008; Attree, 2001; Cooper et al., 2003;

Hornsten, Lundman, Selstam & Sandstrom, 2005; Ward et al., 2009). The result of acting as equal partners is that the individual's self-confidence is strengthened with a feeling that he or she can control the situation (Cooper et al., 2003), resulting in better metabolic outcomes (Heisler, Smith, Hayward, Krein & Kerr, 2003). Individuals with T2DM feel secure in handling their illness when they feel respected and listened to and when they receive advice that can be put to practical use. When health care providers have an open attitude, showing interest in the individual's life situation, the individual feels emotionally supported (study I). When the individual's prior experiences are taken into account without frightening or blaming the individual, lifestyle changes become easier (Ward et al., 2009). Health care professionals believe that an individual's willingness to take responsibility for treatment and lifestyle changes is important for success (study IV), as shown in previous work (Elfhag & Rossner, 2005; Hansson et al., 2011). Continuity and long-term support from the care provider are important when working with overweight or obese patients (Hansson et al., 2011). It is easier to meet each individual's special needs in the context of a long-term relationship (study I, IV).

A poor-quality consultation

Although health care professionals have great ambitions to deliver individualised care, it is hard for their patients to lose weight and improve metabolic control (study IV). Obese individuals with T2DM believe that it is impossible to know how to lose weight (study I). Weight reduction is an important part of diabetes treatment (Haslam & James, 2005) and has an impact on the actions taken by health care professionals (Wens, Vermeire, Royen, Sabbe & Denekens, 2005). They have an important role in increasing the individual's responsibility for his or her own situation. The best indicator of success is the individual's internal motivation. Enhancing motivation is perceived as one of health care professionals' most important duties (Hansson et al., 2011; Jallinoja et al., 2007). The individuals in the present study believe that they are obligated to inform their patients about the dangers of obesity (study IV). Prior research shows that the efforts of professionals do not always match the expectations of patients with diabetes, and for patients, knowing what to do is different from putting this knowledge into action in daily life (Ward et al., 2009). When a health care provider adopts a paternalistic attitude without being aware of the individual's needs, it gives rise to defiance in the individual (study I). Threats and warnings do not encourage adherence or increase the individual's knowledge of management techniques; instead, they could have the opposite effect (Matthews, Peden, & Rowles, 2009).

Lack of strategies

The health care professionals perceived treating T2DM and obesity as a large experiment in which they did not know how to handle the patient's weight problem but understood the consequences for the individual of not reaching the weight loss goal (study IV). Health care professionals who treat patients with these conditions need to increase their knowledge of lifestyle counseling (Huang, Yu, Marin, Brock, Carden, & Davis, 2004; Jallinoja et al., 2007). The health care professionals do not know if they have any role at all in successful weight loss, and they experiment with different strategies because they do not have access to a general successful strategy (study IV). Care professionals within the PHC believed that there are currently no effective methods of treating obesity except surgery (Hansson et al., 2011). Lifestyle changes take time, and suddenly, after years of non-adherence, an individual can lose weight for no clear reason (Hansson et al., 2011). When professionals do not succeed in motivating and guiding individuals to change their behaviour, they become frustrated (Jallinoja et al., 2007; Persson, Hornsten, Winkvist, & Mogren, 2011) and encounter a moral dilemma (Hansson et al., 2011). When this happens, health care providers must determine how to communicate their message to the individual so that he or she can acquire new skills to put into practice (study IV). If the health care provider has no strategies for having this conversation, he or she is at risk of blaming the patient and giving strict advice that has a limited effect on the diabetes balance (Hornsten, Lundman, Alamber & Sandström, 2008). Blaming the individual was not a prominent feature in the present study; on the contrary, when the professionals failed to help individuals with T2DM and obesity, they resorted to the role of a cautious companion, accepting the situation as it was and feeling afraid to hurt or blame the patient (study IV). This result is in line with a prior study in which, when health care professionals were afraid to fail, they chose to act as caring companions. They felt that this approach was preferable to maintain a good relationship in which they empowered the individual and respected his/her autonomy (Persson et al., 2011).

The gender perspective

The obese women with diabetes reported that they were treated in a negative manner in health care settings due to their obesity, but none of the men described such experiences (study I). The health care professionals did not express negative feelings toward obesity, but they perceived it difficult to treat and could not understand why obese individuals did not do anything about their situation (study IV). When health care providers emphasised the need for weight loss without offering effective strategies, both men and women with T2DM and obesity felt abandoned when they could not lose

weight (study I). It has previously been shown that health care professionals view obesity as a behavioural problem and consider it to be difficult to treat, mirroring society's negative attitudes towards obese persons (Foster et al., 2003; Schwartz et al., 2003). Negative attitudes towards obese individuals exist among health professionals (Harvey & Hill, 2001; Poon & Tarrant, 2009), and some make negative comments about obesity (Puhl & Brownell, 2006; Schwartz et al., 2003).

The healthcare professionals perceived that men and women experienced chronic disease differently (study IV), and they felt that it was possible to talk about the issue more openly with the men. Perceiving women as emotionally influenced could lead health care providers to avoid discussing obesity when treating obese women and prevent them from developing strategies to handle the weight situation. Huang, et al (2004) reported that there is a relationship between whether the obesity problem is made clear in the care meeting and what actions can be taken to address the weight problem (Huang et al., 2004). In addition, obesity is a stigmatised condition that negatively influences the relationship between patients and healthcare providers (Mold & Forbes, 2011). Neither the interviewed obese men with T2DM nor the health care professionals perceived that the men were emotionally influenced by having both diabetes and obesity (studies I, IV). However, the men with obesity and diabetes had decreased HRQL (study II), and one in five had symptoms of depression (study III). The reason why the healthcare professionals are unaware of male patients' emotional status may be that men do not express their feelings of depression and anxiety as clearly as women do. Health care professionals might communicate with men and women differently because of their assumption that women are more emotionally affected by their obesity than men are (study IV). Men and women may also communicate differently with health care providers (Street, 2002), which in turn affects the way health care professionals interact with them. Health care providers are more sensitive to the needs of women than those of men (study IV). When individuals provide details about their symptoms and express their feelings about their diagnosis, the interaction between the patient and the care provider changes and allows a more exploratory approach (Cegala & Post, 2009).

7 CONCLUSION

Study I: A care encounter from a health care perspective had the following characteristics:

- the obese diabetic patients, especially women, experienced feelings of being stuck, defiance, guilt and shame.
- the normal-weight diabetic patients experienced feelings of being left, despair and confusion.

A care encounter from the individual's perspective had the following characteristics:

- the obese diabetic patients felt affirmed and supported, giving them a sense of security and control.
- the normal-weight diabetic patients experienced a feeling of security in an atmosphere of trust and individual support.

Study II: The study demonstrated gender differences in the perception of QoL and showed that obese females with diabetes experienced more limitations in daily life due to physical and emotional problems than did obese diabetic males. The obese female diabetics found their disease to be more overwhelming and difficult to handle than did the obese diabetic males. The results indicated that obesity compounds the burden on women with T2DM. The obese men had reduced physical and vitality scores in comparison with the normal-weight men. In comparison to normal-weight females with T2DM, the obese women had lower vitality scores, increased body pain and increased physical impact. The negative emotional impact of the disease on obese female diabetics was also shown by the W-BQ12 scores. It could also be observed that, unlike normal-weight individuals with T2DM, obese individuals with T2DM showed symptoms of underlying depression. There was no difference between the groups in terms of how they experienced treatment. Future research must enhance our understanding of both obese men and women with T2DM.

Study III: This study demonstrated a link between diabetes type 2, obesity and depression in both genders. Importantly, obesity and T2DM must be classified as problems affecting both males and females in primary healthcare. Primary health care providers must recognise the emotional impacts of T2DM and obesity on patients of both genders.

Study IV: This study addressed the main concerns of health care professionals consulting with obese individuals with diabetes. The professionals' main concern was their ambition to provide professional care and find the right strategy for each patient, i.e., to offer individualised care. However, the most prominent element expressed was the lack of useful strategies for helping individuals to lose weight. The theory generated by this study can improve our understanding of how a lack of workable strategies influences caregivers' abilities to reach their goal and can help to identify the factors that contribute to the complexity of meetings between caregivers and individuals with diabetes and obesity.

General: The aim of this thesis was to understand the life situation of individuals diagnosed with T2DM and obesity and how the dual diagnosis influenced interactions with the diabetes team at a PHCC. Much of the research in this area has focused on laboratory values and medical issues related to diabetes and obesity separately as well as T2DM in combination with obesity. Recently a new term, diabetesity, has begun to emerge. This term seems logical as combined diabetes and obesity must be seen as a uniform and unique condition. Both diseases affect each other and present an additional burden both physically and mentally. The individual's physical, emotional, cultural and social life situation must be taken into account during interactions in the health care setting and when planning treatment with a focus on the individual's specific situation.

8 IMPLICATIONS

8.1 Clinical implications

All four studies in this thesis show that diabetes influences physical and emotional wellbeing and HRQL. The emotional burden when T2DM is combined with obesity is complicated. T2DM and obesity separately affect both emotional wellbeing and HRQL, and this thesis highlights some of the additional problems that individuals with diabetes have to handle in daily life. Most individuals with diabetes in Sweden are treated in primary health care, and primary health care professionals would benefit from considering the results of these studies. Diabetes is a major problem, and health care professionals planning treatment must consider and plan the care based on the individual's specific circumstances, see figure 3.

A patient's physical impairment needs to be discussed with a health care provider, and a care plan should be developed based on the individual's perceived limitations.

Emotional wellbeing must be investigated because depression and anxiety are common problems in both genders. It is frustrating for both the patient and the health care professional when the patient's emotional status not is taken into account because it affects how the patient handles the illness and his or her circumstances.

Experiences and feelings of stigma affect how individuals manage their illness. Therefore, it is important to understand whether obese individuals experience feelings of stigmatisation. Health care professionals should discuss this question with their obese patients. Obesity should also be discussed within the diabetes team because health care providers may have stigmatising thoughts that affect how they treat patients with diabetes. If the patient feels stigmatised by his or her health care providers, it decreases his or her ability to handle the disease, resulting in impaired metabolic control and decreased weight loss.

Health care providers must have clear strategies for handling the diabetes problem within the PHC, and health care professionals working with diabetes patients must be specialists in both diabetes and obesity.

In summary, a plan should be developed in collaboration between the individual and the health care provider, where both are equal partners in determining how the illness and its effects should be managed. In this plan,

the individual's whole situation is to be taken into account, including physical, emotional, cultural and social dimensions.

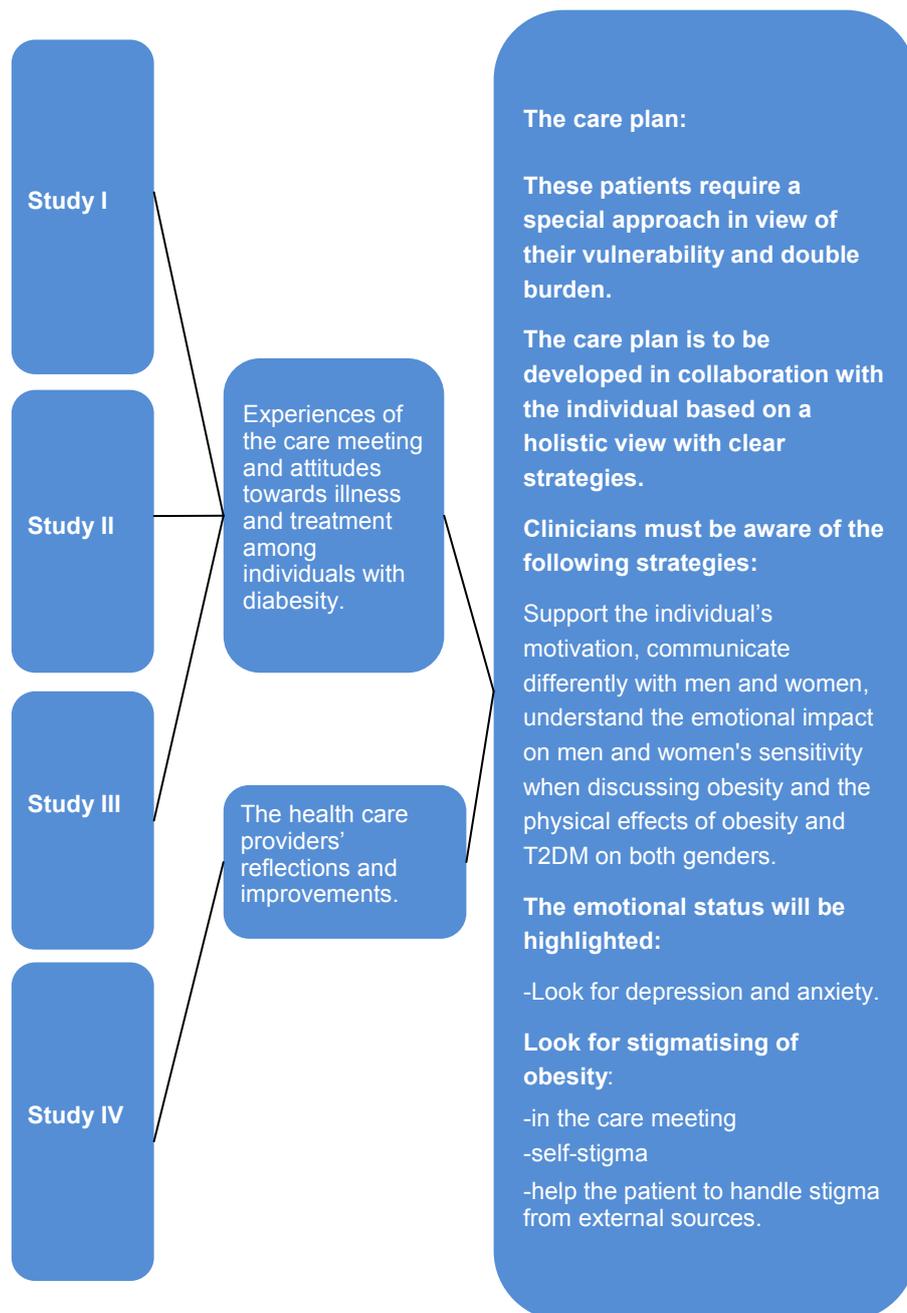


Figure 3. The care plan, based on findings in this thesis.

8.2 Research implications

In this thesis, the iceberg has been used as a metaphor for what is known and what is not known about the individuals who suffer from diabetes. Supported by the results, we have been able to detect a small part of which can be found under the surface, but further research is needed to provide an overview of these individuals' situation and needs of health care interventions. To date, research has mostly focussed on laboratory values and medical issues; these aspects are important, but future research must focus more on emotional well-being.

More research and education are needed on the relation between diabetes and stigmatisation in the health care setting. Health care professionals and patients should have strategies to use when they discuss treatment and include follow-up through research and development.

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