Summary

This thesis comprises several studies on symptoms of pelvic floor dysfunction in adult women. These symptoms are known to have a high prevalence in adult women and are often experienced as bothersome. Therefore, efforts should be made to identify risk factors for different symptoms of pelvic floor dysfunction and the consequences of these symptoms on quality of life should be studied. The studies of this thesis were all performed in a large cohort of both clinical patients and women randomly selected from the community. This implies that the results and recommendations of the thesis can be applied in general as well as in specialised clinical practice. The main purpose of this study was to investigate the prevalence, risk factors, consequences and factors associated with help-seeking behaviour of different symptoms of pelvic floor dysfunction.

In **Chapter 1** the research questions of this thesis are introduced. It was pointed out that symptoms of pelvic floor dysfunction, like urinary incontinence, urinary frequency and urgency, genital prolapse and faecal incontinence are frequently reported by adult women. The literature regarding the consequences of two major life events in women, eg childbirth and hysterectomy, on different symptoms of pelvic floor dysfunction is discussed. The concept of Health-related Quality of Life (HRQOL) is pointed out and the advantages and disadvantages of different types of HRQOL questionnaires are discussed. Finally, to study the interaction between symptoms of pelvic floor dysfunction, HRQOL and help-seeking behaviour in women, we assessed coping strategies and locus of control. The concepts of coping and locus of control are discussed briefly.

In **Chapter 2** we describe the results of a study on the prevalence of urogenital symptoms (with the exclusion of defaecation symptoms) and the psychometric qualities of the Dutch version of the Urogenital Distress Inventory (UDI) and the Incontinence Impact Questionnaire (IIQ). In a community-based, cross-sectional cohort study we showed that four out of five adult women have at least one symptom of pelvic floor dysfunction. We found a moderate to good positive correlation between the UDI en IIQ scores. This indicates that more or more severe symptoms was associated with a worse quality of life.

Factor analysis of the UDI showed that it consists of five domains. These five domains each contain items that are clinically sound and reliable. Factor analysis of the IIQ showed that, in addition to the original four domains, a fifth factor with four items about embarrassment was extracted. Since women with urinary incontinence often report that they are embarrassed by their incontinence, the inclusion of such a domain in a disease-specific HRQOL questionnaire on urogenital symptoms is essential. For future research we recommend the use of our version of the UDI and IIQ.

In **Chapter 3** the results are presented of a study on the prevalence, risk factors and consequences of stress- and urge urinary incontinence and symptoms of overactive bladder in a community based, cross-sectional cohort of young women. One out of four women reported symptoms of overactive bladder. These symptoms have the same negative consequences on HRQOL as urge incontinence. The prevalence of stress incontinence was as high as 40% but this symptom did not seem to bother women much. These results indicate that identifying and treating symptoms of overactive bladder in young women may significantly improve their quality of life.

One of the most important factors that was significantly associated with all three types of urinary symptoms was obstructive micturition. We postulated that long-standing poor relaxation of the pelvic floor during voiding may induce urgency and urge incontinence in women. Since symptoms of overactive bladder are common among women and have a negative effect on HRQoL, this hypothesis should be tested in future research.

In **Chapter 4** we assessed the prevalence of flatus and faecal incontinence in a community-based cross-sectional cohort study. We aimed at identifying whether childbirth is a risk factor for flatus and faecal incontinence as is commonly stated in literature. Our results, the first in its kind, show that there is no evidence for a causal relationship between childbirth and faecal incontinence. Applying interventions aimed at the prevention of third and fourth degree anal sphincter ruptures remains undisputed. However, changing clinical practice in women with occult anal sphincter damage after first delivery in their consecutive pregnancies does not seem to be justified.

In **Chapter 5** we compared the prevalence and severity of stress- and urge urinary incontinence in women scheduled for hysterectomy with women from a random community sample who were not scheduled for hysterectomy . We did not demonstrate a difference in prevalence between these two groups. This indicates that symptoms that are the reason for performing a hysterectomy are not associated with urinary incontinence. However, if urinary incontinence is present, women scheduled for hysterectomy are significantly more bothered by it as compared to women from the community sample. Apparently, the perception of the severity of urinary incontinence is influenced by the fact that a woman is scheduled for hysterectomy. Therefore, we speculate that hysterectomy may not cure incontinence but it may influence the perception of it as a problem. This hypothesis is currently subject of investigation at our institute.

In **Chapter 6** we assessed the long-term consequences of hysterectomy on urinary incontinence in a population based, cross-sectional cohort study. In contrast with other studies, we distinguished symptoms of stress incontinence from symptoms of urge incontinence. This is essential since these two types of urinary incontinence represent different pathophysiological entities. We showed that hysterectomy increases the risk for urge incontinence but not for stress incontinence. Especially since urge incontinence negatively affects HRQOL, we recommend that women should be informed about this long-term consequence of hysterectomy.

In **Chapter 7** we studied the effect of different coping strategies on HRQOL in women with symptoms of pelvic floor dysfunction extracted from a population based, cross-sectional cohort sample. Health-related Quality of Life was assessed with a generic (RAND-36) and a disease-specific questionnaire (IIQ). Depressive symptoms were assessed with the Center of Epidemiological Studies - Depression scale (CES-D). We showed that, at the same level of symptom severity, women who more frequently used emotion-oriented and passive coping strategies reported a significantly worse HRQOL as compared to women who applied more problem-oriented, active coping strategies.

Our findings implicate that physicians have to be aware that the way women cope

with their symptoms of pelvic floor dysfunction; (1) affects their perceived HRQOL; (2) is associated with depressive symptoms and; (3) may influence their help-seeking behaviour. This awareness may identify women who are in need of treatment but do not report their symptoms voluntarily and, on the opposite, women who ask for treatment at low symptom severity level.

In **Chapter 8** we examined which factors are related to help-seeking behaviour in women with symptoms of pelvic floor dysfunction. To do so, we compared clinical cases with women from a random population sample with symptoms of pelvic floor dysfunction (community cases).

First, we analysed differences between clinical cases and community cases with mild symptoms of pelvic floor dysfunction. We found that clinical cases with mild symptoms expressed more passive coping strategies as compared to community cases. Secondly, we analysed differences between clinical cases and community cases with severe symptoms of pelvic floor dysfunction. Clinical cases with severe symptoms of pelvic floor dysfunction expressed more problem-oriented, active coping strategies as compared to community cases.

In addition, we found that lower educated women significantly more often presented themselves with mild symptoms at our clinic as compared to higher educated women. This implicates that these women have an increased risk of undergoing diagnostic and therapeutic procedures at low symptom severity levels.

Chapter 9 contains the general discussion in which the answers to the research questions are discussed in more detail and recommendations for clinical practice are pointed out.