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9.1 SUMMARY OF MAIN FINDINGS
This section summarizes the main findings per chapter. Part A of this thesis describes the results from the studies that focused on sexual dysfunction in people with type 2 diabetes; part B describes the studies that focused on socio-economic status (SES) in people with type 2 diabetes.

PART A: SEXUAL DYSFUNCTION & TYPE 2 DIABETES
Chapter 2 describes the results from a cross-sectional survey (N=158) on the prevalence and correlates of sexual dysfunction in people with type 2 diabetes in the Netherlands. We showed that the prevalence rates of male and female sexual dysfunction were 69% and 70%, respectively. Further, we found that older age, clinical depression, and one or more diabetes-related complications were associated with the presence of sexual dysfunction. Clinical depression was most strongly associated with both male and female sexual dysfunction.

Chapter 3 focuses on the results that were retrieved from a cross-sectional survey and qualitative interviews that were conducted to study the needs and preferences for care for sexual problems among men and women with type 2 diabetes in the Netherlands. Among the 25 interviewed participants, we found several barriers for discussing sexual issues, such as feelings of embarrassment. Despite these barriers, people still reported a need for care, mainly because sex was viewed as an important part of their relationship. Participants preferred to discuss sexual issues with a care provider with whom they have a close relationship. An important recommendation from the participants was to make care for sexual problems an integral part of routine diabetes care.

Chapter 4 describes the design of a cluster-randomized clinical trial (RCT) that was conducted to study the effectiveness of the PLISSIT model in improving sexual functioning, sexual satisfaction, and quality of life in people with type 2 diabetes in Dutch primary care. PLISSIT stands for the four counseling steps: Permission, Limited Information, Specific Suggestions and Intensive Therapy. Eligible for this study were 40-75 year old men or women who indicated during screening to be sexually dissatisfied and to have a need for care. In the intervention group, general practitioners (GPs) were trained to perform sexual counseling according to the steps of the PLISSIT model; control group
GPs provided care as usual. Patient-reported data were collected at baseline, three and twelve months follow-up.

Chapter 5 describes the results from the routine screening for sexual dissatisfaction in people with type 2 diabetes in Dutch primary care. This routine screening was conducted as part of the RCT as described in Chapters 4 and 6. In total, 786 people were screened with the Brief Sexual Symptom Checklist (BSSC) by practice nurses in 45 general practices in the Netherlands. We found that the prevalence of sexual dissatisfaction was 36.6%, which was significantly higher among men than among women. Sexually dissatisfied men most often reported erectile dysfunction; for sexually dissatisfied women, low sexual desire and lubrication problems were most common. More than half of all dissatisfied people wanted to talk about their sexual problems with their general practitioner (61.8%), significantly more men than women. We concluded that both clinicians and patients may benefit from the use of a screening instrument, such as the BSSC, as a tool to proactively identify sexually dissatisfied people in primary care.

Chapter 6 presents the results from the RCT on the effectiveness of the PLISSIT model in people with type 2 diabetes in the Netherlands. In total, 150 people with sexual problems were included from 44 general practices. We found that PLISSIT-trained GPs reported significantly improved competence with discussing sexual issues. Female sexual functioning significantly improved at three months follow-up, but not at twelve months follow-up. No other effects were observed. Thus, compared to usual care, the PLISSIT model intervention improved short-term sexual functioning in women but not in men with type 2 diabetes in Dutch primary care. More intensive treatment outside primary care may be necessary to improve male sexual functioning. The PLISSIT-model offers a framework that may help GPs to discuss sexual health in diabetes care.

PART B: SOCIO-ECONOMIC STATUS & TYPE 2 DIABETES

Chapter 7 describes the results from a systematic review and meta-analysis that were conducted to study the association between socio-economic status (SES) and hemoglobin A1c (HbA1c) levels in people with type 2 diabetes. We included 45 studies on the association between SES and HbA1c levels. The pooled mean difference in HbA1c levels between people with low and high SES was 0.3%
(95%CI 0.1;0.5) [3.5 mmol/mol (95%CI 1.1;5.9)] for education, and 0.3% (95%CI 0.1;0.6) [3.7 mmol/mol (95%CI 0.9;6.5)] for income. Moreover, we provided strong evidence that people of low SES have higher HbA1c levels than people with high SES, for respectively deprivation, education, and income.

**Chapter 8** focuses on the results from a cross-sectional study in the Dutch Diabetes Pearl cohort on the association between individual level and partner’s level of occupation on HbA1c levels in people with type 2 diabetes. Occupational status was classified according to the ISCO-08 skill levels in 3257 participants. Among men, we found that having a partner with an intermediate level of occupation was associated with significantly lower HbA1c levels, compared to having a partner of the highest occupational level (ISCO level 4). In women, having an unemployed partner was associated with significantly higher HbA1c levels, compared to having a partner of the highest occupational level. Partner’s occupational status provided significant additional information on the association between SES and HbA1c levels in people with type 2 diabetes.
9.2. DISCUSSION OF MAIN FINDINGS

In this section, the main findings and their implications for clinical practice are discussed in relation to other literature.

PART A: SEXUAL DYSFUNCTION & TYPE 2 DIABETES

Sex differences

Our studies in Chapters 5 and 6 showed significant sex differences with regard to sexual dysfunction in people with type 2 diabetes, while Chapter 2 did not identify these sex differences. This paragraph discusses a few of these findings in light of the literature on sex differences.

Until a couple of years ago, it was thought that men with diabetes more often were affected by sexual dysfunction than women. This was partly because of a lack of methodologically sound studies and the use of varying definitions for female sexual dysfunction, which resulted in the reporting of varying prevalence estimates (1). Our studies shed light on multiple factors affecting sex differences with regard to sexual dysfunction in people with diabetes. First, earlier studies often concerned people with type 1 diabetes or a mixed sample of type 1 and 2 diabetes. In our study, with solely people with type 2 diabetes, we found that sexual dysfunction affected men and women equally (70%) based on clinically validated cut-off scores on the International Index of Erectile Function (IIEF) and the Female Sexual Function Index (FSFI) in Chapter 2. An explanation for the high prevalence of female sexual dysfunction in our study may lay in the differences between women with type 1 and type 2 diabetes. Compared to previous prevalence studies in mixed samples, women with type 2 versus type 1 diabetes are on average older, more often are postmenopausal, and have higher rates of vascular complications. These factors have shown to be associated with higher rates of sexual dysfunction (2-4), which might explain why sexual dysfunction seemed to be more prevalent in women with solely type 2 diabetes in our study.

In research, prevalence estimates of sexual dysfunction often do not include the sexual distress criterion. Sexual distress, however, seems to be another important factor involved in the observed sex differences with regard to sexual dysfunction. According to the Diagnostic and Statistical Manual of Mental Disorders (5th edition: DSM-5), a clinical diagnosis of sexual dysfunction requires for the symptoms to cause “clinically significant distress” (5). Lower prevalence rates of female sexual dysfunction have been reported when sexual distress was included in the measurement of female
sexual dysfunction (6). The sexual distress criterion was not included in our definition of female sexual dysfunction in Chapter 2. Moreover, while an age-related decline in sexual function is generally observed in both men and women, it appears that the rate of sexual dysfunction (i.e. including sexual distress) remains relatively stable in ageing women compared to men. In their review of population-based studies, Hayes & Dennerstein suggest that this may have to do with a changing importance of sex and decrease in sexual distress (7). It has been shown that the relative importance of sex decreases in ageing women, while in ageing men this remains significantly more important. For example, a study among 60-80 year olds showed that 54% of men and 16% of women thought sex was very or fairly important (8). Hayes & Dennerstein hypothesize that this decreased importance of sex, perhaps in combination with other factors, could contribute to the age-related decline of sexual distress in women and may explain why the number of women with sexual dysfunction does not seem to increase with age (7). Together, these arguments may explain why the clinical prevalence of sexual dysfunction is (perceived to be) lower in women than men.

In Chapter 5, we observed significant sex differences during screening for sexual dissatisfaction and need for help. More men than women reported to be sexually dissatisfied (41.1% vs. 27.8%) and had a need for help (66.8% vs. 47.2%). Besides the changing importance of sex and decreased sexual distress in ageing women as discussed above, there are other arguments that may explain our observed differences. First, men and women experience their sexual function differently. A large meta-analysis by Chivers et al. reports a stronger correlation between the objective (genital) and the subjective (self-reported) sexual arousal for men ($r=0.66$) than for women ($r=0.26$). This suggests that men may experience objective sexual dysfunction more often as subjective sexual dysfunction, compared to women. In other words, a man feels more quickly bothered when a physical issue occurs, such as ED, than a women would feel bothered by a physical issue, such as lubrication problems. Second, it seems that male sexual dissatisfaction often relates to individual health factors, such as the inability to perform, while female sexual dissatisfaction more often relates to partner and relationship factors (10). In our study in Chapter 5, we specifically inquired for dissatisfaction with sexual function, not overall sexual satisfaction or relationship satisfaction. Finally, awareness of treatment options influences help-seeking behavior. As there is higher awareness about and greater availability of possible medical treatment options for male than for female sexual dysfunction (11), this
may explain why men in our study more often report to be dissatisfied and in need for care than women.

After we had selected only those men and women who were sexually dissatisfied and in need for help to participate in our trial in Chapter 6, we observed a sex difference with regard to the short-term effectiveness of the PLISSIT model in improving sexual function. In women, a significant improvement of sexual function was observed at three months follow-up, while in men no significant short-term effects were observed. Contrary to men, a woman’s sexuality is more capable to adapt to changing circumstances, such as a diabetes diagnosis or new partner. This is also known as ‘erotic plasticity’, which is “the extent to which the sex drive can be shaped by social, cultural, and situational factors” (12). Higher erotic plasticity may help explain why women in our study perhaps were more able to adapt to the PLISSIT-counseling suggestions from the GP, compared to men. Finally, sociocultural ideals of sexuality are mainly focused on male sexual performance and function. When penetration is impossible due to ED, the sociocultural ideal of ‘men always want sex’ or ‘sex always ends with ejaculation’ are challenged and can put significant pressure on men (13). For women, with the help of a lubricant, penetration may still be possible regardless of (mild) sexual dysfunction. These, and previously discussed arguments on sex differences, may help explain why the PLISSIT model was only effective in improving short-term female sexual function, not male sexual function.

Needs and preferences for care

In Chapter 3 and 5, the need for care for sexual problems in people with type 2 diabetes in primary care was explored both qualitatively and quantitatively. This paragraph discusses our findings in light of the literature on care needs.

Before this thesis, one Dutch and four foreign studies explored - to some extent - the care needs for sexual problems among people with diabetes (14-18). Although results may refer to country and culture-specific care needs, our findings in Dutch primary care are in line with these earlier studies. For example, we found in our survey in Chapter 3 that more men than women wanted help for their sexual problems (48% vs. 15%) and had sought help previously (41% vs. 9%). A population-based study by Lindau et al. also reported that 47% of men and 19% of women with diabetes in the US had discussed their sexual problems with their physician (16). Notably, this apparent sex difference did not appear from our qualitative interviews in Chapter 3, which may have to do with the
selection of the interviewed people (see also Chapter 9.3. Methodological Considerations). To compare, 14% of men and women with self-reported sexual dysfunction in the Dutch general population want help (19), which suggests that the prevalence of sexual care needs among people with type 2 diabetes is significantly higher. The use of a screening instrument, such as the Brief Sexual Symptom Checklist (BSSC) (20) that was used in Chapter 5, could facilitate the identification of people with a need for help in diabetes care.

Based on the interviews in Chapter 3, it was strongly recommended by the interviewees to incorporate care for sexual problems in daily diabetes care. Various suggestions were made during the interviews. For example, similar to a study in Taiwanese men with diabetes (15), a care-provider initiated discussion was preferred, where the care provider should ask directly and openly whether a person would like to talk about sexual issues. In our study, patients preferred a care provider with whom they have a close relationship; the care provider's medical specialty, age or sex were less important. In accordance with a cross-sectional survey in a Dutch sample of people with chronic diseases by Bovée et al. (14), the GP was most often mentioned as the preferred care provider. However, in the study by Bovée, women most often wanted help from a female care provider, while men did not have a preference. This difference was not observed in our study.

**Challenges for treatment**

The results from our studies in Chapters 2, and 6 have implications for the treatment of sexual dysfunction in people with type 2 diabetes. This paragraph discusses the challenges and possibilities for care providers with the treatment of sexual dysfunction by the PLISSIT model in primary care, and the treatment of comorbid depression in people with sexual dysfunction with type 2 diabetes.

In general, the treatment of sexual dysfunction in people with type 2 diabetes seems challenging. If sexual dysfunction is due to irreversible pathophysiological damage caused by diabetes and/or ageing, room for improvement of the ‘physical’ aspect of sexual functioning may be limited during counseling. Improving (sexual) well-being more often will be focused on accepting the dysfunction and/or trying to find alternative ways to enjoy sexuality. As reported previously under the paragraph on *Sex differences*, it is thought that a woman’s sexuality is more capable to adapt to changing circumstances due to a higher erotic plasticity (12). With regard to the treatment of sexual dysfunction by the PLISSIT model in Chapter 6, it could be that the possible treatment options by the
GP, such as acceptation of the dysfunction, were more effective in women because of their higher erotic plasticity.

Based on our results in Chapter 6, improving male sexual function may require more intense or more specialized treatment than can be offered in primary care. For example, psychosexual counseling by a sexologist, or a vacuum erection devise or intracavernosal injections as advised by a urologist (21). This requires advanced sexual counseling skills (PLISSIT step 4, Intensive Therapy) and thus probably referral to specialist care. As referral options in both arms of our trial were equal, we cannot disentangle whether the PLISSIT model was ineffective at this point, or the control group was an unfair comparison as referral options in both arms were equal.

Comorbid depression provides a further challenge to the treatment of sexual dysfunction in people with type 2 diabetes. In Chapter 2, clinical depression was found to be most strongly associated with sexual dysfunction in both men and women with type 2 diabetes. Previous research has identified predominantly somatic correlates of male sexual dysfunction in both type 1 and 2 diabetes populations. For example, age, diabetes duration, HbA1c levels, smoking, hypertension, and obesity (21). In addition, two studies by De Berardis et al. identified depressive symptoms as important psychological predictors of male sexual dysfunction (22; 23). While in men both somatic and psychological predictors have been reported, female sexual dysfunction predominantly seems to be affected by psychological factors, such as depression. There does not appear to be a (strong) association between somatic predictors and female sexual dysfunction (1).

Depressive symptoms can be a consequence of sexual dysfunction, but sexual dysfunction can also be a consequence of depression (24). For effective treatment of either condition, it is important that the other condition is recognized. After comorbidity has been established, finding an effective treatment option can be challenging. On the one hand, psycho(sexual) treatment by a psychologist or sexologist could be an effective option. However, these costs may not always be covered by health insurance. For example, in the Netherlands, a referral to a sexologist may only be (partially) covered by health insurance under certain circumstances (25). On the other hand, the medical treatment options for these conditions are not optimal either. For example, low sexual desire is a common side-effect of antidepressant use. In addition, phosphodiesterase type 5 inhibitors are less effective in men with diabetes than in men without diabetes. Thus, care providers are challenged to find effective treatment strategies in people with type 2 diabetes sexual dysfunction and depression.
One challenge in the treatment of sexual dysfunction in people with type 2 diabetes that may be overcome based on the findings of Chapter 6, is that GPs have previously indicated that a lack of training and skills impedes the discussion of sexual issues in primary care (26). In Chapter 6, PLISSIT was found to improve the self-reported competence of GPs with sexual counseling. In that regard, the PLISSIT model could be a framework for GPs that may help to improve the discussion of sexual issues in diabetes care. The use of the PLISSIT model should be seen as one of the many contributions needed to create a health care environment where the discussion of sexual issues is no longer taboo. For now, the PLISSIT model could be used to intensify the training of sexual counseling skills of future and current care providers.

PART B: SOCIO-ECONOMIC STATUS & TYPE 2 DIABETES

Tailoring interventions

The results from our systematic review and meta-analysis in Chapter 7 showed significant differences by SES in the HbA1c levels of people with type 2 diabetes. This paragraph discusses possibilities to tailor interventions to the level of SES in people with type 2 diabetes.

Based on the results from Chapter 7, it seems to be important that SES is taken into account in daily diabetes care. It is not common practice to do so at the moment. However, it has been shown that interventions that do take SES into account are more effective than usual care (27). As it is rather difficult to directly intervene on SES itself, the framework by Brown et al. may provide insight into factors that could underlie the association between SES and health in people with diabetes (see Figure 2). According to Brown, an intervention could be tailored to low SES groups by focusing on moderating and mediating factors that seem susceptible to change (28), such as health literacy. Health literacy is “the ability to perform basic reading and numerical tasks required to function in the health care environment” (29).

To illustrate, various approaches can be adopted to make health-literacy-sensitive interventions to improve glycemic control in people with type 2 diabetes. Examples are: 1) written and spoken communication strategies, such as easy to read materials and clear communication styles; 2) patient empowerment strategies, for example through motivational interviewing; 3) taking a person’s native language or cultural background into account, for example by providing information in other languages than English (66). A recent meta-analysis by Kim et al. has shown that diabetes self-management
interventions that took the health literacy of patients into account, resulted in significantly lower HbA1c levels compared to usual care (27). It is unknown from the meta-analysis by Kim et al. which specific strategy was most effective.

Figure 1. Conceptual framework for the relation between SES and diabetes-related health outcomes among persons with diabetes mellitus. Adapted from Brown et al. (28)

**Partner’s SES**

Based on our results from Chapter 8, we observed that in women, having a partner with a lower level of occupation was associated with significantly worse HbA1c levels. Contrary to previous literature (30), we found in men that a lower occupational level of the partner was associated with significantly better HbA1c levels, compared to having a partner of the highest occupational level. Possible explanations for our observation are discussed in this paragraph.

Wilson’s hypothesis on shared lifestyle risk factors might help explain our different findings for partner SES in men and women. According to Wilson, couples can synchronize each other’s lifestyle behaviors over the time of their relationship, such as smoking habits, levels of physical activity, and
nutrition (31). It could be that the men in our study benefitted from having a partner with an intermediate level of occupation through the housekeeping chores of their partners. Dutch women spend twice as much time on grocery shopping, dinner preparation and other household chores than men do (32). It could be that partners with a job of the highest level of occupation have less time to take care of the household, compared to partners of an intermediate level of occupation. This, however, presumes ‘healthy’ housekeeping behaviors, which cannot be verified in this study and requires future research. It is important that our findings are verified in other populations before specific recommendations can be made to clinical practice. Our results underline the importance of studying various SES indicators, as each indicator can provide specific insight into the association between SES and health (33).
9.3. METHODOLOGICAL CONSIDERATIONS

Population

In all types of research, but maybe particularly for studies into sexual dysfunction, participants may not be fully representative of the entire population. This is also known as selection bias. In general, respondents more often will include people with an interest in scientific research, who may be more health-conscious, and with a higher level of education. In addition, in our studies on sexual dysfunction, respondents may also have been people with less difficulty talking about sexual issues. This could specifically be the case for people in the interview study in Chapter 3. Unfortunately, differences between respondents and non-respondents could not be studied in this thesis, because data on characteristics of the non-respondents were not available.

Selection bias could be a consequence of the recruitment approach. For example, in the studies conducted in Chapter 2 and 3, participants were approached by mail to participate. The response rate of 29% probably diminishes the external validity of our findings, as we cannot rule out that especially people with sexual dysfunction have responded. To compare, in Chapter 6, we recruited participants through routine screening in daily practice and had a response rate of 86%. In other studies, higher response rates to surveys have been found when a clinician personally approached a selected population of patients.

A specific limitation with regard to selection bias is that fewer women than men were included in our studies on sexual dysfunction. For example, it appeared that more men than women were screened by practice nurses in Chapter 5. Even though there are more 40-75 year old men than women with type 2 diabetes in absolute numbers in the Netherlands (34), this does not entirely explain why 66.5% of screened people were men. An explanation is that some practice nurses have indicated afterwards that it was more easy for them to approach men than women. Even though practice nurses were trained to perform the screening and received frequent reminders to follow the protocol during the screening, we believe that selection bias by sex could have occurred.

A strength of our studies is that we have chosen more ‘real world’ selection criteria for our studies. In many studies on sexual dysfunction, homosexual people or people without a partner are excluded from participation. In our studies in Chapter 2, 3, 5, and 6 we did not have restrictions with regard to sexual orientation or marital status, which increases the comparability of our findings to the entire population. In addition, in Chapter 8, we included housewives, unemployed, and retired people
in our measurement of occupational status. These groups are often excluded in SES studies, which could lead to a possible underestimation of the effect (33).

**Design**

In **Chapter 6**, we conducted a cluster-randomized controlled trial (RCT) to study the effectiveness of a PLISSIT-model intervention. When studying the effectiveness of an intervention, this design is considered the gold standard. Our study design permitted the direct comparison of the PLISSIT model to usual care, as characteristics between the two groups were otherwise similar. In addition, our pragmatic trial closely matched daily primary care, where the practice nurse identifies care needs during routine control visits, and sexual issues are discussed in detail with the GP during a separate consultation. Due to our difficulties with recruiting participants, we decided to include four extra general practices in our study that were immediately allocated to the control group. As we have shown in a sensitivity analysis, this did not affect our findings, but it makes the design of our study a little less ‘golden’.

In **Chapter 7**, we conducted a comprehensive systematic search of the literature to study our research question on SES and HbA1c levels. A qualitative data-synthesis was performed by weighting papers for their methodological quality. If possible, studies were also synthesized quantitatively in our meta-analysis. Most literature reviews fail to weight the studies for their methodological quality. This could affect the conclusion of these reviews, as results of papers of high and low methodological quality are considered to be equally important.

The design of the studies in **Chapters 2, 3, 5, and 8** were cross-sectional surveys. A major limitation of a cross-sectional design is that the exposure and outcome are measured at the same time. It is therefore not possible to draw conclusions on the causality of the association. For example, in **Chapter 2**, depression was found to be a correlate of sexual dysfunction in men and women with type 2 diabetes. However, based on this study, we can never truly know whether sexual dysfunction preceded the depressive symptoms or vice versa. Studies with a longitudinal design are necessary to assess this.

**Definitions**
To determine sexual dysfunction, we used the validated questionnaires IIEF and FSFI on Chapters 2, 3, and 6. These questionnaires are well known and frequently used within research, which enhances the comparison of our findings with other studies. However, no cut-off score exists for male sexual dysfunction on the IIEF, only a cut-off score for the erectile function domain. As other types of male sexual dysfunction are also prevalent in men with type 2 diabetes, such as premature ejaculation and low sexual desire, the sole use of an erectile dysfunction cut-off score will have resulted in an underestimation of male sexual dysfunction prevalence in our studies. Further, these questionnaires were designed to study sexual function in people with a partner. By imputing mean scores for partner items in sensitivity analyses, we were able to include participants with a partner in our analysis as well.

9.4. THE FUTURE OF SEX & SES IN DIABETES CARE

In this section, the future of care and research on sexual dysfunction and socio-economic status (SES) and type 2 diabetes is discussed.

PART A: SEXUAL DYSFUNCTION & TYPE 2 DIABETES

Sexual health is a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled. - World Health Organization (WHO) -

To honor the sexual rights of every human being, a change of current practice is needed to create a health-care environment where the discussion of sexual issues is no longer taboo. This thesis should be seen as a next step towards improved care for sexual problems in people with type 2 diabetes. We have shown that sexual health is often compromised in people with type 2 diabetes. Sexual dysfunction is prevalent and people often express a need for care. We have shown that the use of the PLISSIT model may improve current clinical practice, as women experienced short-term improved sexual function and general practitioners (GPs) reported improved competence with discussing sexual
issues. However, male sexual dysfunction did not significantly improve, nor any other patient-reported outcome. So there is still a way to go.

One of the keys towards lifting the taboo on discussing sexual issues in health care may lay in the education of care providers. The importance of discussing sexual health and the teaching of sexual counseling skills should receive a more prominent place within the curriculum of medicine students and care specialists. With a continuously ageing population and increase in chronic disease burden, the discussion of sexual health with patients becomes even more important. In addition to improved education of clinicians, information provision to patients could be improved as well. It seemed that many patients are unaware of the association between diabetes and sexual dysfunction. Patient federations and clinicians should increase the distribution of information via leaflets, newsletters or online platforms, and stimulate the organization of discussion groups and educational sessions that contribute to the normalization of discussing sexual issues in diabetes care.

Based on this thesis, the following suggestions are made to clinicians to improve care for people with type 2 diabetes with sexual dysfunction:

1) **Be aware of the high prevalence of sexual dysfunction in men and women with type 2 diabetes in clinical practice.**

   Most clinicians will agree that erectile dysfunction is prevalent among men with diabetes, but the prevalence of other male sexual problems, or the high prevalence of sexual dysfunction in women with type 2 diabetes, are less well known.

2) **Routinely screen for sexual care needs in people with type 2 diabetes.**

   Sexual health is dynamic and so are its care needs. The routine use of a screening instrument can systematically detect these issues, while simultaneously lowering the threshold to discuss sexual health in clinical practice. It is important to be aware that care needs may significantly differ between men and women.
**PART B: SOCIO-ECONOMIC STATUS & TYPE 2 DIABETES**

The overall aim of our studies in **Chapter 7 and 8** was to put the issue of SES differences in health outcomes of people with type 2 diabetes on the agenda of diabetes care, specifically for HbA1c levels. Our results from **Chapter 7** strongly suggest that differences in HbA1c levels between people with low and high SES can no longer be ignored. We found a difference of 0.3% in HbA1c levels for differences based on income and education. To compare, a 1% reduction of HbA1c is associated with 21% risk reduction of diabetes-related death, 14% reduction of myocardial infarctions, and 37% reduction of
micro-vascular complications (35). Hopefully, the results from this thesis will help to put SES on the topic of the agenda for diabetes care.

The next step for future research would be to focus on finding SES-sensitive strategies to improve glycemic control in people with type 2 diabetes. As previously discussed, there are many mediating and moderating factors through which SES could affect health outcomes in people with diabetes (28). As a first step, the relative importance of these factors needs to be established. Also, it is unknown whether there are more factors to be discovered than the factors already identified by Brown et al. (28). Moreover, the results from Chapter 8 suggest that it is important to study other levels of SES than the individual level, such as the partner’s level of SES. Subsequently, it must be determined which factor is most suitable to intervene on with which intervention. For example, health literacy is a known factor in the association between SES and health. The review by Kim et al. suggests there are various strategies to make an intervention health-literacy-sensitive, such as communication and patient empowerment strategies. However, the review could not determine which strategy is most effective.

The next step for clinical practice will be to raise awareness to differences in health outcomes between people with type 2 diabetes with high and low SES. It is important that care providers are sufficiently trained to take into account and manage SES-related aspects during treatment. An important condition is the availability of certain facilities, such as translation services (in Dutch: de tolkentelefoon). For non-native speakers, the use of the translator could facilitate the patient-provider communication. However, due to cuts in health care budgets, the assistance of translators by telephone have been reduced in the Netherlands. This suggests that attention to SES differences must not only be placed on the agenda of diabetes care, but also on the agenda of health policy makers for that matter.

**9.5. FROM OVERLOOKING TOWARDS RECOGNITION**

This thesis studied two issues that are often overlooked in care for people with type 2 diabetes: SEX and SES. In part A of this thesis, we showed that sexual dysfunction is prevalent and people with type 2 diabetes often express a need for care. The use of the sexual counseling model ‘PLISSIT’ was found to improve short-term sexual functioning of women with type 2 diabetes. In addition, general practitioners (GPs) reported improved competence with discussing sexual issues. Future challenges
will be to find effective strategies to improve (sexual) well-being in men with type 2 diabetes. In Part B of this thesis, we showed that people with type 2 diabetes with a low SES have worse HbA1c levels than people with high SES. Challenges for the future will be to find SES-sensitive interventions to improve glycemic control in people with type 2 diabetes.

To conclude: SEX and SES can no longer be overlooked in care for people with type 2 diabetes. Instead, clinicians and researchers need to look SEX and SES directly in the eyes.
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