

SEXUAL DYSFUNCTION IN UROGYNAECOLOGY

Seksuele Disfunctie binnen de Uro-Gynaecologie

Anna Maria Elisabeth Roos

SEXUAL DYSFUNCTION IN UROGYNAECOLOGY

Seksuele Disfunctie binnen de Uro-Gynaecologie

PhD thesis, Erasmus University Rotterdam, The Netherlands

Anna Maria Elisabeth (Anne-Marie) Roos was funded by the Mayday Childbirth Charity fund.
Financial support for printing of this thesis was kindly provided by Erasmus Universiteit Rotterdam.

Design & Lay-out: Ontwerpbureau SIS, The Netherlands

Print: Ipskamp Drukkers, Enschede

Copyright © 2014 Anna Maria Elisabeth Roos, Rotterdam, The Netherlands

annemarie.roos@gmail.com

The copyright of the articles that have been published or have been accepted for publication has been transferred to the respective journals.

SEXUAL DYSFUNCTION IN UROGYNAECOLOGY

Seksuele Disfunctie binnen de Uro-Gynaecologie

Proefschrift

ter verkrijging van de graad van doctor aan de
Erasmus Universiteit Rotterdam
op gezag van de
rector magnificus
Prof.dr. H.A.P. Pols
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op

vrijdag 25 april 2014 om 11:30 uur

door

Anna Maria Elisabeth Roos

geboren te 's-Gravenhage



Promotor: Prof.dr. C.W. Burger

Kleine commissie: Prof.dr. G.J. Bonsel
Prof.dr. W.C.M. Weijmar Schultz
Prof.dr. C.H. Bangma

Copromotoren: Dr. J.W. de Leeuw
Dr. A.T.G. Paulus

The data presented in this thesis were gathered at Croydon University Hospital, Croydon, UK, under the supervision of Miss Raneer Thakar and Mr Abdul Sultan.

Contents

Chapter		
1	Introduction	11
Chapter		
2	Sexual problems in the gynecology clinic: Are we making a mountain out of a molehill?	27
Chapter		
3	Female sexual dysfunction: Are urogynecologists ready for it?	41
Chapter		
4	Pelvic floor dysfunction: Women's sexual concerns unraveled	59
Chapter		
5	The impact of pelvic floor surgery on female sexual function: A mixed quantitative and qualitative study	79
Chapter		
6	Sexual experiences of male partners before and after female pelvic floor surgery: A qualitative study	97
Chapter		
7	General discussion and conclusion	109
Chapter		
8	English and Dutch summary	123
Chapter		
9	Addendum 1: Sexual Function Questionnaire for Pelvic Floor Surgery (SFQ-PFS) Pre-treatment version	141
	Addendum 2: Sexual Function Questionnaire for Pelvic Floor Surgery (SFQ-PFS) Post-treatment version	153
Chapter		
10	List of co-authors and their affiliations	169
	List of publications	170
	Portfolio	173
	Word of thanks/dankwoord	179
	Curriculum Vitae	182

Chapter 1

Introduction



Introduction

Pelvic floor disorders, including pelvic organ prolapse (POP) and stress urinary incontinence (SUI), are a major burden to the well-being of women. A US based prevalence study showed that in community dwelling women over 20 years of age the proportion of women reporting at least one pelvic floor disorder ranged from 9.7% in women between ages 20 and 39 years to 49.7% in those aged 80 years or older¹. Although conservative management is usually the first line of treatment, more than one out of ten women will have had at least one operation for either POP or SUI at the age of 80 years²⁻⁴.

Previous studies have shown an association between pelvic floor disorders and female sexual dysfunction⁵⁻¹⁰. In women awaiting surgery for SUI, 66 per cent mentioned that their incontinence impacted on their sexual life¹¹. Similarly, up to 60 per cent of sexually active women with POP awaiting pelvic reconstructive surgery found their sex life was negatively affected by their prolapse¹². Sexual dysfunction is an important contributor to quality of life¹³ and is one of the main facilitators for seeking treatment for pelvic floor disorders¹⁴. Understanding and awareness of female sexual dysfunction amongst healthcare professionals involved in the care of women suffering with pelvic floor disorders is therefore crucial.

This thesis is dedicated to enhance understanding of sexual dysfunction in the field of urogynaecology, focussing on the prevalence of sexual problems in urogynaecology clinics, the clinical attention of the urogynaecologist to female sexual dysfunction, the impact of POP, SUI and pelvic floor surgery on the sexual functioning of the female patient, as well as the impact on the sexual functioning of her partner. This introductory chapter describes the definitions and ways of assessment of female sexual dysfunction, as well as an overview of the current literature on sexual dysfunction in urogynaecology. At the end of this chapter the research questions and outline of this thesis are presented.

Female sexuality: what is normal, what is dysfunction?

According to the World Health Organization “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”¹⁵.

Traditionally, the female sexual response is depicted the same as that of the male. This model of the female sexual response assumes a linear progression from sexual desire to sexual arousal, resulting in orgasm and satisfaction. The most commonly used diagnostic systems, the DSM-IV¹⁶ and ICD-10¹⁷, rely heavily on this model in the diagnosis of female sexual dysfunction. Female sexual dysfunction is defined as the absence or impairment of the sexual response or the physical reactions during sexual activity despite adequate stimulation. Both DSM-IV and ICD-10 subdivide sexual dysfunction into four broad categories, including:

sexual desire disorder, sexual arousal disorder, orgasmic disorder and sexual pain disorder.

In this thesis a more recent consensus-based definition and classification system for female sexual dysfunction was used which was devised by the American Foundation for Urologic Disease (AFUD) in 1998¹⁸, with revisions in 2004¹⁹ and 2010²⁰. The final system uses the four major categories as described in DSM-IV and ICD-10, but the definitions of several disorders were changed to reflect current clinical and research practice (Table 1). This consensus-based classification system reflects the current belief that sexual responding of females does not follow one set linear pattern, and that desire doesn't need to be present before sexual arousal²¹. According to the current understanding, women provide a variety of reasons and

Table 1 Definition and classification of female sexual dysfunction¹⁸⁻²⁰

Sexual interest/desire disorder
There are absent or diminished feelings of sexual interest or desire, absent sexual thoughts or fantasies and a lack of responsive desire. Motivations (here defined as reasons/incentives) for attempting to become sexually aroused are scarce or absent. The lack of interest is considered to be beyond the normative lessening with lifecycle and relationship duration.
Sexual arousal disorder
Subjective sexual arousal disorder
Absence of or markedly diminished feelings of sexual arousal (sexual excitement and sexual pleasure) from any type of sexual stimulation. Vaginal lubrication or other signs of physical response still occur.
Combined genital and subjective arousal disorder
Absence of or markedly diminished feelings of sexual arousal (sexual excitement and sexual pleasure) from any type of sexual stimulation as well as complaints of absent or impaired genital sexual arousal (vulval swelling, lubrication).
Genital sexual arousal disorder
Complaints of absent or impaired genital sexual arousal. Self-report may include minimal vulval swelling or vaginal lubrication from any type of sexual stimulation and reduced sexual sensations from caressing genitalia. Subjective sexual excitement still occurs from nongenital stimuli.
Persistent genital arousal disorder
Spontaneous, intrusive and unwanted genital arousal (e.g., tingling, throbbing, pulsating) in the absence of sexual interest and desire. Any awareness of subjective arousal is typically but not invariably unpleasant. The arousal is unrelieved by one or more orgasms and the feelings of arousal persist for hours or days.
Orgasmic disorder
Despite the self-report of high sexual arousal/excitement, there is either lack of orgasm, marked diminished intensity of orgasmic sensations or marked delay of orgasm from any kind of stimulation.
Sexual pain disorders
Dyspareunia
Persistent or recurrent pain with attempted or complete vaginal entry and/or penile vaginal intercourse.
Vaginismus
Persistent or recurrent difficulties for a woman to allow vaginal entry of a penis, a finger, and/or any object, despite the woman's expressed wish to do so. There is often (phobic) avoidance and anticipation/fear/experience of pain, along with variable involuntary pelvic muscle contraction.
Other sexual pain disorders
Recurrent or persistent genital pain induced by non-coital sexual stimulation.

incentives for engaging in sexual activity other than simply sexual desire. More commonly, women begin a sexual encounter from a point of sexual neutrality. Appropriate sexual stimuli can cause arousal which triggers a sexual desire to continue the sexual encounter which is described as responsive desire. Sexual neutrality or being receptive to rather than initiating sexual activity, is considered a normal variation of female sexual functioning. Furthermore, in contrast to men, a psychologically and physiologically rewarding outcome does not necessarily need to involve orgasmic release(s)²¹.

Importantly, all classification systems recognise that the inclusion of a woman's distress caused by the sexual disorder is an essential criterion to merit a diagnostic label. The DSM-IV and the AFUD consensus-based classification system provide outcome criteria of "causes marked/personal distress" and "interpersonal difficulties", while the ICD-10 uses the broader outcome criterion of "being unable to participate in a sexual relationship as she would wish".

Assessment of female sexual dysfunction

In the field of urogynaecology female sexual function is most commonly evaluated through the use of sexual function questionnaires. Questionnaires measure "subjective" information in an "objective" fashion and as such provide a discrete and reproducible method for evaluating female sexual function. Physical exam measures such as the measurement of vaginal length and caliber are not predictive of sexual (dys)function²²⁻²⁵, while ultrasound evaluation of clitoral blood flow or vaginal plethysmography are not considered useful in clinical practice.

Sexual function questionnaires can be divided into validated and non-validated questionnaires. The questionnaire validation process involves multiple stepwise statistical procedures to ensure a questionnaire meets established psychometric principles, including validity, reliability and responsiveness. The validity of a questionnaire determines whether the questionnaire is measuring what it is intended to measure. The reliability refers to the ability of the questionnaire to measure in a reproducible fashion and the responsiveness is the ability to detect effect of treatment and clinically meaningful change. Not all validated questionnaires have undergone all the aspects of the validation process. In particular, the responsiveness of a questionnaire is often only ascertained when the questionnaire is already in use²⁶.

Early studies on sexual function in urogynaecology mostly used non-validated questionnaires. Recently, more validated questionnaires are available, which can be further subdivided into general or condition-specific types. General sexual function questionnaires, including the Female Sexual Function index (FSFI)²⁷ or Golombok-Rust Inventory of Sexual Satisfaction²⁸, often make use of broad diagnostic categories and are not designed to assess changes in sexual health specifically caused by pelvic floor disorders. General sexual function questionnaires may not be sensitive enough to detect a difference in sexual function due to the

disease process of POP or urinary incontinence (UI). Therefore, condition-specific questionnaires may be more appropriate to evaluate sexual function in women suffering with these conditions²⁶. The Pelvic Organ Prolapse – Urinary Incontinence Sexual Function Questionnaire (PISQ)²⁹ and its short-form PISQ-12³⁰, are currently the only validated female sexual function questionnaires specifically developed to assess sexual function in women with POP and UI.

Although the PISQ is the primary measure used to assess sexual function in women with UI and POP, limitations of the questionnaire have been reported as well. These limitations include: not being validated in a population of women with anal incontinence, not being validated in a population of homosexual women, and, furthermore, the questionnaire does not screen for sexual activity²⁶. Other limitations in the use of the questionnaire include the absence of a cut-off value to discriminate between “normal” sexual function and sexual dysfunction and the lack of a defined value for what is considered to be the minimally clinical relevant difference in PISQ score.

Recently the IUGA created a revised version of the original PISQ: the PISQ IUGA-Revised (PISQ-IR)³¹. The PISQ-IR addresses two limitations of the original PISQ. First, the PISQ-IR was developed to create a condition-specific measure of sexual function not only in women with UI and POP, but in women with anal incontinence as well³¹. Secondly, in addition to evaluating women who report being sexually active, the PISQ-IR was also designed to evaluate the impact of pelvic floor dysfunction on a woman’s decision not to be sexually active³¹. The PISQ-IR has shown to be a valid, reliable, and responsive measure of sexual function in women with pelvic floor disorders³¹. This measure is now available for international validation in a variety of languages and cultural contexts.

Sexual dysfunction in urogynaecology clinics

In patients presenting for urogynaecological care, the prevalence of sexual complaints is high. In sexually active women seeking urogynaecological care 64% were reported to have sexual difficulties³². However, in another study measuring sexual difficulties causing distress, the prevalence was 48%³³.

Previous population based studies showed that women are hesitant to seek help for their sexual concerns as only one in five women with sexual concerns contact a healthcare provider³⁴⁻³⁶. Barriers for women to seek help could be embarrassment, believing that the healthcare provider would not be able to provide help³⁷, and the perception that sexual problems are not a “severe” health problem³⁸. Therefore, in order to identify sexual problems a proactive attitude from the physician is warranted. For example, the complaint of incontinence during coitus is rarely voluntarily mentioned by patients during a consultation with a urogynaecologist, but on direct questioning the presence of this complaint can be discovered³⁹. However,

so far urogynaecologists may not have paid enough clinical attention to sexual dysfunction. A survey of members of the American Urogynecologic Society (AUGS) showed that only a minority (22%) screen all patients for sexual dysfunction with lack of time being the most important barrier⁴⁰. As cultural beliefs are an important factor in discussing sexual issues, the question is whether this lack of clinical attention is isolated to the USA or whether this is a more general problem present in urogynaecologists in other countries as well.

The use of a standardised questionnaire may ease the identification of patients with sexual problems. Short screening tools can be very useful in discovering sexual problems that women are reluctant to volunteer themselves without adding lots of time to the clinic visit⁴¹. However, to date the possibility of identifying sexual problems using a short screening tool has not been studied in women seeking urogynaecological care.

Sexual dysfunction associated with POP and SUI

In women with POP a dissatisfying sex life is most commonly a result of a sensation of obstruction during penetrative intercourse or significant vaginal laxity⁴². Furthermore, recent work has suggested that the impact of POP goes beyond a local effect. Sexual dysfunction may be related to a decrease in women’s self-perceived (genital) body image^{43,44} as women with POP can feel less sexually attractive and less feminine^{45,46}. Common sexual complaints in women with SUI are urinary leakage during intercourse and anxiety about urinary leakage during intercourse, anxiety during intercourse about odour, embarrassment due to the need for pads and lack of spontaneity in sexual activity due to the need for frequent visits to the toilet or the need to wash^{11,47-49}.

Results on how POP and SUI affect the different female sexual dysfunction categories are inconsistent. For example, Handa et al.⁶ showed that POP and UI were associated with decreased arousal and infrequent orgasm. In contrast to these findings, Rogers et al.⁵⁰ showed that although overall sexual function, as measured by the PISQ²⁹, was lower in women with POP and UI, no differences were noted in arousal and orgasm. These conflicting results could be explained by discrepancies in patient characteristics and culture, discrepancies in the definition and severity of the pelvic floor disorders, as well as by differences in the measurement of outcome as a result of the use of different sexual function questionnaires. Owing to the subjective nature of sexual function there is no gold standard for the assessment of sexual dysfunction. To explain these conflicting results a qualitative study can be useful as it does not rely on reported behaviour as is the case with questionnaires. Using qualitative interviews the interviewer is able to have an open and direct interaction with the person under study. This can result in the accumulation of richer and more in-depth information compared to information obtained using a written questionnaire⁵¹. A qualitative study not only describes the perceptions of the women themselves, but also explains the context of the experiences of

the women and ‘why?’ and ‘how?’ POP and SUI impact on the different sexual dysfunction categories^{51,52}.

Sexual function following pelvic floor surgery

Assuming sexual dysfunction is caused by the physical effect of POP and SUI, surgery to cure these conditions should automatically lead to an improvement in sexual function. However, current evidence on sexual function following pelvic floor surgery is conflicting. Some studies have shown overall improvement in sexual function following pelvic floor surgery^{23,53-58}, while others showed no change^{25,59,60} or even deterioration^{61,62}.

Improvement in sexual function is commonly ascribed to improvement in POP and SUI symptoms^{11,53-55,58,63}. This includes the cure of coital incontinence^{58,60,64,65} with the associated reduction in embarrassment and fear of incontinence during coitus^{11,58,60,65-67}. With the resolution of POP symptoms following POP surgery an improvement in women’s self-perceived body image is also evident, which is, in addition to the physical cure of POP, associated with an improvement in sexual function as well⁶⁸.

On the other hand, surgery is potentially harmful which can have a negative effect on the sexual response. Vaginal narrowing or scarring, vaginal erosion of synthetic mesh, as well as damage to the vascularisation and innervation of the vaginal wall, are possible factors detrimental to sexual function following pelvic floor surgery. In addition to this, altered perception of genital health after surgery, with associated apprehension and fear of damage to the internal organs, can also be contributory factors with a negative impact on sexual function.

A decrease in sexual function following surgery has often been ascribed to an increase in dyspareunia^{59,61,69}. In this respect, controversy exists whether certain operational techniques, including posterior colporrhaphy^{23,57,59,70,71} and mesh augmented POP repair^{72,73}, are associated with an increased risk of dyspareunia. Furthermore, a reduction in the improvement of sexual function can be seen following anti-incontinence surgery as a result of de novo or persistent urge incontinence symptoms⁵⁸.

The discrepancies in outcome of sexual function following surgery might be a reflection of differences in patient characteristics, differences in the technique of the operation and the experience of the surgeon, length of follow-up, or differences in the measurement of outcome, i.e. the measurement of sexual function. The current condition-specific sexual function questionnaire (PISQ)²⁹ focusses on the impact of pelvic floor disorders on sexual function and is validated and optimised to discriminate between women with and without sexual dysfunction within the group of women suffering with pelvic floor disorders. Currently the usefulness of the PISQ for evaluation after pelvic floor surgery is being questioned^{54,59}. As the majority of women will be cured of their prolapse or incontinence symptoms after surgery, a general index for sexual function may be more appropriate. Despite showing responsiveness to change

after pelvic floor surgery^{53,55}, the PISQ may not be optimal to detect sexual dysfunction following treatment. This is particularly the case if only selective aspects of sexual function improve, or new aspects due to the treatment itself become relevant. However, before we either confirm or reject the PISQ²⁹ as a valid tool for diagnosing sexual dysfunction following pelvic floor surgery, it needs to be established whether or not the questionnaire covers all relevant aspects of sexual function following surgery.

The impact of POP and SUI on the partner’s sexual experience

Sexual functioning is a dynamic issue which generally occurs with, and is highly dependent on the partner. Sexual dysfunction in one half of a couple can therefore result in sexual dysfunction of the partner as well. However, scanty studies assessed sexual function in partners of women suffering with POP or SUI. The few studies focusing on the partner showed that female bladder problems had a negative effect on the sexual life of one out of five male partners⁷⁴ and that female UI was associated with lower male sexual functioning and sexual satisfaction⁷⁵. In contrast to women, most of the male partners do not worry about the possibility of the woman having urinary leakage during intercourse and if it does happen only 35% of men consider this a problem⁷⁴. Unfortunately, more specific information regarding the negative effect of POP or SUI on the partner’s sexual life is not available.

Pelvic floor surgery seems to have a positive effect on the sexual function of the male partner. Using the Brief Male Sexual function Inventory (BMSI), a validated questionnaire to characterise male sexual function, Kuhn et al.⁷⁶ showed an improvement in the male partner’s overall satisfaction, sexual interest and drive following female POP surgery. Furthermore, 59% of male partners reported an increase in sexual desire one year after their partner’s surgical treatment for SUI in semi-structured telephone interviews⁷⁷. However, when sling erosion occurs after suburethral sling insertion for female SUI, male sexual function can be negatively affected by the occurrence of ‘hispareunia’, i.e. male dyspareunia⁷⁸. Previous studies evaluating the impact of POP and SUI on the male partner’s sexual function did not yield specific information regarding the male partner’s individual thoughts and experiences with regards to this either before or after surgery. Such specific information can only be gathered by using a qualitative research design.

Research questions

This thesis is dedicated to increasing understanding of sexual dysfunction in the field of urogynaecology. Both POP and SUI have a large impact on female sexual function and can impact on the sexual functioning of the partner as well. An increased understanding of sexual dysfunction

in women with POP and SUI amongst healthcare professionals has the potential to improve the evaluation and management of sexual dysfunction prior to and after pelvic floor surgery. Furthermore, they will be able to counsel more effectively prior to treatment.

This thesis aimed to answer the following research questions:

1. What is the prevalence of sexual problems in women attending urogynaecology clinics when using a short screening tool?
2. Is assessment of female sexual dysfunction part of routine practice for British urogynaecologists?
3. How do POP and SUI impact on the different sexual dysfunction categories?
- 4a. How does pelvic floor surgery impact on the sexual functioning of the female patient?
- 4b. Does the current condition-specific sexual function questionnaire (PISQ²⁹) cover all relevant aspects of sexual function following pelvic floor surgery?
5. What are the partner's individual thoughts and experiences with regards to the effect of female POP and SUI, as well as pelvic floor surgery, on his/her sexual life?

Outline of thesis

All patients enrolled in the studies described in this thesis were recruited at Croydon University Hospital in Croydon, United Kingdom. Croydon University Hospital is a large university hospital within the municipality of Croydon; a large town in the south of London. The population of Croydon is multi-ethnic and socio-economically diverse. The urogynaecology clinic within Croydon University Hospital is run by two consultant urogynaecologists who perform or supervise all urogynaecological surgeries within this hospital.

The different research questions will be answered in 5 chapters. To discover sexual problems during a clinic visit, the use of a short standardised screening tool can be very useful without adding lots of time. However, to date the possibility to identify sexual problems using a short screening tool has not been studied in women seeking urogynaecological care. In **chapter 2** the prevalence of sexual problems in new patients attending the urogynaecology clinic of Croydon University Hospital will be established by using a short screening questionnaire based on the one introduced by Plouffe⁷⁹. This questionnaire has been shown to be as effective as a detailed enquiry in detecting sexual problems and consists of three questions: (1) Are you sexually active? If not, state reason (2) Do you have any problems with sex? If yes, state problems, and (3) Is sex painful? A fourth question was later added to this questionnaire to address which sexual problems were bothersome, as personal distress is an essential criterion in the diagnosis of female sexual dysfunction.

In **chapter 3** the clinical practice of members of the British Society of Urogynaecology with regards to the assessment of sexual function is described, and barriers for screening

for female sexual dysfunction are identified. Furthermore, results of practice in the UK are compared to that of members of the American Urogynecologic Society (AUGS) published before⁴⁰.

Chapter 4, 5 and 6 present the results from a mixed quantitative and qualitative study conducted to gain an in-depth understanding of sexual function in women with POP and SUI, before and after surgery, along with that of their partners. **Chapter 4** presents the results of the qualitative data on sexual function in the women prior to surgery aiming to gain a more in-depth understanding of the impact of POP and SUI on the different categories of female sexual dysfunction. In **chapter 5** the postoperative quantitative and qualitative data are compared to establish whether the current condition-specific sexual function questionnaire (PISQ)²⁹ provides full insight in, and covers all relevant aspects of, sexual (dys)function following pelvic floor surgery. **Chapter 6** of this thesis will present the results of the qualitative analysis of the face-to-face interviews conducted with the partners, both before and after surgery. The aim was to establish the partner's individual thoughts and experiences with regards to the effect of female POP and SUI on his/her sex life, as well as the effect of pelvic floor surgery.

This thesis ends with a discussion of the results and presents a number of conclusions and recommendations for future research (**chapter 7**).

References

1. Nygaard I, Barber MD, Burgio KL et al, for the Pelvic Floor Disorders Network (2008) Prevalence of symptomatic pelvic floor disorders in US women. *JAMA* 300:1311-1316
2. Fialkow MF, Newton KM, Lentz GM, Weiss NS (2008) Lifetime risk of surgical management for pelvic organ prolapse or urinary incontinence. *Int Urogynecol J* 19:437-440
3. Olsen AL, Smith VJ, Bergstrom JO, Colling JC, Clark AL (1997) Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence. *Obstet Gynecol* 89:501-506
4. Abdel-Fattah M, Familusi A, Fielding S, Ford J, Bhattacharya S (2011) Primary and repeat surgical treatment for female pelvic organ prolapse and incontinence in parous women in the UK: a register linkage study. *BMJ Open* 1: e000206
5. Handa VL, Harvey L, Cundiff GW, Siddique SA, Kjerulff KH (2004) Sexual function among women with urinary incontinence and pelvic organ prolapse. *Am J Obstet Gynecol* 191:751-756
6. Handa VL, Cundiff G, Chang HH, Helzlsouer KJ (2008) Female sexual function and pelvic floor disorders. *Obstet Gynecol* 111:1045-1052
7. Salonia A, Zanni G, Nappi RE et al (2004) Sexual Dysfunction is Common in Women with Lower Urinary Tract Symptoms and Urinary Incontinence: Results of a Cross-Sectional Study. *European Urology* 45:642-648
8. Sen I, Onaran M, Aksakal N et al (2006) The impact of urinary incontinence on female sexual function. *Advances in therapy* 6:999-1008
9. Novi JM, Jeronis S, Morgan MA, Arya LA (2005) Sexual function in women with pelvic organ prolapse compared to women without pelvic organ prolapse. *J Urol* 173:1669-1672
10. Athanasiou S, Grigoriadis T, Chalabalaki A, Protopapas A, Antsaklis A (2012) Pelvic organ prolapse contributes to sexual dysfunction: a cross-sectional study. *Acta Obstet Gynecol Scand* 91:704-709
11. Jha S, Radley S, Farkas A, Jones G (2009) The impact of TVT on sexual function. *Int Urogynecol J* 20:165-169
12. Fayyad A, Hill S, Gurung V, Prashar S, Smith ARB (2007) How accurate is symptomatic and clinical evaluation of prolapse prior to surgical repair? *Int Urogynecol J* 18: 1179-1183
13. Tennstedt SL, Fitzgerald MP, Nager CW et al, for the Urinary Incontinence Treatment Network (2007) Quality of life in women with stress urinary incontinence. *Int Urogynecol J* 18: 543-549
14. Pakbaz M, Persson M, Löfgren M, Mogren I (2010) 'A hidden disorder until the pieces fall into place' – a qualitative study of vaginal prolapse. *BMC Women's Health* 10:18
15. World Health Organization. Sexual Health: working definitions. 2006; Available at http://www.who.int/reproductivehealth/topics/sexual_health/sh_definitions/en/index.html (accessed June 8, 2013)
16. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV). Retrieved from: <http://allpsych.com/disorders/dsm.html>
17. World Health Organization. ICD-10: International Classification of Diseases. 2010, World Health Organization, Geneva
18. Basson R, Berman J, Burnett A et al (2000) Report of the international consensus development conference on female sexual dysfunction: definitions and classifications. *J Urol* 163: 888-893
19. Basson R, Leiblum S, Brotto L et al (2004) Revised definitions of women's sexual dysfunction. *J Sex Med* 1; 40-48
20. Basson R, Wierman ME, van Lankveld J, Brotto L (2010) Summary of the recommendations on sexual dysfunctions in women. *J Sex Med* 7:314-326
21. Basson R (2001) Human sex-response cycles. *J Sex Marital Ther* 27:33-43
22. Weber AM, Walters MD, Schover LR, Mitchinson A (1995) Vaginal anatomy and sexual function. *Obstet Gynecol* 86: 946-949
23. Weber AM, Walters MD, Piedmonte MR (2000) Sexual function and vaginal anatomy in women before and after surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol* 182: 1610-1615
24. Schimpf MO, Harvie HS, Omotosho TB et al (2010) Does vaginal size impact sexual activity and function? *Int Urogynecol J* 21:447-452
25. Occhino JA, Trabuco EC, Heisler CA, Klingele CJ, Gebhart JB (2011) Changes in vaginal anatomy and sexual function after vaginal surgery. *Int Urogynecol J* 22:799-804
26. Omotosho TB, Rogers RG (2009) Shortcomings/strengths of specific sexual function questionnaires currently used in urogynaecology: a literature review. *Int Urogynecol J* 20:S51-S56
27. Rosen R, Brown C, Heiman J et al (2000) The Female Sexual Function Index (FSFI): A multidimensional Self-report Instrument for the assessment of female sexual function. *J Sex Marital Ther* 26:191-208
28. Rust J, Golombok S (1986) The GRISS: A psychometric instrument for the assessment of sexual dysfunction. *Arch Sex Behav* 15:157-165
29. Rogers RG, Kammerer-Doak D, Villarreal A, Coates K, Qualls C (2001) A new instrument to measure sexual function in women with urinary incontinence or pelvic organ prolapse. *Am J Obstet Gynecol* 184:552-558
30. Rogers RG, Coates KW, Kammerer-Doak D, Khalsa S, Qualls C (2003) A short form of the pelvic organ prolapse/urinary incontinence sexual questionnaire (PISQ-12). *Int Urogynecol J* 14:164-168
31. Rogers RG, Rockwood TH, Constantine ML et al (2013) A new measure of sexual function in women with pelvic floor disorders (PFD): the Pelvic Organ Prolapse/Incontinence Sexual Questionnaire, IUGA-Revised (PISQ-IR). *Int Urogynecol J* 24:1091-1103
32. Pauls RN, Segal JL, Andre Silva W, Kleeman SD, Karram MM (2006) Sexual function in patients presenting to a urogynecology practice. *Int Urogynecol J* 17; 576-580
33. Geiss IM, Umek WH, Dungal A, Sam C, Riss P, Hanzal E (2003) Prevalence of female sexual dysfunction in gynecologic and urogynecologic patients according to the international consensus classification. *Urology* 62:514-518
34. Mercer CH, Fenton KA, Johnson AM et al (2003) Sexual function problems and help seeking behaviour in Britain: national probability sample survey. *Br Med J* 327:426-427
35. Moreira ED, Brock G, Glasser DB et al (2005) Help-seeking behavior for sexual problems: the global study of sexual attitudes and behaviors. *Int J Clin Pract* 59:6-16
36. Shifren JL, Johannes CB, Monz BU, Russo PA, Bennett L, Rosen R (2009) Help-seeking behavior of women with self-reported distressing sexual problems. *J Women's Health* 18:461-468
37. Berman L, Berman J, Felder S et al (2003) Seeking help for sexual function complaints: what gynecologists need to know about the female patient's experience. *Fertil Steril* 73:572-576
38. Gott M, Hinchliff S (2003) Barriers to seeking treatment for sexual problems in primary care: a qualitative study with older people. *Fam Pract* 20:690-695
39. Hilton P (1988) Urinary incontinence during sexual intercourse: a common, but rarely volunteered, symptom. *BJOG* 95:377-381
40. Pauls RN, Kleeman SD, Segal JL, Silva WA, Goldenhar LM, Karram MM (2005) Practice patterns of physician members of the American Urogynecologic Society regarding female sexual dysfunction: results of a national survey. *Int Urogynecol J* 16: 460-467
41. Bachmann GA, Leiblum SR, Grill J (1989) Brief sexual inquiry in gynecologic practice. *Obstet Gynecol* 73:425-427
42. Srikrishna S, Robinson D, Cardozo L, Cartwright R (2008) Experiences and expectations of women with urogenital prolapse: a quantitative and qualitative exploration. *BJOG* 115:1362-1368
43. Lowenstein L, Gamble T, Sanses TV et al, for the Fellow's Pelvic Research Network (2009) Sexual function is related to body image perception in women with pelvic organ prolapse. *J Sex Med* 6:2286-2291
44. Zielinski R, Miller J, Kane Low L, Sampsel C, DeLancey JOL (2012) The relationship between pelvic organ prolapse, genital body image, and sexual health. *Neurourol Urodynam* 31:1145-1148
45. Jelovsek JE and Barber MD (2006) Women seeking treatment for advanced pelvic organ prolapse have decreased body image and quality of life. *Am J Obstet Gynecol* 194:1455-1461
46. Zielinski R, Kane Low L, Tumbarello J, Miller JM (2009) Body image and sexuality in women with pelvic organ prolapse. *Urol Nurs* 29: 239-246
47. Nilsson M, Lalos O, Lindkvist H, Lalos A (2011) How do urinary incontinence and urgency affect women's sexual life? *Acta Obstet Gynecol Scand* 90:621-628

48. Sriskrishna S, Robinson D, Cardozo L (2009) Qualifying a quantitative approach to women's expectations of continence surgery. *Int Urogynecol J* 20:859-865
49. Hayder D (2012) The effects of urinary incontinence on sexuality: Seeking an intimate partnership. *J Wound Ostomy Continence Nurs* 39:539-544
50. Rogers RG, Villarreal A, Kammerer-Doak D, Qualls C (2001) Sexual function in women with and without urinary incontinence and/or pelvic organ prolapse. *Int Urogynecol J* 12:361-365
51. Doshani A, Pitchforth E, Mayne C, Tincello DG (2009) The value of qualitative research in urogynaecology. *BJOG* 116:3-6
52. Greenhalgh T and Taylor R (1997) How to read a paper: papers that go beyond numbers (qualitative research). *BMJ* 315:740-743
53. Rogers RG, Kammerer-Doak D, Darrow A et al (2006) Does sexual function change after surgery for stress urinary incontinence and/or pelvic organ prolapse? A multicenter prospective study. *Am J Obstet Gynecol* 195, e1-e4
54. Srikrishna S, Robinson D, Cardozo L, Gonzales J (2010) Can sex survive pelvic floor surgery? *Int Urogynecol J* 21: 1313-1319
55. Thakar R, Chawla S, Scheer I, Barrett G, Sultan AH (2008) Sexual function following pelvic floor surgery. *Int J Gynecol Obstet* 102:110-114
56. Azar M, Noohi S, Radfar S, Radfar MH (2008) Sexual function in women after surgery for pelvic organ prolapse. *Int Urogynecol J* 19:53-57
57. Komesu YM, Rogers RG, Kammerer-Doak DN, Barber MD, Olsen AL (2007) Posterior repair and sexual function. *Am J Obstet Gynecol* 197:101.e1-101.e6
58. Zyczynski HM, Rickey L, Dyer K et al (2012) Sexual activity and function in women more than 2 years after midurethral sling placement. *Am J Obstet Gynecol* 207:421.e1-6
59. Pauls RN, Silva A, Rooney CM et al (2007) Sexual function after vaginal surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol* 197:622.e1-622.e7
60. Lau H-H, Su T-H, Su C-H, Lee M-Y, Sun F-J (2010) Short-term impact of tension-free vaginal tape obturator procedure on sexual function in women with stress urinary incontinence. *J Sex Med* 7:1578-1584
61. Helström L and Nilsson B (2005) Impact of vaginal surgery on sexuality and quality of life in women with urinary incontinence or genital descensus. *Acta Obstet Gynecol Scand* 84; 79-84
62. Çayan F, Dilek S, Akbay E, Çayan S (2008) Sexual function after surgery for stress urinary incontinence: vaginal sling versus Burch colposuspension. *Arch Gynecol Obstet* 277:31-36
63. Jha S, Moran P, Greenham H, Ford C (2007) Sexual function following surgery for urodynamic stress incontinence. *Int Urogynecol J* 18:845-850
64. Bekker M, Beck J, Putter H et al (2009) Sexual function improvement following surgery for stress incontinence: The relevance of coital incontinence. *J Sex Med* 6:3208-3213
65. De Souza A, Dwyer PL, Rosamilia A et al (2012) Sexual function following retropubic TVT and transobturator Monarc sling in women with intrinsic sphincter deficiency: a multicentre prospective study. *Int Urogynecol J* 23:153-158
66. Brubaker L, Chiang S, Zyczynski H et al (2009) The impact of stress incontinence surgery on female sexual function. *Am J Obstet Gynecol* 200:562.e1-562.e7
67. Ghezzi F, Serati M, Cromi A, Uccella S, Triacca P, Bolis P (2005) Impact of tension-free vaginal tape on sexual function: results of a prospective study. *Int Urogynecol J* 17: 54-59
68. Lowenstein L, Gamble T, Deniseiko Sanses TV et al, for the Fellow's Pelvic Research Network (2010) Changes in sexual function after treatment for prolapse are related to the improvement in body image perception. *J Sex Med* 7:1023-1028
69. Mazouni C, Karsenty G, Bretelle F, Bladou F, Gannerre M, Serment G (2004) Urinary complications and sexual function after the tension-free vaginal tape procedure. *Acta Obstet Gynecol Scand* 83:955-961
70. Handa VL, Zyczynski HM, Brubaker L et al, for the pelvic floor disorders network (2007) Sexual function before and after sacrocolpopexy for pelvic organ prolapse. *Am J Obstet Gynecol* 197:629.e1-629.e6
71. Dua A, Jha S, Farkas A, Radley S (2012) The effect of prolapse repair on sexual function in women. *J Sex Med* 9:1459-1465
72. Vollebregt A, Fischer K, Gietelink D, van der Vaart CH (2012) Effects of vaginal prolapse surgery on sexuality in women and men; results from a RCT on repair with and without Mesh. *J Sex Med* 9:1200-1211
73. Carey M, Higgs P, Goh et al (2009) Vaginal repair with mesh versus colporrhaphy for prolapse: a randomised controlled trial. *BJOG* 116:1380-1386
74. Nilsson M, Lalos O, Lindkvist H, Lalos A (2011) Impact of female urinary incontinence and urgency on women's and their partners' sexual life. *Neurourol Urodynam* 30: 1276-1280
75. Bekker MD, Beck JH, Putter H et al (2010) Sexual experiences of men with incontinent partners. *J Sex Med* 7:1877-1882
76. Kuhn A, Brunnmayr G, Stadlmayr W, Kuhn P, Mueller MD (2009) Male and female sexual function after surgical repair of female organ prolapse. *J Sex Med* 6:1324-1334
77. Berglund A-L, Eisemann M, Lalos A, Lalos O (1996) Social adjustment and spouse relationships among women with stress incontinence before and after surgical treatment. *Soc Sci Med* 42:1537-1544
78. Mohr S, Kuhn P, Mueller MD, Kuhn A (2011) Painful love – "hispareunia" after sling erosion of the female partner. *J Sex Med* 8:1740-1746
79. Plouffe L Jr (1985) Screening for sexual problems through a simple questionnaire. *Am J Obstet Gynecol* 151:166-168

**Sexual problems in the gynecology clinic:
Are we making a mountain out of a molehill?**



Anne-Marie Roos, Abdul H. Sultan, Raneer Thakar
Int Urogynecol J 2012;23:145-152

Abstract

Introduction and hypothesis

This study aims to assess the prevalence of sexual problems in general gynecology and urogynecology clinics using a simple screening tool and to compare the prevalence between patients presenting with gynecological or urogynecological complaints.

Methods

Patients attending (uro)gynecology clinics completed three screening questions for sexual problems to be assessed. A fourth question was later introduced to address sexual problems which bother them. Student's t-test, chi-square test, and logistic regression were used.

Results

Of 1,194 women, 37% had a sexual complaint. Seventeen percent volunteered this information as part of their main complaint, while the remaining only admitted it on questioning. The last 290 questionnaires included the question on "bother". Of these, 37% had a sexual complaint and only 45% found them bothersome. Multivariate analysis showed that urogynecological complaints were significantly associated with sexual complaints.

Conclusions

As most women only volunteer symptoms when asked directly, clinicians should be vigilant in identifying sexual problems but always establish the question of bother to avoid over-diagnosis.

Introduction

Female sexual dysfunction (FSD) is a common problem that can have a devastating effect on a woman's quality of life and social and sexual relationships. A national British survey found that, in the preceding year, 54% of women reported at least one sexual problem lasting for at least 1 month¹. Studies have shown that women suffering from pelvic floor disorders are at risk of suffering from sexual problems as a result of pelvic organ prolapse or lower urinary tract symptoms²⁻⁵. Sixty-four percent of sexually active patients presenting to a urogynecology practice suffer from FSD⁶, although the prevalence of FSD appears to be comparable to women seeking gynecological care⁷. Geiss et al.⁷ showed that 50% of sexually active gynecology patients compared to 48% of urogynecology patients showed signs of FSD.

Despite the reported high prevalence, only one in five women seek help for their sexual concerns^{1,8,9}. Help-seeking behavior is dependent on age, type of sexual problem, and culture⁸. Furthermore, when sexual problems cause distress, women are more likely to seek medical attention⁹. Barriers for seeking help could be embarrassment, believing that the physician will not be able to provide help¹⁰, and the perception that sexual problems are not a "severe" health problem¹¹. Therefore, in order to identify sexual problems, a proactive attitude from the physician is necessary. A study on current attitudes towards sexual function amongst physicians showed that they infrequently raise the topic of sexual health during clinic visits with the most important barrier being lack of time¹². Screening for sexual problems does not need to be time-consuming; making a brief assessment of sexual function part of the review of systems is very effective and indicates to the patient that the discussion of often embarrassing sexual concerns is appropriate¹³.

The aims of this study were, firstly, to assess the prevalence of sexual problems in patients attending general gynecology and urogynecology clinics, using a quick and simple screening tool. Secondly, we aimed to compare the prevalence between patients presenting with gynecological and urogynecological complaints.

Materials and Methods

This cross-sectional study includes women attending the gynecology outpatient clinic in Croydon (Mayday) University Hospital between May 2008 and February 2010. As part of our routine practice, new patients attending general gynecology and urogynecology clinics and who are able to read and write in English, were asked to complete a *health questionnaire* (see "Appendix"). Women have time to complete the questionnaire in the general waiting area while waiting to see the gynecologist, and completion of the questionnaire takes only a couple of minutes. Women attending oncology and fertility clinics were not included.

The *health questionnaire* addresses the primary complaint and includes a gynecological,

obstetrical, surgical, medical, and family history, as well as questions regarding allergies and medications, and constitutes a part of the routine practice in our gynecology and urogynecology clinics. To assess sexual function, three questions are included: (1) Are you sexually active? (yes/no). If not active, state reason. (2) Is sex painful? (yes/no). (3) Do you have any problems with sex? (yes/no). If yes, state problem. These three questions were based on a previous questionnaire, which has been shown to be as effective as a detailed enquiry in detecting sexual problems¹⁴. Upon analysis of the collected data at the end of August 2009, it became apparent that these questions did not address the issue of bother which can lead to over-diagnosis of sexual dysfunction. This led to the introduction of a fourth question: Are any of your sexual problems bothersome? (yes/no). It was then decided that data collection would continue until February 2010.

Health questionnaires were collected after several clinic sessions each week based on the schedule and availability of the researcher who was not involved in the direct clinical care of the patient. Selection bias, however, is considered to be absent as questionnaires were collected for all patients attending a specific clinic session and the availability of the researcher was at random. The collected questionnaires are considered to be a random selection of the group under study. After the collection of questionnaires, a further review of the medical notes was performed in order to complete the medical and surgical history where necessary.

Statistical analysis was performed by calculating the frequencies of responses. The main outcome measure was the mentioning of any sexual complaint on the *health questionnaire*. A division was made between dyspareunia and “other sexual problems.” An analysis of continuous variables was done using Student’s t-test and an analysis of dichotomous variables was done using chi-square test. For the purpose of comparison, subjects were divided into gynecology or urogynecology patients based on their primary complaint. We corrected for possible confounding factors by fitting a binary logistic regression model. Included in the analysis as possible confounders were: age (comparing over and under 60 years of age), parity, smoking, diabetes, hypertension, previous hysterectomy, previous vaginal repair, previous incontinence surgery, cardiovascular disease, chronic rheumatic disease, psychological diseases, HRT use, and sexual activity. These variables were selected based on previously published¹⁵ or expected associations. Odds ratios (OR) were calculated on multivariate analysis and are presented with their 95% confidence interval. A p-value of less than 0.05 was considered significant. Analysis was conducted using SPSS for Windows software (version 16.0; SPSS Inc, Chicago, IL, USA).

All collected data formed part of our routine evaluation of new patients attending our gynecology clinics. Therefore, no ethical approval was deemed necessary. A favorable opinion to exempt this study from seeking approval was given by the Croydon University Hospital Research and Development committee.

Results

During the period between May 2008 and February 2010, a total of 1,215 questionnaires were collected. Twenty-one (1.7%) women were excluded from the analysis because of missing data on sexual activity. The demographics of the 1,194 remaining women are presented in Table 1.

Of the 1,194 women, 739 (62%) were sexually active. The differences in demographic factors between sexually active and inactive women are presented in Table 1. The reasons given for sexual inactivity by the 455 sexually inactive women (multiple answers possible) include: not being in a sexual relationship in 146 (32%), older age in 29 (6%), pain in 37 (8%), partner has a problem in 30 (7%), prolapse or pessary use in 10 (2%), no desire in 16 (3.5%), urinary problems in 10 (2%), and mutual agreement in 11 (2%) women. Other problems like dryness or marital problems were cited by less than 2%, while 142 (31%) did not comment.

Table 1 Patient characteristics presented as N (%)

	Total (n= 1,194)	Sexually active		p-value ^a
		Yes (n= 739)	No (n= 455)	
Age ^b	47 (15.9)	41 (12.0)	56 (17.0)	<0.001
Parity ^b	2.0 (1.5)	1.85 (1.45)	2.21 (1.61)	<0.001
Diabetes	66 (5.5%)	22 (3%)	44 (10%)	<0.001
Hypertension	211 (18%)	71 (10%)	140 (31%)	<0.001
Hysterectomy	131 (11%)	48 (6.5%)	83 (18%)	<0.001
Prolapse repair	59 (5%)	20 (3%)	39 (9%)	<0.001
Incontinence surgery	52 (4%)	25 (3%)	27 (6%)	0.036
Cardio-vascular disease	62 (5%)	11 (1.5%)	51 (11%)	<0.001
Chronic rheumatic disease	74 (6%)	27 (4%)	47 (10%)	<0.001
Psychiatric diseases	118 (10%)	66 (9%)	52 (11%)	0.160
Smoking	196 (16%)	143 (21%)	53 (13%)	0.002
HRT use	64 (5%)	36 (5%)	28 (6%)	0.339

^a Comparing sexually active and inactive women

^b Presented as mean (SD)

Overall 437 (37%) women had a sexual complaint; 320 (27%) complained of dyspareunia and 202 (17%) of “other sexual problems” (multiple answers possible). Forty (3%) women complained of bleeding during or after sexual activity. These complaints were not considered as sexual problems. The nature of the “other sexual problems” is noted in Table 2. Examples of problems associated with prolapse were: “avoiding sex because of lump”, “afraid of making prolapse worse”, and “embarrassed to let him see or touch vagina.” Problems associated with urinary incontinence were: “no partner as leak urine,” “wetting on penetration”, “embarrassed because of pad use/about bladder problem,” and “too wet for sex.”

Table 2 Nature and frequency of occurrence of "other sexual problems"

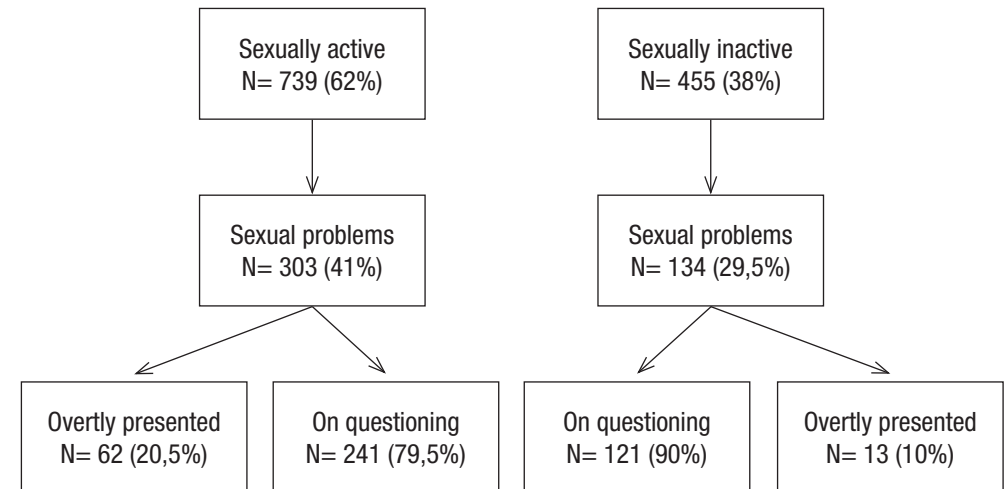
"other sexual problems" (n=202) ^a	N (%)
Bladder problems – cystitis	35 (17%) – 6 (3%)
Partner problems	34 (17%)
Loss of libido	29 (14%)
Prolapse	20 (10%)
Dryness	14 (7%)
Vulval problems (enlarged labia / lumps / swelling)	11 (5%)
No or reduced sensation	9 (4%)
Other health issues	9 (4%)
Vaginal laxity	5 (2%)
No orgasm	5 (2%)
Itching / irritation	5 (2%)
Bowel problems	4 (2%)
Vaginismus	1 (0.5%)
Others	13 (6%)
Not commented	21 (10%)

^a Multiple answers possible

Of the 437 women with a sexual complaint, 75 (17%) volunteered this in the questionnaire as part of their main complaint while the remaining only admitted to it when completing the three screening questions regarding sexual function. Sexual complaints were classified as gynecological complaints (46, 61%) unless they were associated with urogynecological complaints (29, 39%). The distribution for women who were sexually active and those who were inactive is presented in Fig. 1. Sexually active women were significantly more likely to volunteer their sexual complaint as compared to women with sexual complaints who were not sexually active ($p=0.006$). Furthermore, women who volunteered their sexual complaint were younger (mean (SD) 36 (11.8) vs 46 (14.3), $p<0.001$) and had a lower parity (mean (SD) 1.4 (1.3) vs 2.0 (1.3), $p=0.002$) than women who only admitted to having problems on questioning. They were also less likely to be suffering from hypertension ($p=0.02$) and chronic rheumatic diseases ($p=0.02$) and to have undergone a hysterectomy ($p=0.03$). There were no significant differences in the other confounding factors studied.

Based on the primary complaint, patients were divided into gynecology (641, 54%) and urogynecology patients (553, 46%). The nature of gynecological complaints is mentioned in Table 3. The differences in patient characteristics between gynecology and urogynecology patients are presented in Table 4. The results of the screening questions were compared between gynecology and urogynecology patients and are presented in Table 5.

Figure 1 Sexual problems in sexually active and inactive women



Multivariate analysis was performed to identify factors independently associated with the presence of a sexual complaint. This showed that (after adjustment for confounding factors) having a urogynecological complaint independently increased the risk of having a sexual complaint (OR 1.51, 1.13–2.01; $p=0.005$) and “other sexual problems” (OR 4.15, 2.79–6.17; $p<0.001$), but not dyspareunia (OR 0.95, 0.69–1.31; $p=0.756$).

Furthermore, an increased risk of the presence of a sexual complaint was found for: smoking (OR 1.59, 1.14– 2.20; $p=0.006$) and women aged under 60 years (OR 2.35, 1.48–3.73; $p<0.001$).

Table 3 Nature of gynecological complaints

Gynecological complaints (n= 641)	N (%)
Menstrual problems (dysmenorrhea/menorrhagia/intermenstrual bleeding)	209 (33%)
Abdominal pain	115 (18%)
Vulval abnormalities	64 (10%)
Incidental findings (cysts / polyps / fibroids)	49 (8%)
Postmenopausal bleeding	43 (7%)
Insertion / removal of coils	24 (4%)
Sterilization request	27 (4%)
Female Sexual Dysfunction	22 (3%)
Amenorrhoea	11 (2%)
Postcoital bleeding	12 (2%)
Abnormal discharge	14 (2%)
Infertility	5 (1%)
Others	46 (7%)

Table 4 Differences in characteristics between patients presenting with gynecological complaints and those with urogynecological complaints in N (%)

	Gynecology N= 641	Urogynecology N= 553	p-value
Age ^a	40.7 (12.8)	54.5 (15.9)	<0.001
Parity ^a	1.65 (1.4)	2.38 (1.5)	<0.001
Diabetes	22 (3.4%)	44 (8.0%)	0.001
Hypertension	61 (9.5%)	150 (27.1%)	<0.001
Previous hysterectomy	19 (3.0%)	112 (20.3%)	<0.001
Previous vaginal repair	9 (1.4%)	50 (9.0%)	<0.001
Previous incontinence surgery	9 (1.4%)	43 (7.8%)	<0.001
Cardio-vascular disease	10 (1.6%)	52 (9.4%)	<0.001
Chronic rheumatic disease	21 (3.3%)	53 (9.6%)	<0.001
Psychiatric diseases	50 (7.8%)	68 (12.3%)	0.009
Smoking	129 (21.9%)	67 (13.7%)	0.001
HRT use	23 (4%)	41 (7%)	0.003

^a Presented as mean (SD)

Dyspareunia was positively associated with age under 60 years (OR 3.77, 1.95–7.29; $p < 0.001$), smoking (OR 1.67, 1.18–2.36; $p = 0.003$), and being sexually active (OR 1.97, 1.39–2.81; $p < 0.001$). “Other sexual problems” were positively associated with age under 60 (OR 1.95, 1.14– 3.36; $p = 0.015$).

A total number of 290 (24%) questionnaires included the question on “bother”: 116 (40%) gynecology patients and 174 (60%) urogynecology patients. Of these, 106 (37%) women had one or more sexual complaints. Forty-eight (45%) found one of their sexual complaints bothersome, 30 (28%) said it was not bothersome, and 28 (26%) did not answer this question. There was no difference in patient characteristics between those who found their sexual complaints bothersome and those who found them not to be bothersome other than the presence of chronic rheumatic diseases (0% and 10%, respectively; $p = 0.025$); however, the numbers were small.

Discussion

By using a simple and quick tool to screen for sexual problems in a clinical setting, we demonstrated that sexual complaints are highly prevalent in women attending gynecology and urogynecology clinics. Although these three simple questions have previously been used as an interview-based screening tool^{14,16}, we did not find any publications which describe it being used as part of a written questionnaire (PubMed search, until August 2010, keywords (female) sexual (dys)function, prevalence, questionnaire). Plouffe¹⁴ showed that 45% of women

Table 5 Results of sexual screening questions, presented as n (%) with 95% confidence interval, compared between gynecology and urogynecology patients

	Gynecology N= 641	Urogynecology N= 553	p-value ^a
Sexually active	467 [73% (69-76)]	272 [49% (45-53)]	< 0.001
Any sexual complaint	226 [35% (32-39)]	211 [38% (34-42)]	0.30
- Dyspareunia	199 [31% (28-35)]	121 [22% (19-26)]	< 0.001
- Other sexual problems	60 [9% (7-12)]	142 [26% (22-29)]	< 0.001
Volunteered sexual complaint	46 [20% (16-26)] ^b	29 [14% (10-19)] ^b	0.07

^a Difference between gynecology and urogynecology patients using chi-square test

^b As a percentage of women with any sexual complaint

admitted to a gynecology ward on an elective basis had a sexual complaint. Following its primary publication by Plouffe¹⁴, Walters et al. used the screening tool in women with urinary incontinence¹⁶. They found that 35% of women with detrusor instability and 32% of women with genuine stress incontinence admitted to having sexual problems. We were able to identify sexual complaints in 37% of women visiting outpatient gynecology and urogynecology clinics. Furthermore, we found that less than one in five women overtly presented with these concerns, demonstrating that screening for sexual problems increases our ability to detect them without it being time consuming. A similar result was found in a study by Bachmann et al.¹⁷ who screened women seeking gynecological evaluation by asking them two questions on their sexual functioning during history taking. Although they found a lower prevalence of 19% reporting sexual problems, only 17% of these overtly complained. Using a standard questionnaire for all new patients that includes questions on sexuality indicates to the patient that a sexual history forms part of a routine gynecological assessment. This may help put patients at ease and make them more comfortable to express their concerns.

Women with urogynecological complaints were more likely to suffer from sexual problems. Although there was no difference in dyspareunia, “other sexual problems” were more common. A higher percentage of women with gynecological complaints (31%) compared to those presenting with urogynecological complaints (22%) presented with dyspareunia. However, a multivariate analysis showed that this difference was not caused by the type of complaint per se but by the fact that women with gynecological complaints were more likely to be sexually active and were of younger age.

Interestingly, women under the age of 60 were more likely to suffer from sexual complaints. This is in contrast to previous literature. It is generally accepted that following menopause sexual desire is decreased. A previous large population-based study conducted in the USA showed that sexual problems, including low desire, arousal, and orgasm, were more common in women aged over 65, but sexually related personal distress was lowest in this age category¹⁸. Our screening questions did not include specific questions inquiring about

desire, arousal, and orgasm. It is possible that sexually inactive women would not mention sexual complaints that do not create personal distress, like low desire and low arousal, if not specifically asked about these. Most sexually inactive women will be of older age and therefore self-reported sexual problems would be lower in this category.

In order to decide when clinical intervention is necessary, one should assess the “personal distress” caused by the sexual problem. This is in accordance with the definition of FSD by the International Consensus Development Conference on FSD, which considers a sexual problem as dysfunction only when it causes personal distress¹⁹. This is an important consideration in order to prevent excessive medicalisation and overtreatment of a sexual problem based on what society believes is normal. By introducing a fourth question (“Are any of your sexual problems bothersome?”), we showed that only 45% of the women with sexual complaints actually found them to be bothersome. The previous prevalence estimates of sexual dysfunction might have over-estimated FSD by not including the distress factor into the definition of sexual dysfunction. This is supported by the findings of a previous study in which only 28% of sexual problems in a general female population were associated with distress¹⁸.

A limitation of our study is that, first, we did not use a validated questionnaire to assess sexual problems. However, the aim of our study was to use a simple and quick screening tool and, to the best of our knowledge, there is currently no validated screening tool for FSD available. Furthermore, our screening questionnaire was not designed to differentiate between the different domains of sexual dysfunction. We decided to use this screening questionnaire over others^{17,20,21} as this questionnaire, although not validated, has been shown to be as effective as a detailed enquiry in detecting sexual problems¹⁴. If, by answering the screening questions, a woman admits to having sexual problems, a validated condition-specific questionnaire like the Pelvic Organ Prolapse–Urinary Incontinence Sexual Function Questionnaire²² could be administered to urogynecology patients and a general validated questionnaire like the Female Sexual Function Index²³ could be administered to gynecology patients. Secondly, our results could have been affected by the fact that there was limited privacy, as women completed this questionnaire in the waiting area and not in a private room. This could result in less women admitting to sexual problems. The fact that there was no specific definition of the time period in which sexual problems were measured (for example, over the last month/year) as well as the fact that both sexually active and inactive women were included could be reasons for the lower prevalence of sexual problems found in the present study compared to that recently reported in women seeking (uro)gynaecological care^{6,7}.

We feel that the results of this study are generalizable to women attending other gynecology outpatient clinics in secondary care settings. Results are expected to be different in women presenting with gynecological problems to a primary care setting where the severity of complaints may be different.

Sexual problems in the gynecology clinic: are we making a mountain out of a molehill? This study shows that although sexual complaints are common amongst women presenting to gynecology and urogynecology clinics, by enquiring about bother with this four-question screening tool, we

have identified that nearly half of women with sexual problems do not find them bothersome. This is highly relevant because, by definition, sexual problems cannot be classified as FSD unless they cause distress. Previous prevalence estimates of sexual dysfunction might have over-estimated FSD, making a mountain out of a molehill.

However, this study does highlight that the vast majority of women experiencing sexual problems only volunteer symptoms when asked directly. By using a simple and quick screening tool, sexual problems were five times more likely to be identified by the physician. As urogynecological complaints were independently associated with sexual problems, this screening tool could be included as part of the initial evaluation of these patients.

References

1. Mercer CH, Fenton KA, Johnson AM et al (2003) Sexual function problems and help seeking behaviour in Britain: national probability sample survey. *Br Med J* 327:426–427
2. Novi JM, Jeronis S, Morgan MA, Arya LA (2005) Sexual function in women with pelvic organ prolapse compared to women without pelvic organ prolapse. *J Urol* 173:1669–1672
3. Sen I, Onaran M, Aksakal N et al (2006) The impact of urinary incontinence on female sexual function. *Adv Ther* 23:999–1008
4. Aslan G, Köseoğlu H, Sadik Ö, Gimen S, Cihan A, Esen A (2005) Sexual function in women with urinary incontinence. *Int J Imp Research* 17:248–251
5. Salonia A, Zanni G, Nappi RE et al (2004) Sexual dysfunction is common in women with lower urinary tract symptoms and urinary incontinence: results of a cross-sectional study. *Eur Urology* 45:642–648
6. Pauls RN, Segal JL, Silva WA, Kleeman SD, Karram MM (2006) Sexual function in patients presenting to a urogynecology practice. *Int Urogynecol J* 17:576–580
7. Geiss IM, Umek WH, Dungal A, Sam C, Riss P, Hanzal E (2003) Prevalence of female sexual dysfunction in gynaecologic and urogynecologic patients according to the international consensus classification. *Urology* 62:514–518
8. Moreira ED, Brock G, Glasser DB et al (2005) Help-seeking behaviour for sexual problems: the global study of sexual attitudes and behaviours. *Int J Clin Pract* 59:6–16
9. Shifren JL, Johannes CB, Monz BU, Russo PA, Bennett L, Rosen R (2009) Help-seeking behaviour of women with self-reported distressing sexual problems. *J Women's Health* 18:461–468
10. Berman L, Berman J, Felder S et al (2003) Seeking help for sexual function complaints: what gynecologists need to know about the female patient's experience. *Fertil Steril* 73:572–576
11. Gott M, Hinchliff S (2003) Barriers to seeking treatment for sexual problems in primary care: a qualitative study with older people. *Fam Pract* 20:690–695
12. Roos AM, Thakar R, Sultan AH, Scheer I (2009) Female sexual dysfunction: are urogynecologists ready for it? *Int Urogynecol J* 20:89–101
13. Kingsberg S, Althof SE (2009) Evaluation and treatment of female sexual disorders. *Int Urogynecol J* 20:S33–S43
14. Plouffe L Jr (1985) Screening for sexual problems through a simple questionnaire. *Am J Obstet Gynecol* 151:166–168
15. Palacios S, Castaño R, Grazziotin A (2009) Epidemiology of female sexual dysfunction. *Maturitas* 63:119–123
16. Walters MD, Taylor S, Schoenfeld LS (1990) Psychosexual study of women with detrusor instability. *Obstet Gynecol* 75:22–26
17. Bachmann GA, Leiblum SR, Grill J (1989) Brief sexual inquiry in gynecologic practice. *Obstet Gynecol* 73:425–427
18. Shifren JL, Monz BU, Russo PA, Segreti A, Johannes CB (2008) Sexual problems and distress in United States women. Prevalence and correlates. *Obstet Gynecol* 112:970–978
19. Basson R, Berman J, Burnett A et al (2000) Report of the international consensus development conference on female sexual dysfunction: definitions and classifications. *J Urol* 163:888–893
20. Kingsberg S (2004) Just ask! Talking to patients about sexual function. *Sex Reprod Menopause* 2:199–203
21. Nusbaum MRH, Hamilton CD (2002) The proactive sexual health history. *Am Fam Physician* 66:1705–1712
22. Rogers RG, Kammerer-Doak D, Villarreal A, Coates K, Qualls C (2001) A new instrument to measure sexual function in women with urinary incontinence or pelvic organ prolapse. *Am J Obstet Gynecol* 184:552–558
23. Rosen R, Brown C, Heiman J et al (2000) The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther* 26:191–208

Appendix

GYNAECOLOGY CLINIC - HEALTH QUESTIONNAIRE

NAME:		TODAY'S DATE: / /	
DATE OF BIRTH: / /	AGE:	YOUR WORK?	
PLEASE STATE YOUR REASONS FOR COMING TO THE GYNAECOLOGY CLINIC TODAY			
IF YOUR PERIODS HAVE STOPPED (MENOPAUSE) PLEASE MOVE TO QUESTION 2			
1. ABOUT YOUR PERIODS: Date of last period; / /		Duration of periods.....days	
Periods regular (every 28 to 32 days) YES / NO	Heavy periods? YES / NO	Any Clots? YES / NO	
Any bleeding in between periods? YES / NO		Painful periods? YES / NO	
2. ARE YOU SEXUALLY ACTIVE? YES / NO		If Not Active, State Reason	
Is Sex Painful? YES / NO		Do You Have Any Problems With Sex? YES / NO	
If Yes State Problems:			
Are Any Of Your Sexual Problems Bothersome? YES / NO		Do You Bleed During Sex? YES / NO	
DATE AND RESULT OF YOUR LAST CERVICAL SMEAR TEST? / /		Normal / Abnormal	
WHAT TYPE OF CONTRACEPTION DO YOU OR YOUR PARTNER USE? (please circle)			
PILL	CONDOM	COIL	VASECTOMY STERILISATION OTHER (please state)
DO YOU HAVE CHILDREN? YES / NO		HOW MANY?	AGE OF OLDEST
			AGE OF YOUNGEST
HAVE YOU HAD ANY OPERATIONS (INCLUDING CAESAREANS) PREVIOUSLY? (date and type of operation)			
DO YOU SUFFER FROM ANY OTHER MEDICAL CONDITIONS? Please tell us what these are			
WHAT MEDICATIONS ARE YOU TAKING?			
ANY ALLERGIES?		HOW MANY CIGARETTES SMOKED PER DAY?	
ANY BLADDER PROBLEMS?		ANY BOWEL PROBLEMS?	
ANY FAMILY HISTORY OF CANCER? YES / NO			
IF YES, STATE CANCER TYPE		AGE OF ONSET	
OTHER COMMENTS			
Weight	kg	Height	cm
		BMI	

Chapter 3

Female sexual dysfunction: Are urogynecologists ready for it?

Anne-Marie Roos, Raneer Thakar, Abdul H. Sultan, Inka Scheer
Int Urogynecol J 2009;20:89–101

Abstract

Introduction and hypothesis

The aim of this study was to assess the practice of members of the British Society of Urogynaecology (BSUG) with respect to female sexual dysfunction (FSD) and compare it to members of the American Urogynecologic Society (AUGS).

Methods

A web-based anonymous electronic questionnaire was sent to all (n=150) BSUG members. Frequencies of responses and chi-square test for association with demographics were calculated.

Results

One hundred questionnaires were returned of which 95 were sufficiently filled. Fifty percent regularly screened for FSD at clinic visits and 49.5% after surgery, compared to 77% and 76% of AUGS members, respectively. The most important barrier was lack of time. Only 2% said FSD was not an important problem. Seventy-six percent found training for FSD unsatisfactory.

Conclusions

FSD is not part of normal practice for half of BSUG members. There is, therefore, a need for better implementation of education and training at both undergraduate and postgraduate levels.

Introduction

Female sexual dysfunction (FSD) is defined as a sexual desire, sexual arousal, orgasm, and/or sexual pain disorder, which causes personal distress¹. Although it is a highly prevalent condition, a very small proportion of women consult a physician. In a UK-based survey, a total of 54% of women reported at least one sexual problem lasting at least 1 month during the last year which caused 62% of them to avoid sex. Only 21% of women with problems had sought help for it of which 74% consulted their general practitioner². A web-based survey of 3,807 women in the USA revealed that the most important barriers for women to seek help were embarrassment and feeling that the physician would not be able to provide help. Only 42% of this cohort sought help from their gynecologist³. The high prevalence of sexual dysfunction and reluctance of women to seek help is a reflection on physicians' attitude and ability to communicate with female patients about their sexual function.

Fifty percent of sexually active women attending a gynecology outpatient clinic⁴ and up to 64% of sexually active women attending a urogynecology clinic suffer from FSD⁵. Recent literature on FSD after pelvic floor surgery is inconclusive with regards to outcome. It is suggested that surgery for prolapse and incontinence deteriorates sexual function, but improvement has also been shown⁶. Even in this high-risk population, FSD is unlikely to be the sole complaint, i.e., the reason for women to consult their urogynecologist. Only seven of 70 women with FSD⁵ presented for assessment of these problems at a urogynecology clinic.

We are not aware of any literature that describes the patient's wish for the doctor to address and treat FSD when presenting with complaints of pelvic floor dysfunction. In our experience, there appears to be two major groups of women suffering from FSD, namely, those who volunteer symptoms and those who prefer not to broach the subject and perhaps hope that the discussion will emerge during the consultation. We, therefore, are of the opinion that, given that this is a taboo subject, doctors should be proactive and endeavor to identify the problem and offer the patient a choice of options.

A recent survey of members of the American Urogynecologic Society (AUGS) showed that only a minority screen all patients for FSD. Lack of time, uncertainty about therapeutic options, and older age of the patient were cited as potential reasons for failing to address sexual complaints as part of routine history⁷. The aim of this study was to determine whether members of the British Society of Urogynaecology (BSUG) consider sexual function as a part of general patient assessment and to identify any barriers in screening for FSD. Secondly, we aimed to compare practice in the UK to that of members of AUGS.

Materials and Methods

In 2006, we designed a web-based electronic questionnaire (see Appendix 1), which was sent to all members of the BSUG to complete online and submit anonymously. The questions were designed to specifically assess FSD-related practices at clinic visits and following surgery, as well as attitudes, beliefs, and overall impressions of FSD. We obtained permission from the author of a previously published survey of the members of AUGS⁷ to use the same questionnaire but, in addition, changes were made to adapt the questionnaire for use in the UK in order to acknowledge differences in clinical practice and terminology between the UK and the USA. The changes included practice composition, practice area, and type of practice. One question addressing the number of physician partners was taken out, and one question concerning access to a psychosexual counselor was included. The question regarding training for FSD was phrased differently so that it could be answered by all responders. The final questionnaire consisted of 20 multiple-choice questions.

Statistical analysis was performed calculating frequencies of responses. Associations between demographic factors and frequency of screening for sexual dysfunction were calculated using chi-square tests. A *p* value <0.05 was considered significant.

Results

Of the 150 BSUG members invited to complete the questionnaire, 100 responded (response rate 67%). Five responders were excluded from the analysis because less than 25% of questions were completed.

Of the 95 responders, 57 (60%) were male and 71 (75%) were over 40 years of age. Overall, 60% had been a consultant for over 5 years, 22% had been a consultant for less than 5 years, and 16% were still training. The responders were predominantly based in England (84%) and the area population size consisted of 50,000 to 500,000 inhabitants in 64%. Fifty-nine percent worked in a teaching- or university-based hospital and 38% in a general district hospital. The practice composition was all urogynecology patients in 12% and mainly urogynecology in 68% (Table 1).

Sixty percent of responders were familiar with one or more questionnaires for assessing female patients for sexual dysfunction. The Pelvic Organ Prolapse–Urinary Incontinence Sexual Function Questionnaire (PISQ) was cited by most of them (90%), either alone or in combination with others. The Female Sexual Function Index (FSFI) and the Sexual Function Questionnaire (SFQ) were familiar to 33% and 28%, respectively.

Nearly all responders acknowledged screening for FSD was important compared to other medical conditions they deal with and only 2% thought screening for FSD was not important. Fifty-one percent believed screening for FSD is somewhat important, 36% said it is very important, and 10% found it to be extremely important. When compared to the responses by AUGS members, we found similar results (47%, 42%, and 9%, respectively).

Screening for FSD was done either most of the time (50%) or rarely (47%) (Table 2). When screening most of the time, responders (*n*=47) were asked how the information was elicited from the patient. The majority did this by asking questions directly to the patient (79%) and 19% used a form which the patient was asked to fill. Different domains of sexual function were explored and the majority asked one or two questions about sexual activity (87%) and dyspareunia (94%). Other sexual domains addressed were libido (47%), arousal/lubrication (36%), and orgasm (36%). Thirteen percent used a validated questionnaire to screen for sexual dysfunction.

All responders were asked what barriers they have for screening for sexual dysfunction. Most responders cited more than one, but 10 (11%) did not respond to this particular question. The majority (66%) said not enough time was their barrier for screening for FSD, 20% did not know what or how to ask, 25% were unsure about therapeutic options, and 20% said most of their patients are elderly and found this a barrier for screening for sexual function. Table 3 shows the comparison to the AUGS survey.

We aimed to find out if differences across demographics would have an impact on frequency of screening for FSD. For comparison, age was divided into three groups, namely, 20–40, 41–50, and over 50 years. The years of practice as a consultant were divided into

Table 1 Demographics of responders (n = 95)

Demographics	N (%)
Practice composition	
All urogynecology	11 (12)
Mainly urogynecology, some general gynecology	65 (68)
Mainly gynecology and some urogynecology	16 (17)
General gynecology	2 (2)
Missing	1 (1)
Practice length	
Still in training	15 (16)
Consultant < 5 years	21 (22)
Consultant 5-10 years	34 (36)
Consultant 11-20 years	20 (21)
Consultant > 20 years	2 (2)
Retired consultant	1 (1)
Missing	2 (2)
Area of clinic/practice	
England	80 (84.2)
Scotland	7 (7.4)
Wales	1 (1.0)
Northern Ireland	3 (3.2)
Missing	4 (4.2)
Population of area of clinic/practice location (no. of inhabitants)	
< 50,000	3 (3.2)
50,000 – 500,000	61 (64.2)
> 500,000	26 (27.4)
Missing	5 (5.2)
Type of clinic/practice	
Teaching hospital	32 (34)
University District General Hospital	24 (25)
District General Hospital	36 (38)
Private Practice	1 (1)
Independent Hospital	1 (1)
Missing	1 (1)
Gender	
Female	35 (37)
Male	57 (60)
Missing	3 (3)
Age (years)	
20 – 30	1 (1)
31 – 40	21 (22)
41 – 50	52 (55)
51 – 60	18 (19)
> 60	1 (1)
Missing	2 (2)

more or less than five, practice composition into mainly or all urogynecology compared to mainly or all general gynecology, and practice population less than 500,000 compared to over 500,000. There was no significant difference based on gender ($p=0.432$), age ($p=0.439$), years of practice ($p=0.546$), practice composition ($p=0.365$), and practice population ($p=0.890$).

All responders, but two who did not answer the question, estimated that less than 60% of patients they see in their clinic experience sexual dysfunction. The majority believed the percentage was less than 30% (75%) compared to 49% amongst AUGS members. Compared to the rest of the group, of those who believed the prevalence for FSD to be over 30%, 67% thought screening for FSD was very/extremely important compared to 38% ($p=0.023$) and 86% stated that they screened for FSD most of the time compared to 41% ($p<0.001$).

The second part of the questionnaire consisted of questions related to FSD after surgery for pelvic organ prolapse or incontinence. Postoperatively, patients were never screened for FSD by one responder, 28 (29.5%) screened rarely, 47 (49.5%) screened most of the time, and 19 (20%) did not respond to this question. In AUGS members, screening for FSD after surgery was always done by 26%, 50% screened most of the time, and 24% never or rarely address sexual function after surgery. Responders who never or rarely screened for FSD postoperatively ($n=29$) were then again asked about barriers for screening for sexual dysfunction, but this time postoperatively. Most physicians cited more than one barrier, but 4 (14%) did not respond. Fifty-two percent claimed there was not enough time, 21% did not know what or how to ask, 14% thought surgery was not related to FSD, 28% were unsure about therapeutic options, and 21% quoted their patients were mostly elderly. Table 4 shows the comparison to the AUGS survey.

The 47 responders who screen most of the time after surgery were asked what methods they use; more than one answer was allowed. Eighty-seven percent asked one or two questions about sexual activity and 98% about dyspareunia. A minority asked about libido (26%), arousal/ lubrication (17%), and orgasm (11%). Only 4% used a validated questionnaire after surgery. The majority (92%) elicited this information by asking the patients the questions directly.

The last two questions of the survey addressed training for FSD and accessibility of a psychosexual counselor. When asked to rate the training with respect to FSD, 76% said it was unsatisfactory, 18% found it to be somewhat satisfactory, 3% said it was very satisfactory, and one respondent (1%) thought it was extremely satisfactory. In the survey of AUGS members, this question was asked only to the 59% of responders who reported having completed some postresidential training in urogynecology. Of those 59%, 50% found training with respect to FSD unsatisfactory, 40% said it was somewhat satisfactory, 8% were very satisfied, and only 2% extremely satisfied. Sixty-six percent of BSUG members responded positively to having access to a psychosexual counselor.

Table 2 Screening for FSD in BSUG members and AUGS members at clinic visits

	BSUG (%)	AUGS (%)
Never/Rarely	47	23
Most of the time	50	55
Always	0	22
Missing	3	-

Table 3 Barriers for screening for FSD at clinic visits in BSUG and AUGS members

	BSUG (%)	AUGS (%)
Not enough time	66	78
Unsure about therapeutic options	25	28
Do not know what/how to ask	20	8
Most patients are elderly	20	20
Afraid to offend patients	19	7
Others: not interested in the field, patient denial, patient will bring it up anyway, concern of sexual harassment, don't have any barriers, language, and cultural	4	3.2

Table 4 Barriers for screening for FSD after surgery in BSUG and AUGS members

	BSUG (%)	AUGS (%)
Not enough time	52	41
Do not know what / how to ask	21	7
Do not think surgery is related to changes in sexual function	14	10
Unsure about therapeutic options	28	21
Most of my patients are elderly	21	17
Afraid to offend patients	7	8
See patients too early to determine if there is a problem	0	41
Others: most patients bring it up, don't follow up all patients, relevance to clinical presentation, sexual function improved postoperatively	12	4

Discussion

Until recently, little attention has focused on FSD with our understanding being based on studies primarily in men. Unlike in men, the sexual response in women is complex with the subjective inputs of thoughts and emotions governing arousal in women receptive to sexual stimuli, which in turn triggers desire and orgasm. Understanding this interplay of physical and psychosocial factors in context with illnesses, medical, and/or surgical interventions will help the clinician in managing FSD.

A number of studies have demonstrated an association between pelvic floor disorders, including pelvic organ prolapse and urinary incontinence, and FSD⁸⁻¹¹. A recent study of women over 40 seeking outpatient gynecological or urogynecological care found women with a higher burden of pelvic floor symptoms to be more likely to report infrequent orgasm, decreased arousal, and increased dyspareunia¹¹. This indicates that women who seek urogynecological care will be of greater risk of having sexual function disorders and urogynecologists should be aware of this problem. However, to the best of our knowledge, this is the first time that a group of urogynecologists have been surveyed regarding patient assessment of FSD in the UK.

In this survey, although most BSUG members admitted that screening for FSD was important, only half of them regularly screened for it. Both members of AUGS and BSUG considered screening for FSD is important, but 77% of AUGS members screened for it compared to 50% of BSUG members. Lack of time was the most important barrier for screening, both at clinic visits as well as after surgery. Although lack of time was the reason given as the most important barrier for FSD screening by both groups, a more plausible explanation would be that they were inadequately trained to approach this subject as only 22% of respondents felt adequately trained in this area. Screening for FSD need not be cumbersome. It has been shown that a simple questionnaire consisting of three questions is as effective as a detailed enquiry. A study conducted by Plouffe¹² used a simple questionnaire, to assess sexual function, consisting of three questions: (1) Are you sexually active?, (2) Are there any problems?, and (3) Do you have any pain with intercourse? This questionnaire was able to elicit all cases in which a sexual complaint was detected by a more detailed interview. When the simple questionnaire was administered by a medical student or intern with no special training in sexual history taking, the same number of women admitted to having a problem.

We suggest that this simple questionnaire, which is easy and quick to use, can be incorporated in routine practice as a means to screen patients with a high risk for FSD, such as those presenting to urogynecology clinics. Patients can then be triaged for appropriate management at a more convenient time or referred to another specialist or psychosexual counselor as shown in the algorithm (Fig. 1). This way, physicians have the possibility of referring the patient if they do not feel adequately trained on the subject of FSD without denying the patient treatment.

One-fifth (19%) of responders were afraid to offend patients by asking about sexual function. It has been previously shown that 96% of women participating in a prevalence study for FSD with a 94% response rate were not embarrassed to fill out the survey concerning sexual activity and function⁴. This indicates that some urogynecologist have a wrong image of their patient's feelings with regard to enquiring about sexual experience.

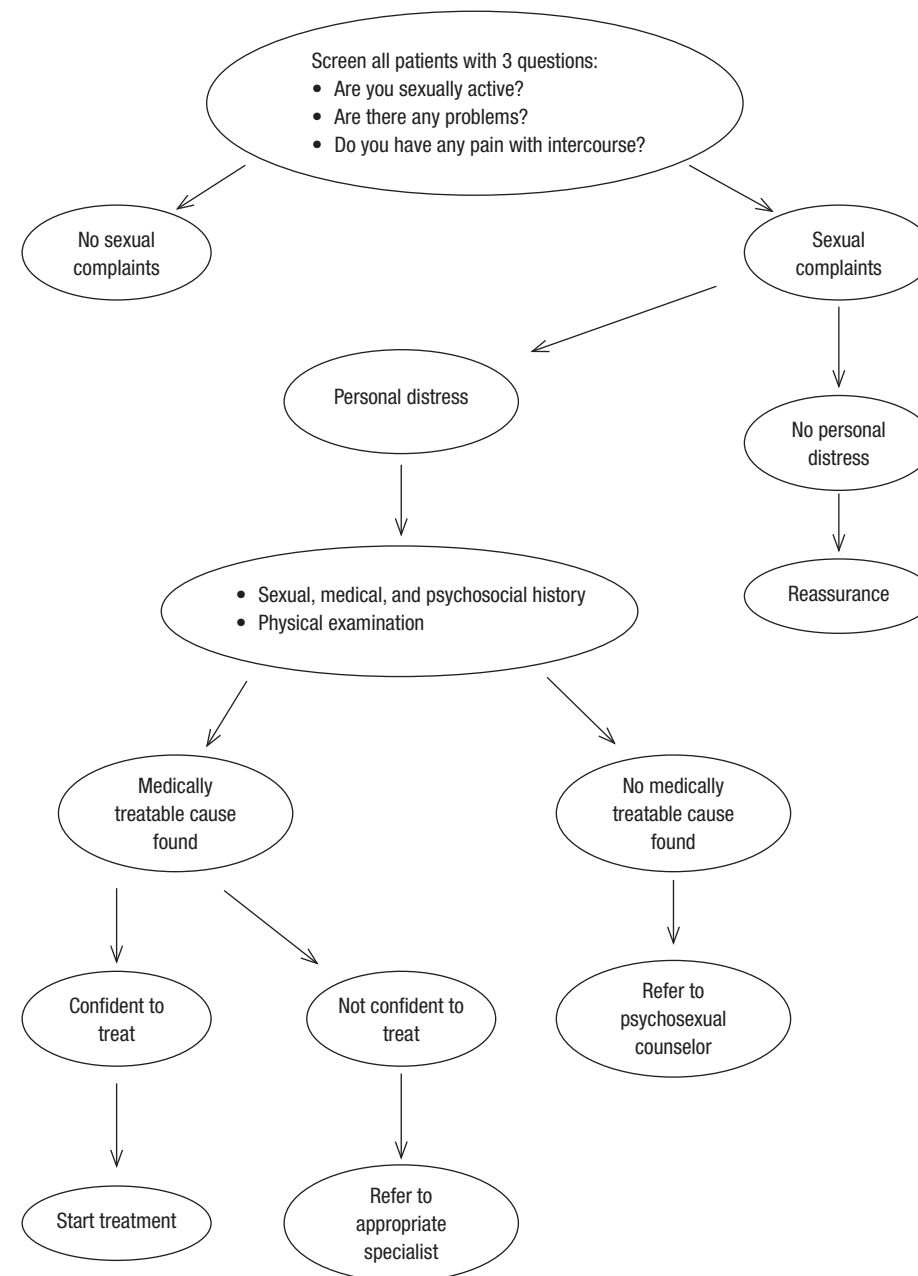
Many responders were unsure about therapeutic options or did not know what to ask when screening for FSD, reflecting a deficiency in this aspect of training. This was confirmed by 76% of responders who found their training was unsatisfactory. Only AUGS members completing some postresidential training in urogynecology answered this question which could explain the lower percentage (50%) of those who found training with respect to FSD unsatisfactory.

We found common trends when comparing the clinical practice of urogynecologists in the UK and USA. Sexual dysfunction in females is an important health problem worldwide and studies evaluating the prevalence of FSD have been undertaken in different countries with different cultures¹³⁻¹⁵. A national population cross-sectional study in Iran revealed that 31.5% had at least one sexual dysfunction of which 21% reported mild, 36% moderate, and 43% severe FSD¹³. In a clinic/hospital-based survey of predominantly circumcised, married women in Lower Egypt, 68.9% had one or more sexual problems, but as much as 23% were not distressed by these issues¹⁴. The prevalence of sexual dysfunction in a community-based sample of Brazilian women was as high as 49%¹⁵. Although there have been studies estimating prevalence, few studies have been done outside the UK or USA to assess FSD-related practices of gynecologists or urogynecologists. A cross-sectional study conducted in Sweden among young women called for gynecologic screening showed 22% were dissatisfied with their sex life. Ninety-two percent of these women considered it appropriate to be asked about general sexuality. However, depending on the area of sexuality, the majority (76-99%) had never been asked such questions by a midwife or doctor in connection with a gynecologic examination¹⁶.

This survey had a response rate of 67% which was higher than the previous survey amongst AUGS members. In the latter, 966 questionnaires were sent, of which 471 were returned (response rate 49%). A reason for our higher response rate could be the ease of responding with an anonymous electronic questionnaire compared to a postal questionnaire. Nevertheless, selection bias could occur because the nonresponders might have had a different view on FSD-related practice. However, we cannot obtain this information because this questionnaire was anonymous.

Although the same questionnaire was used as previously used in the survey amongst AUGS members, we did make some minor changes to modify the questionnaire to be used in the UK. This could have affected our results when it comes to the comparison made between responses of the BSUG members and those of AUGS. However, it was important to acknowledge differences in clinical practice and terminology between the USA and UK and, therefore, we found it necessary to modify the questionnaire.

Figure 1 Simple algorithm to help clinicians in managing patients with female sexual dysfunction



Another limitation of this study was that the exact numbers of AUGS members, our control group, were not known which made it impossible to calculate the significance of the differences. The demographic differences between the UK and USA survey include a larger percentage of trainees and consultants with less than 5 years of experience in the UK and a larger percentage of consultants working more than 20 years in the USA. A larger percentage of responders in the UK see all urogynecology or mainly urogynecology patients compared to the USA (80% versus 62%). Forty-nine percent of AUGS members worked solely in private practice compared to 1% of BSUG members. More responders in the USA were over 60 years and between 31 and 40 years of age compared to BSUG members, and more responders of BSUG were between 41 and 50 years of age compared to AUGS members. The male and female distribution was equal. BSUG members mostly work in cities with population sizes <500,000 while AUGS members generally worked in larger cities with population sizes >500,000. However, these differences should not confound our results as both studies showed no significant differences in frequency of screening between different demographics.

In conclusion, we found that FSD is not included in the regular assessment of patients by a large group of BSUG members even though they felt it was important to do so. The subject of FSD should be given more importance in the undergraduate and postgraduate curriculum so that clinicians enquire about this embarrassing problem that can have a devastating impact on marital and social relationships. The similarity in trends between the UK and USA highlights that this may be a more global problem that needs wider exploration. With increasing interest of the media and women's perceptions of sexuality, this is a problem that gynecologists will increasingly encounter. Urogynecologists along with the colorectal surgeons have made considerable progress in resolving the politics of the pelvic floor. Given the high prevalence and potential morbidity associated with pelvic floor dysfunction, perhaps it is time to work in close liaison with psychosexual counselors to develop a holistic approach to pelvic floor problems.

References

1. Basson R, Berman J, Burnett A et al (2000) Report of the international consensus development conference on female sexual dysfunction: definitions and classifications. *J Urol* 163:888–893
2. Mercer CH, Fenton KA, Johnson AM et al (2003) Sexual function problems and help seeking behaviour in Britain: national probability sample survey. *BMJ* 327:426–427
3. Berman L, Berman J, Felder S et al (2003) Seeking help for sexual function complaints: what gynecologists need to know about the female patient's experience. *Fertil Steril* 79:572–576
4. Geiss IM, Umek WH, Dungal A, Sam C, Riss P, Hanzal E (2003) Prevalence of female sexual dysfunction in gynecologic and urogynecologic patients according to the international consensus classification. *Urology* 62:514–518
5. Pauls RN, Segal JL, Andre Silva W et al (2006) Sexual function in patients presenting to a urogynecology practice. *Int Urogynecol J Pelvic Floor Dysfunct* 17:576–580
6. Ghielmetti T, Kuhn P, Dreher EF et al (2006) Gynaecological operations: do they improve sexual life? *Eur J Obstet Gynecol Reprod Biol* 129:104–110
7. Pauls RN, Kleeman SD, Segal JL et al (2005) Practice patterns of physician members of the American Urogynecologic Society regarding female sexual dysfunction: results of a national survey. *Int Urogynecol J* 16:460–467
8. Handa VL, Harvey L, Cundiff GW et al (2004) Sexual function among women with urinary incontinence and pelvic organ prolapse. *Am J Obstet Gynecol* 191:751–756
9. Özel B, White T, Urwitz-Lane R et al (2005) The impact of pelvic organ prolapse on sexual function in women with urinary incontinence. *Int Urogynecol J* 17:14–17
10. Novi JM, Jeronis S, Morgan MA et al (2005) Sexual function in women with pelvic organ prolapse compared to women without pelvic organ prolapse. *J Urol* 173:1669–1672
11. Handa VL, Cundiff G, Chang HH et al (2008) Female sexual function and pelvic floor disorders. *Obstet Gynecol* 111:1045–1052
12. Plouffe L Jr (1985) Screening for sexual problems through a simple questionnaire. *Am J Obstet Gynecol* 151:166–168
13. Safarinejad MR (2006) Female sexual dysfunction in a population-based study in Iran: prevalence and associated risk factors. *Int J Impot Res* 18:382–395
14. Elnashar AM, El-Dien Ibrahim M, El-Desoky MM et al (2007) Female sexual dysfunction in Lower Egypt. *BJOG* 114:201–206
15. Abdo CHN, Oliveira WM Jr, Moreira ED Jr et al (2004) Prevalence of sexual dysfunctions and correlated conditions in a sample of Brazilian women—results of the Brazilian study on sexual behaviour (BSSB). *Int J Impot Res* 16:160–166
16. Wendt E, Hildingh C, Lidell E et al (2007) Young women's sexual health and their views on dialogue with health professionals. *Acta Obstet Gynecol Scand* 86:590–595

Appendix 1

1. In your clinic/practice you see:

- All urogynaecology patients
- Mainly urogynaecology, some general gynaecology patients
- Mainly gynaecology and some urogynaecology patients
- General gynaecology patients

2. How long have you been in practice?

- I am still in training (fellowship, subspecialty trainee, SpR)
- Consultant <5 years
- Consultant 5-10 years
- Consultant 11-20 years
- Consultant > 20 years
- I am currently a retired consultant

3. Area of clinic/practice?

- England
- Scotland
- Wales
- Northern Ireland

4. What is the population of the area your clinic/practice is located?

- < 50,000 inhabitants
- 50,000-500,000 inhabitants
- > 500,000 inhabitants

5. Is your clinic/practice:

- Teaching Hospital
- University District General Hospital
- District General Hospital
- Private Practice
- Other

6. What is your gender:

- Male
- Female

7. What is your age?

- 20-30
- 31-40
- 41-50
- 51-60
- >60

8. Below is a list of questionnaires some physicians use to assess female patients for sexual dysfunction.

Please indicate all those you are familiar with:

- Female Sexual Function Index (FSFI)
- Pelvic Organ Prolapse-Urinary Incontinence Sexual Function Questionnaire (PISQ)
- Female Sexual Distress Scale
- Sexual Function Questionnaire (SFQ-V1)
- Derogatis Interview for Sexual Functioning (DISF/DISF-SR)

(Appendix 1 continued)

- Other
- Not familiar with any

9. Compared to other medical conditions you deal with, how important is it to screen patients for female sexual dysfunction?

- Not important
- Somewhat important
- Very important
- Extremely important

10. How frequently do you screen female patients for sexual dysfunction?

- Never (go to question 13)
- Rarely (go to question 13)
- Most of the time (continue with question 11)
- Always (continue with question 11)

11. If you Most of the time or Always screen for female sexual dysfunction, what methods do you use?

(Mark all that apply)

- 1 or 2 questions about sexual activity
- 1 or 2 questions about dyspareunia
- 1 or 2 questions about libido
- 1 or 2 questions about arousal/lubrication
- 1 or 2 questions about orgasm
- Validated questionnaire/Index of sexual function

12. How is the information from Question 10 elicited from the patient?

- I ask patient questions
- Patients fill out form
- Patients fill out form and we discuss the answers
- Research/clinical nurse/physician assistant asks patient

13. What are some barriers to screening for sexual dysfunction? (Mark all that apply)

- Not enough time
- Don't know what/how to ask
- If patient has a problem, I am unsure about therapeutic options
- Most of my patients are elderly
- Afraid to offend patients (e.g. cultural taboos)
- Other

14. What percentage of female patients that you see do you believe experience sexual dysfunction?

- <5%
- 5-10%
- 11-20%
- 21-30%
- 31-40%
- 41-50%
- 51-60%
- 61-70%
- 71-80%

(Appendix 1 continued)

-
- 81-90%
 - >90%

QUESTIONS 15 TO 19 RELATE TO SEXUAL DYSFUNCTION AFTER SURGERY

15. How frequently do you screen patients for sexual dysfunction after surgery?

- Never (go to question 16)
- Rarely (go to question 16)
- Most of the time (go to question 17)
- Always (go to question 17)

16. What are some barriers to screening for sexual dysfunction? (Mark all that apply)

- Not enough time
- Don't know what/how to ask
- Don't think surgery is typically related to changes in sexual function
- If patient does have a problem, I am unsure about therapeutic options
- Most of my patients are elderly
- Afraid to offend patients (e.g. cultural taboos)
- I see the patients too early to determine if there is a problem (e.g. not sexually active yet)
- Other

17. If you Most of the time or Always assess for sexual dysfunction after surgery for prolapse or incontinence, what methods do you use? (Mark all that apply)

- 1 or 2 questions about sexual activity
- 1 or 2 questions about dyspareunia
- 1 or 2 questions about libido
- 1 or 2 questions about arousal/lubrication
- 1 or 2 questions about orgasm
- Validated questionnaire/Index of sexual function

18. How is the information from Question 17 elicited from the patient?

- I ask patient questions
- Patients fill out form
- Patients fill out form and we discuss the answers
- Research/clinical nurse/physician assistant asks patient

19. How would you rate the training with respect to female sexual dysfunction?

- Unsatisfactory
- Somewhat satisfactory
- Very satisfactory
- Extremely satisfactory

20. Do you have access to a psychosexual counsellor?

- Yes
 - No
-

Chapter 4

Pelvic floor dysfunction: Women's sexual concerns unraveled

Anne-Marie Roos, Raneer Thakar, Abdul H. Sultan, Curt W. Burger and Aggie T.G. Paulus
J Sex Med 2014;11:743-752

Abstract

Introduction

Sexual function of women suffering from pelvic organ prolapse (POP) and/or urinary incontinence (UI) is adversely affected. However, our current understanding of the exact relationship between female sexual dysfunction and POP and/or UI is incomplete. A qualitative study can improve our understanding by describing what women themselves perceive as the real problem.

Aim

To gain a more in-depth understanding of the impact of POP and/or UI on the different categories of female sexual dysfunction by way of a qualitative study.

Methods

Qualitative semi-structured interviews were conducted in 37 women scheduled for pelvic floor surgery. One was excluded from analysis due to incomplete recordings.

Main outcome measures

The impact of POP and/or UI on female sexual function.

Results

Only 17% of women were completely positive about their sex life. Both POP and UI had a negative effect on body image. Women with POP had a negative image of their vagina, which caused them to be insecure about their partner's sexual experience, while women with UI were embarrassed about their incontinence and pad use, and feared smelling of urine. Worries about the presence of POP during sexual activity, discomfort from POP, and reduced genital sensations were the most important reasons for decreased desire, arousal, and difficulty reaching an orgasm in women with POP. Fear of incontinence during intercourse affected desire, arousal, and orgasm and could be a cause for dyspareunia in women with UI. Desire was divided into two main elements: "drive" and "motivation." Although "drive," i.e. spontaneous sexual interest, was not commonly affected by POP and/or UI, a decrease in "motivation" or the willingness to engage in sexual activity was the most common sexual dysfunction mentioned.

Conclusions

Body image plays a key role in the sexual functioning of women with POP and/or UI with the biggest impact on women's "motivation."

Introduction

Sexual function is commonly affected in women suffering from pelvic floor dysfunction (PFD), including pelvic organ prolapse (POP) and urinary incontinence (UI). Prevalence estimates have shown that up to 64% of sexually active women attending an urogynecology clinic suffer from sexual dysfunction¹. Despite this, worldwide many health-care professionals who treat women with PFD feel inadequately trained to approach the subject of sexual function: they do not know what/how to ask or are unsure about therapeutic options²⁻⁵. Without health-care professionals understanding patients' concerns, distressing sexual problems could go unnoticed as many women hesitate to present these symptoms to their doctors themselves⁶.

Research on the impact of POP and/or UI on women's sexual function has increased over the last decade. In women suffering from UI, an unsatisfying sex life can be a result of the fear of leakage during intercourse, worries regarding body odor, or embarrassment due to the need for pads⁷. Mechanical obstruction and vaginal laxity may be the reason for reduced sexual satisfaction in women with POP⁸. However, recent work has suggested that the impact of POP goes beyond a local effect and sexual dysfunction may be more related to a decrease in women's self-perceived body image⁹.

Female sexual dysfunction (FSD) as a diagnostic term incorporates four categories: sexual desire, sexual arousal, orgasm, and sexual pain¹⁰. Results on how POP and/or UI affect the different FSD categories are inconsistent. For example, Handa et al.¹¹ showed that POP and/or UI were associated with decreased arousal, infrequent orgasm, and increased dyspareunia. However, Rogers et al.¹² showed that, although the overall score of sexual function, as measured by the Pelvic Organ Prolapse-Urinary Incontinence Sexual Function Questionnaire (PISQ)¹³, was lower in women with POP and/or UI, no differences were noted in arousal and orgasm.

These conflicting results may be a reflection of differences in the population's characteristics, differences in the assessment of POP and/or UI, or differences in the assessment of sexual function. To date, assessment of sexual function has been primarily quantitative using either general or condition-specific sexual function questionnaires. General sexual function questionnaires are not specifically designed to assess changes in sexual health specifically caused by POP and/or UI and may therefore not be sensitive enough to detect a meaningful change in sexual function in women with these disorders¹⁴. Currently, there is only one validated condition-specific sexual function questionnaire for women suffering from POP and/or UI: the PISQ¹³. However, a condition-specific questionnaire is best used for comparison within groups of women suffering from POP and/or UI and is less useful in comparing sexual function between women with and without these conditions¹⁵. Furthermore, the PISQ does not calculate domain scores according to the FSD categories, which makes it difficult to diagnose FSD using it.

A qualitative study can complement the prevailing empirical approach by providing

meaning and context to the quantitative results published so far. Qualitative research is increasingly being accepted as a valuable method of research in the field of urogynecology¹⁶. Qualitative studies have been conducted to gain understanding of the impact of overactive bladder on women's sexual health¹⁷ and to describe perceptions of prolapse-specific body image¹⁸. However, to date, no qualitative studies have been conducted that specifically aimed to understand the impact of POP and/or UI on female sexual function.

Aims

The aim of our study was to gain a more in-depth understanding of the impact of POP and/or UI on the different categories of FSD by way of a qualitative study. These data can be used to increase understanding and awareness among health-care professionals involved in the care of women suffering from POP and/or UI and to improve the evaluation after treatment. Furthermore, this information can be used to suggest changes in current assessment tools in sexual function for women with POP and/or UI.

Methods

Women with POP and/or UI, scheduled to undergo corrective surgery, were recruited in two urogynecology outpatient clinics at a large university hospital (Croydon University Hospital, UK), led by two consultant urogynecologists (R.T./A.H.S.). Inclusion criteria included the following: age above 18 years and a good comprehension of verbal and written English. We selected partnered women who were sexually active, and women with terminal illness or malignancy were excluded. The women were selected when considered to be "good" informants, i.e., articulate, reflective, and likely to share as much information as possible with the interviewer¹⁹. Inclusion was over a period of 17 months, from April 2008 until August 2009. As the analysis described in this article was part of a larger study that aimed to study the impact of pelvic floor surgery on women's sexual function, recruitment of participants finished when the cohort of women had reached maximum variation with regards to types of surgery and combinations of procedures that would be performed. Ethical approval was granted by the Outer South East London Research Ethics Committee (Lewisham Local Research Ethics Committee) (07/Q0701/2), and all participants signed informed consent before entering into the study.

Consented participants underwent semi-structured face-to-face interviews regarding their sexual function in relation to their POP and/or UI symptoms. We made use of face-to-face interviews as sexual function is a sensitive topic and interviews allow for information to be gathered in a detailed, elaborative, and precise way. All interviews were conducted within

the hospital premises in the privacy and comfort of a consulting room. Each interview was conducted by the first author (A.-M.R.), who had been trained in qualitative research methods and interviewing techniques. The interviewer was a female medical doctor working as a research fellow and was introduced as such. She was not involved in the treatment of the women and was not present during their clinic visits. Although not a native speaker, she was fluent in the English language.

At the start of the interview, the interviewer explained the purpose of the study and assured the confidentiality of the collected data to the participant. The interviewer followed an interview guide that was developed prior to the start of the study with the help of a clinical psychologist with an expertise on the evaluation of sexual function. The interview guide included open-ended questions addressing different topic areas based on the available literature on sexual function in women with POP and/or UI and included the four categories of FSD (desire, arousal, orgasm, and pain) and body image. During data collection, questions were refined and ultimately the interview guide became supplemented with additional questions. The complemented interview guide is presented in Table 1. By using follow-up questions such as "You mentioned . . . , please tell me a bit more about it, what you mean by this?", "Can you tell me if it has always been like this or if it has changed recently?", and "Did the prolapse/incontinence have any effect on that?", the experiences of the participants were further elaborated in order to obtain a more in-depth understanding of the impact of POP and/or UI on the women's sexual function.

Each interview was audio-taped and transcribed verbatim. For systematic analysis of the gathered data, we made use of data matrices as described by Huberman and Miles²⁰. After immersion into the raw data of transcripts and field notes, we developed a start list of broad categories for organizing the data into meaningful clusters for analysis. Categories were either introduced into the interviews by the questions in the interview guide or issues raised by the participants themselves. During analysis, we kept the possibility open to add any additional categories. Eventually, the list consisted of 15 categories, including: evaluation of sex life, body image, desire (including drive, avoidance, and masturbation), frequency of sexual activity, arousal (including subjective arousal and genital arousal), orgasm, dyspareunia, partner, coping mechanism, wishes and expectations for surgery, symptoms, and others. All interviews were subsequently coded and the data from the interviews were coupled to the corresponding categories. Meta-matrices were created for each category separately using Microsoft Excel 2010. The columns of these matrices contained subcategories, which were elaborated and complemented during the data analysis. The rows assembled the data from the different participants. In first instance, the cells were filled with literal passages from the interview transcripts. Following this, summary tables were constructed. Using these tables, we were able to search for common patterns and differences in the sexual function of our participants. All interviews were coded by the first author (A.-M.R.). The second author (R.T.) went through 25% of the transcripts and independently coded the data from the interviews according to the list of

categories. There were minor discrepancies, mainly in four out of the 15 categories. These discrepancies were discussed between the two researchers, and consensus on coding was always reached.

Table 1 Refined and complemented interview guide for semi-structured interview

Topic area	Example of question
1. Sexual experience	“Can you tell me a bit about your sex life, how it is right now?”
- Desire	“How about your desire for sex?”
- Arousal	“When you have sex do you get aroused?”
- Orgasm	“How about reaching an orgasm?”
- Dyspareunia	“Do you experience any pain during sexual intercourse?”
- Satisfaction	“Do you find your sexual actions are satisfactory?”
2. Level of intimacy in current sexual relationship	“Does effect the level of intimacy with your partner?”
3. Partner related domain^a	“Are there any other sexual partners right now?” “Is it any different with a different sexual partner?”
4. Solo sex acts	“How about masturbation or pleasuring yourself?”
5. Body image	“Do you feel that the prolapse/incontinence has an effect on the way you feel about your body?” “Do you think the prolapse/incontinence has changed how you feel sexually?”
6. Anything else relevant to the study	“Is there anything else that you think might be helpful for me to know at this stage?”
Additional topic areas	
7. Expectations of upcoming surgery^b	“What are your expectations for this surgery?”
8. Receiving oral sex^c	“Some women comment on oral sex, how is that for you?”
9. Symptoms^d	“Can you tell me about the symptoms that you’re having now?”

^aThe topic got deleted after 12 interviews as women responded surprised and offended, which was thought to affect rapport. Furthermore, the question did not bring any additional information.

^bTopic introduced after second interview

^cTopic introduced after third interview

^dTopic introduced after 30th interview

Main Outcome Measures

The main outcome measure for this study was the impact of POP and/or UI on female sexual function.

Results

Thirty-seven women consented for participation and were subsequently interviewed. Due to a technical error in the recording of the interview, one woman was excluded from the analysis. The median duration of the 36 interviews was 21 minutes (range 8–72). The demographics of the included women are presented in Table 2. All women but one were in a committed relationship; one woman had separated from her long-term partner 2 weeks prior to the interview. Another woman who was married had a long-term sexual relationship outside of her marriage due to sexual difficulties of her spouse. All women but one considered themselves to be sexually active; one woman had been avoiding sexual activity because of her POP symptoms but wished to resume sexual activity following surgery. Seventeen women were planned to have POP surgery (group 1), 8 anti-incontinence surgery (group 2), and 11 both POP and anti-incontinence surgery (group 3). The types of surgery planned in group 1

Table 2 Demographics of 36 included women

		N (%)
Age^a		49 (31 – 64)
Childbirth^a	Parity ^b	2 (0-5)
	Vaginal parity	2 (0-5)
BMI^a		28.4 (19.9 – 36.4)
Ethnicity	Caucasian	34 (94%)
	Other	2 (6%)
Menopause	Premenopausal	15 (42%)
	Postmenopausal	18 (50%)
	Unsure: post hysterectomy	3 (8%)
Using HRT		6 (17%)
Previous surgery		
Types of surgery^c:	Vaginal repair	7 (19%)
	Anti-incontinence surgery	4 (11%)
	Hysterectomy	11 (31%)

^aPresented as median (range)

^bAll women but one had given birth to at least one child

^cMultiple surgeries possible

BMI = body mass index; HRT = hormone replacement therapy

included the following: anterior repair (AR) (N = 1), vaginal hysterectomy with AR (N = 3), vaginal hysterectomy with AR and posterior repair (PR) (N = 1), PR as a sole procedure (N = 5), AR combined with PR (N = 2), AR and enterocele repair (N = 1), sacrocolpopexy (N = 2), stapled transanal resection of the rectum (STARR) (N = 1), and vaginal excision of cervical stump (N = 1). The procedures planned in women from group 2 included the following: tension-free vaginal tape (TVT) (N = 6) and transobturator tape (N = 2). Women from group 3 were planned to undergo the following: vaginal hysterectomy with TVT (N = 1), vaginal hysterectomy with AR and TVT (N = 3), AR with TVT (N = 2), PR with TVT (N = 2), STARR with TVT (N = 2), and colposuspension with sacrohysteropexy (N = 1).

Evaluation of Sex Life

Only six (17%) women evaluated their sex life positively and did not find their POP and/or UI had impacted on it. Fourteen (39%) women were negative, and 16 (44%) women described an overall good sex life but were negative about certain aspects of it. The distribution per surgical group is shown in Figure 1. Of the six women who were positive, three (two from group 2 and one from group 3) explained that their UI did not have an impact on their sex life, as they never experienced incontinence during intercourse or had implemented successful mechanisms to prevent it. The other three women (two from group 1 and one from group 3) explained that despite being aware of the presence of POP, it did not affect their sexual frequency, behavior, or enjoyment. The (partly) negative evaluation by the other 30 women was a consequence of changes in sexual function and/or frequency as a result of POP and/or UI and/or “other factors”, including relationship problems and male sexual dysfunction. The dominant themes that emerged from the analysis are outlined below. A summary of the impact of POP and UI on sexual function is presented in Table 3 and the distribution of sexual dysfunction per surgical group in Table 4. The “other factors” were addressed separately.

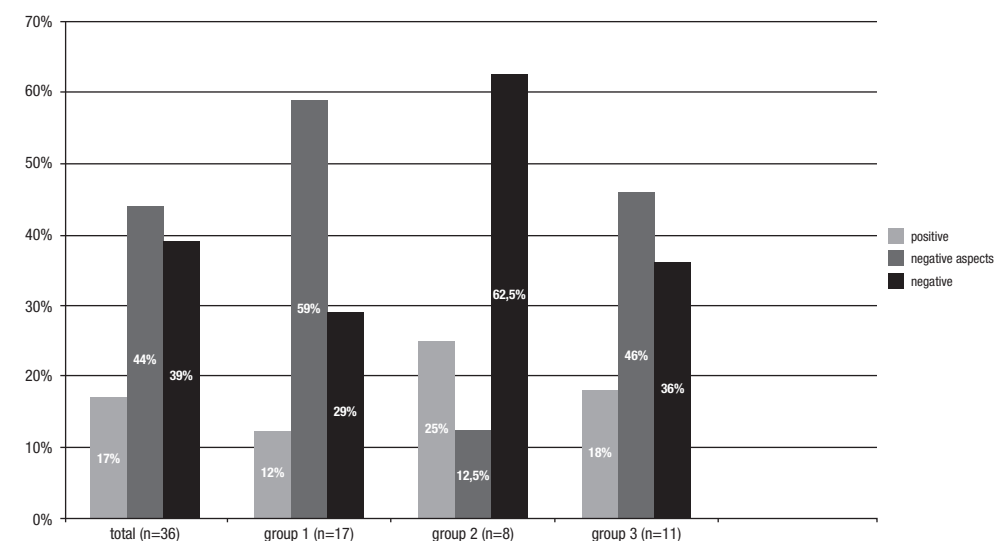
Body Image

Body image, which refers to an individual’s perceptions and attitudes toward his/her own body, was affected by POP and/or UI in the vast majority of women. Women suffering from POP generally had a negative image of their vagina, describing it as “not normal”, “ugly”, “not what it should be”, “dirty”, “big”, “loose”, or “a car park for obstructive defecation”.

“You feel almost a bit sort of medically: ‘Oh, what’s that and why is that there?’ And often I feel I want to push everything back in.” (participant 9)

The presence of POP was associated with negative emotions such as embarrassment, depressive feelings, and lower self-confidence, as women could not understand what they did wrong to get POP. Furthermore, POP could lead to a general loss of attractiveness by feeling old, not sexy, and less feminine. The majority of women with POP were less confident about their

Figure 1 Evaluation of sex life per surgical group



Positive: women with a positive evaluation of their sex life who did not find their pelvic organ prolapse and/or urinary incontinence had impacted on it.

Negative aspects: women who described an overall good sex life but were negative about certain aspects of it.

Negative: women with a negative evaluation of their sex life.

partner’s sexual experience, despite most partners being reassuring or not complaining. Sex was thought to be less satisfactory for their male partner because he might feel or see the prolapse during sexual activity or because of lack of tightness. Some women were worried about their partner feeling the prolapse during penetration, while others were more worried regarding oral sex or manual stimulation.

“I think I’m also very conscious, I think, for my husband how does it feel like. So I’m very conscious thinking well it can’t be pleasurable, if that makes sense, because it feels like I, you know, in terms of sensation, that I’m very loose (. . .)” (participant 9)

“(. . .) if he’s going to have oral sex and that, I wouldn’t let him. (. . .) because I think I can’t imagine anything worse than actually looking at a lady with a huge like bulge there out.” (participant 19)

Incontinence (anal/urinary) affected body image as women felt embarrassed about (coital) incontinence and the need to wear incontinence pads. Women felt that they should be able to control this basic bodily function at their age as incontinence was something that was believed to happen in either young children or “old women.” To the majority of women, the

length of the relationship and reassurance from the partner were irrelevant in this respect, although knowing someone with the same problem did reduce embarrassment. Furthermore, many women felt unclean and worried regarding giving off a urine smell.

Table 3 Summary of impact of pelvic floor dysfunction on body image and sexual function

	Incontinence	Pelvic organ prolapse (POP)
Body image	<ul style="list-style-type: none"> Embarrassed about incontinence and pad use (n=11) Feeling dirty and fear of smelling of urine (n=10) Feeling unattractive, not sexy, old (n=9) Loss of confidence, feeling depressed (n=6) 	<ul style="list-style-type: none"> Negative image of vagina (n=19) Insecure about partner's sexual satisfaction (n=23) Loss of general attractiveness: feeling old, not sexy and less feminine (n=10) Loss of confidence, embarrassment and feeling depressed (n=7)
"Drive"	<ul style="list-style-type: none"> Occurrence of coital incontinence (n=1) Too busy controlling bladder/bowel function (n=1) 	<ul style="list-style-type: none"> Sex unsatisfactory (n=2) Feeling depressed due to pelvic floor dysfunction (n=1)
"Motivation"	<ul style="list-style-type: none"> Presence / fear of coital incontinence (n=7) Fear of smelling of urine and feeling dirty (n=3) Lack of spontaneity because of need to void or wash prior to sexual activity (n=3) 	<ul style="list-style-type: none"> Body image issues (n=16) (Fear of) pain/discomfort (n=8) Difficulties with penetration (n=2) Fear to damage POP (n=2) Reduced sensations (n=1) Tired of dealing with the symptoms (n=2)
Arousal	<ul style="list-style-type: none"> Difficult to relax due to fear of incontinence (n=4) Hurry through sex due to fear of incontinence (n=1) Interruptions: need to urinate during intercourse, occurrence of coital incontinence (n=1) 	<ul style="list-style-type: none"> Mentally distracted because of POP (n=6) Fear of, or presence of pain because of POP (n=2)
Orgasm	<ul style="list-style-type: none"> Difficult to relax and let go out of fear of incontinence (n=5) Do not allow climax to avoid urinary leakage (n=2) 	<ul style="list-style-type: none"> Reduced genital sensations (n=3) Mentally distracted: worried about the presence of POP (n=5) Do not allow climax (n=1)
Dyspareunia	<ul style="list-style-type: none"> Tense due to fear of incontinence (n=2) 	<ul style="list-style-type: none"> Discomfort or obstruction from POP (n=11) Urogenital/abdominal pain after intercourse (n=3)

"Because there is a sense of, you know, real embarrassment that this isn't something that should be happening, that you should be able to control yourself, and you just can't." (participant 11)

Because of the presence of (coital) incontinence, the need to wear incontinence pads, and the perceived presence of a urine smell, women felt unattractive, not sexy, and old. Eventually, incontinence could cause women to dislike their own body and feel less confident and depressed. Some women expressed disappointment about being incontinent. They wondered: "why me?" and "what did I do?", comparing their age and parity to women who should be incontinent in their eyes.

Sexual Desire

Responses on sexual desire could be divided into two main elements. These included the following: "drive", i.e. spontaneous sexual interest, and "motivation", or the willingness to engage in sexual activity. We found that these two elements of sexual desire were affected differently by the presence of POP and/or UI. Nearly half of women described diminished "drive", however only few attributed this to their POP and/or UI symptoms. More often, POP and/or UI would affect "motivation". Of the 27 (75%) women whose "motivation" was absent or diminished, 24 (67%) would mention POP and/or UI as the cause for this. Women would try to avoid all sexual activity or penetrative sex only, hurry through sex, or stop initiating sexual activity.

POP affected women's motivation for a couple of reasons. The most frequently mentioned reasons were body image issues such as being aware of the vagina being "not normal", a general loss of attractiveness, and insecurity about their partner's sexual experience. Furthermore, women avoided sexual activity because of (fear of) pain/ discomfort during sex, following sex or in

Table 4 Frequency of negative changes in body image and sexual function occurring as a result of pelvic floor dysfunction, per surgical group, in N (%)

	Total N= 36	Group 1 N=17	Group 2 N= 8	Group 3 N= 11
Body image	33 (92%)	15 (88%)	7 (87.5%)	11 (100%)
Sexual desire				
- <i>drive</i>	5 (14%)	2 (12%)	1 (12.5%)	2 (18%)
- <i>motivation</i>	24 (67%)	10 (59%)	6 (75%)	8 (73%)
Arousal	10 (28%)	6 (35%)	2 (25%)	2 (18%)
Orgasm	12 (33%)	5 (29%)	4 (50%)	3 (27%)
Dyspareunia	13 (36%)	8 (47%)	2 (25%)	3 (27%)

Group 1: women planned for POP surgery; group 2: women planned for anti-incontinence surgery; and group 3: women planned for both POP and anti-incontinence surgery
POP = pelvic organ prolapse

general from POP, feeling awkward about difficulties with penetration as a result of obstruction, fear to damage the prolapse, reduced sensations that made sex unsatisfactory, and being tired of dealing with the symptoms.

“Compared to a lot of other people we hardly ever do it. And it is (. . .) the main thing is the lump; it’s uncomfortable and I just, I’m very conscious of it, and I know [partner] can feel it so, you know.” (participant 24)

“And also I feel that [penetrative sex] might hurt. You know, it might sort of uhm do damage. Uhm, so I just sort of try to avoid it.” (participant 8)

Incontinence affected “motivation” because of the presence or fear of coital incontinence, fear of smelling of urine and feeling dirty, a lack of spontaneity, and the need to void or wash prior to sexual activity.

“[Desire to have sex] is still there and that hasn’t gone. (. . .) But the reality is that if you do have intercourse you will leak and so you avoid it.” (participant 11)

“Uhm, I suppose I’m paranoid, because I leak. I wonder if I smell. I’m scared that it might happen during intercourse. So therefore if I can avoid it, I do.” (participant 29)

Sexual Arousal

Sixteen (44%) women described difficulty getting aroused, and for 10 (28%) women this was because of their POP and/or UI. For women with POP, getting aroused was difficult as they were mentally distracted during intercourse: they worried about their vagina being “not normal” and their partner’s sexual experience because of this, or felt awkward because of obstruction from POP during penetration. Furthermore, arousal was affected by (fear of) pain because of POP.

“Whereas now it’s very mechanical and I’m more worried what’s down there. (. . .) I convinced myself that I enjoy it, but it takes a long time and usually it’s sort of done before I get to really enjoy it.” (participant 37)

For women with incontinence, the fear of coital incontinence made it difficult to relax or caused them to hurry through sex, which affected arousal. One woman who had no difficulty getting aroused described her arousal would diminish when intercourse would be interrupted by the need to urinate or the occurrence of incontinence during intercourse.

“No, because you can’t, you can’t give yourself to the moment if you’re thinking: ‘Am I still wet?’, or ‘Am I going to leak?’, or ‘Is he going to feel that I leak?’, ‘How is that going to feel for him?’ ” (participant 11)

Orgasm

Seventeen (47%) women described changes related to reaching an orgasm and for 12 (33%) of them this was because of their POP and/or UI. For women with POP, reduced genital sensations and being worried about the presence of POP could lead to difficulties reaching an orgasm or the orgasm being less intense. Women with incontinence described difficulty or inability to climax because they could not relax and let themselves go out of fear for coital incontinence.

“I think it takes you longer now, for me anyway, because that is when I’m scared, that I’m just going to let go and that [incontinence] could happen. So you find you’re trying to fight [reaching an orgasm].” (participant 29)

Furthermore, three women had no difficulty reaching an orgasm but did not allow themselves to climax because orgasm would increase the size of their POP, or to avoid urinary leakage at the time of orgasm.

“I mean sometimes I won’t orgasm, because I’m worried that I might, that [incontinence] might happen during that.” (participant 38)

Dyspareunia

Eighteen (50%) women were suffering from dyspareunia, and for 13 (36%) this was related to their POP and/or UI. Dyspareunia was mostly caused by POP and very rarely seen as a result of UI. Women with POP mentioned discomfort during sex that was dependent on sexual position and bladder/bowel fullness, discomfort because of obstruction from POP primarily at the start of penetration, and/or urogenital or lower abdominal pain following penetrative sex.

“It’s where the lump is. I get like an ache, like, like a dragging . . . (. . .) It just feels like a dragging, horrible pain. (. . .) It’s different positions. Uhm laying down I can still feel it, but not as bad, to be honest. Uhm but when we are sort of like in another position it is just there. (. . .) Also when you orgasm everything seems to move down there and I know I’m going to get a tummy pain.” (participant 24)

Fear of coital incontinence and being tense because of this could cause dyspareunia in women with UI.

“It’s just there and you just can’t put it out of your brain, you know. You think: ‘oh, is [urinary leakage] going to happen before I reach orgasm, or . . .?’ (. . .) so that’s why it probably hurts a bit, because I’m tense.” (participant 25)

There were different ways women coped with dyspareunia while having sexual intercourse, including “grin and bear”, avoiding certain sexual positions, and guide penetration or trying to reduce POP in case of obstruction.

Coital Incontinence

Of the 10 women who feared urinary/anal incontinence during intercourse, only one of them had never experienced coital incontinence. Nine women tried to prevent coital incontinence primarily by emptying the bladder before intercourse. Other coping mechanisms included: avoiding certain positions, hurry through sex, doing more pelvic floor exercises, or avoiding orgasm. These mechanisms were successful for four of them.

Other Factors Impacting on Sexual Functioning

Besides POP and/or UI, other factors impacted on the sexual function and frequency of sexual activity of the included women. This included male sexual dysfunction, relationship problems, long duration of relationship, tired/stress, older age/menopause, low mental state, fear of pain (other causes), other diseases, previous vaginal surgery, time constraints, partner's physical problems, and avoidance of sex by partner because of POP and/or UI. Body image was further affected by weight issues and being negative about appearance.

Discussion

In this study, we have shown how POP and/or UI impact on the different categories of FSD. This qualitative study demonstrates that the changes in body image that occur as a result of POP and/or UI play a central role in the sexual function of women suffering from these conditions. Embarrassment about incontinence causes a fear of incontinence occurring during intercourse. This fear for coital incontinence has the potential to impact on all stages of sexual excitement. Fear of coital incontinence was mostly present in women who had actually experienced this, a finding supported by the previous literature²¹. Jha et al.²¹ showed that anxiety and avoidance of sexual activity because of bladder problems were significantly more frequent in women who were incontinent during intercourse compared with those who were not. Furthermore, our results showed that the reason for women suffering from UI to be positive about their sex life was the absence of coital incontinence and that successful coping mechanisms had the potential to improve the evaluation of women's sex life.

Women with POP have a negative image of their vagina, causing them to feel less attractive and insecure about their partner's sexual experience. This can affect sexual desire, arousal, and orgasm. The impact of POP on body image was initially recognized by Jelovsek and Barber²². Further research showed a correlation between decreased body image and decreased sexual function⁹. Our results show that women themselves perceive body image issues as the most important factor altering their sex life.

The data in this article have been presented around the different categories of FSD¹⁰. An important finding of our study is the distinction women make between "drive" and "motivation". Previously, it has been suggested that desire comprised three discrete but interrelated

components: "drive," "cognitive," and "motivation"²³. "Drive" is the biological component evidenced by spontaneous sexual interest. The second component, "cognitive", reflects a person's expectations, beliefs, and values related to sex. "Motivation" is characterized by the willingness of a person to engage in sexual activity. The distinction between "drive" and "motivation" was specifically present in the responses of our participants. However, this distinction is not commonly addressed in general sexual function questionnaires²⁴⁻²⁶, except for the Golombok Rust Inventory of Sexual Satisfaction²⁷ that measures avoidance of sex. The only validated condition-specific sexual function questionnaire for women suffering from POP and/or UI, the PISQ¹³ and its short form the PISQ-12²⁸, does include questions on avoidance of sexual activity. However, as the PISQ does not calculate domain scores according to the FSD categories, it is difficult to diagnose FSD using it.

When we look at the PISQ specifically, there are some changes that can be made to improve the assessment of sexual function in women with POP and/or UI. We feel that the PISQ could be made more useful for the clinical setting if it would assess the impact of POP and/or UI on the different FSD categories. For example, the question on pain during intercourse should be followed by four subquestions on the impact of pain on sexual drive, motivation, arousal, and orgasm. Furthermore, in addition to questioning women's ability to reach an orgasm, it might be worthwhile to add a question on preventing orgasm, as some women do not allow themselves to climax to prevent coital incontinence or pain associated with POP.

Although this was primarily a qualitative study, some interesting trends were seen in Table 4 and Figure 1. Women from group 2 (anti-incontinence surgery) were more likely to have a negative evaluation of their sex life (62.5%), while women from group 1 (POP surgery) were more likely to have an overall positive evaluation but with negativity about certain aspects (59%). Furthermore, dyspareunia was more common in women from group 1, while orgasm was more affected among women from group 2. However, as the numbers in each surgical group were small, these results need to be interpreted with caution.

We acknowledge that our study has some limitations. Women scheduled to undergo pelvic floor surgery are more likely to have an affected sex life than women who do not opt for surgery. Therefore, the percentages and types of sexual problems might not be representative for all women suffering from POP and/or UI. Furthermore, women who suffer from sexual dysfunction might have been more keen to enter into the study as it would give them the opportunity to discuss their concerns. However, as we selected participants planned for various types of pelvic floor surgeries, our sample of women is a good representation of the population of women scheduled to undergo pelvic floor surgery. As saturation was reached with respect to the information that was gained from the interviews, with 36 participants, we feel that we have an adequate sample to elaborate on the common themes and give a meaningful explanation of the impact of POP and/or UI on sexual function. However, we were unable to give a more detailed explanation of the specific sexual problems occurring in certain groups of women, such as women who have had previous pelvic floor surgery. We therefore recommend

future qualitative research to be undertaken in women with POP and/or UI who have decided not to undergo corrective surgery as well as in women who have had previous pelvic floor surgery.

A second limitation is the lack of a control group. However, our aim was to gain understanding of the impact of POP and/or UI on sexual function and not to compare the prevalence of sexual problems between women with and without POP and/or UI. Sexual function of our participants was not just affected by POP and/or UI. Other factors including male sexual dysfunction, relationship problems, stress, and menopause were also mentioned as affecting the sex life of our participants. Despite the profound effect of POP and/or UI, the confounding effect of these factors should not be overlooked when assessing female sexual function.

Unfortunately, both sexual (dys)function and POP or UI are taboo issues women do not easily talk about. The interviews were conducted face to face and by a female doctor, which was thought to make it easier for the participants to express their concerns. Importantly, women reported being embarrassed about their POP and/or UI, mainly as a result of the misconception that POP and/or UI occur only in the “elderly.” Women who did find that POP and/or UI were more common among their peers felt less embarrassed after knowing this. We therefore feel that it is important that healthcare professionals explain to women that POP and/or UI are common conditions, as this could reduce women’s embarrassment and improve confidence.

Conclusions

Sexual dysfunction in women suffering from POP and/or UI is strongly related to women’s body image. Most commonly, the willingness to engage in sexual activity is affected, but adverse effects are also seen on arousal, orgasm, and dyspareunia. Given the amount of women expressing concerns, health-care providers should be open in the discussion on sexual health. By bringing up the subject of sexual health, doctors acknowledge the importance of this part of well-being, which would validate women’s sexual concerns and could modify their help-seeking behavior in the future.

References

1. Pauls RN, Segal JL, Andre Silva W, Kleeman SD, Karram MM (2006) Sexual function in patients presenting to a urogynecology practice. *Int Urogynecol J Pelvic Floor Dysfunct* 17:576–580
2. Roos AM, Thakar R, Sultan AH, Scheer I (2009) Female sexual dysfunction: Are urogynecologists ready for it? *Int Urogynecol J Pelvic Floor Dysfunct* 20:89–101
3. Bekker M, Beck J, Putter H et al (2009) The place of female sexual dysfunction in the urological practice: Results of a Dutch survey. *J Sex Med* 6:2979–2987
4. Auwad WA, Hagi SK (2012) Female sexual dysfunction: What Arab gynecologists think and know. *Int Urogynecol J* 23:919–927
5. Pauls RN, Kleeman SD, Segal JL, Silva WA, Goldenhar LM, Karram MM (2005) Practice patterns of physician members of the American Urogynecologic Society regarding female sexual dysfunction: Results of a national survey. *Int Urogynecol J Pelvic Floor Dysfunct* 16:460–467
6. Roos AM, Sultan AH, Thakar R (2012) Sexual problems in the gynecology clinic: Are we making a mountain out of a molehill? *Int Urogynecol J* 23:145–152
7. Sriskrishna S, Robinson D, Cardozo L (2009) Qualifying a quantitative approach to women’s expectations of continence surgery. *Int Urogynecol J Pelvic Floor Dysfunct* 20:859–865
8. Srikrishna S, Robinson D, Cardozo L, Cartwright R (2008) Experiences and expectations of women with urogenital prolapse: A quantitative and qualitative exploration. *BJOG* 115:1362–1368
9. Lowenstein L, Gamble T, Deniseiko Sanses TV et al, for the Fellow’s Pelvic Research Network (2009) Sexual function is related to body image perception in women with pelvic organ prolapse. *J Sex Med* 6:2286–2291
10. Basson R, Wierman ME, van Lankveld J, Brotto L (2010) Summary of the recommendations on sexual dysfunctions in women. *J Sex Med* 7:314–326
11. Handa VL, Cundiff G, Chang HH, Helzlsouer KJ (2008) Female sexual function and pelvic floor disorders. *Obstet Gynecol* 111:1045–1052
12. Rogers RG, Villarreal A, Kammerer-Doak D, Qualls C (2001) Sexual function in women with and without urinary incontinence and/or pelvic organ prolapse. *Int Urogynecol J Pelvic Floor Dysfunct* 12:361–365
13. Rogers RG, Kammerer-Doak D, Villarreal A, Coates K, Qualls C (2001) A new instrument to measure sexual function in women with urinary incontinence or pelvic organ prolapse. *Am J Obstet Gynecol* 184:552–558
14. Omotosho TB, Rogers RG (2009) Shortcomings/strengths of specific sexual function questionnaires currently used in urogynaecology: A literature review. *Int Urogynecol J Pelvic Floor Dysfunct* 20:S51–S56
15. Espuña Pons M (2009) Sexual health in women with pelvic floor disorders: Measuring the sexual activity and function with questionnaires—A summary. *Int Urogynecol J Pelvic Floor Dysfunct* 20:S65–71
16. Doshani A, Pitchforth E, Mayne C, Tincello DG (2009) The value of qualitative research in urogynaecology. *BJOG* 116: 3–6
17. Coyne KS, Margolis MK, Jumadilova Z, Bavendam T, Mueller E, Rogers R (2007) Overactive bladder and women’s sexual health: What is the impact? *J Sex Med* 4:656–666
18. Lowder JL, Ghetti C, Nikolajski C, Oliphant SS, Zyczynski HM (2011) Body image perceptions in women with pelvic organ prolapse: A qualitative study. *Am J Obstet Gynecol* 204: 441.e1–441.e5
19. Morse JM (1991) Strategies for sampling. In: Morse JM, ed. *Qualitative nursing research: A contemporary dialogue*. Thousand Oaks, CA: SAGE Publications: pp127–145
20. Huberman AM, Miles MB (1998) Data management and analysis methods. In: Denzin NK, Lincoln YS, eds. *Collecting and interpreting qualitative materials*. Thousand Oaks, CA: SAGE Publications: pp 179–210
21. Jha S, Radley S, Frakas A, Jones G (2009) The impact of TVT on sexual function. *Int Urogynecol J Pelvic Floor Dysfunct* 20:165–169
22. Jelovsek JE, Barber MD (2006) Women seeking treatment for advanced pelvic organ prolapse have decreased body image and quality of life. *Am J Obstet Gynecol* 194:1455–1461
23. Kingsberg S, Althof SE (2009) Evaluation and treatment of female sexual disorders. *Int Urogynecol J Pelvic Floor Dysfunct* 20:S33–43

24. Creti L, Fichten CS, Brender W (1998) Functioning. In: Davis CM, Yaber WH, Bauserman R, Schreer G, Davis SL, eds. *Handbook of sexuality-related measures*. Thousand Oaks, CA: SAGE Publications: pp 261–267
25. Dennerstein L, Lehert P, Dudley E (2001) Short scale to measure female sexuality: Adapted from McCoy Female Sexuality Questionnaire. *J Sex Marital Ther* 27:339–351
26. Rosen R, Brown C, Heiman J et al (2000) The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther* 26:191–208
27. Rust J, Golombok S (1986) The GRISS: A psychometric instrument for the assessment of sexual dysfunction. *Arch Sex Behav* 15:157–165
28. Rogers RG, Coates KW, Kammerer-Doak D, Khalsa S, Qualls C (2003) A short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12). *Int Urogynecol J Pelvic Floor Dysfunct* 14:164–168

The impact of pelvic floor surgery on female sexual function: A mixed quantitative and qualitative study



Anne-Marie Roos, Raneer Thakar, Abdul H. Sultan, Jan Willem de Leeuw, Aggie TG Paulus
BJOG 2014;121:92-101

Abstract

Objective

To assess whether the current condition-specific sexual function questionnaire provides full insight into sexual function following pelvic floor surgery.

Design

Prospective, mixed quantitative and qualitative study.

Setting

Urogynaecology clinic in a large university hospital.

Population

Thirty-seven women undergoing surgery for pelvic organ prolapse (POP) and/or stress urinary incontinence (SUI).

Methods

Women were seen before surgery and 3 months postoperatively. At both visits the Pelvic Organ Prolapse / Urinary Incontinence Sexual Function Questionnaire (PISQ) was completed and a qualitative face-to-face semi-structured interview was conducted. PISQ total and domain scores, as well as the change in the preoperative and postoperative score, were calculated and analysed using Wilcoxon signed rank test and one-sample *t*-test. The qualitative data were systematically analysed using data-matrices.

Main outcome measures

The impact of pelvic floor surgery on female sexual function.

Results

Significant improvement was seen for PISQ total score ($P=0.003$) as well as Physical ($P<0.001$) and Partner-related ($P=0.002$) domains, but not for the Behavioural/Emotive domain ($P=0.220$). Analysis of qualitative data showed that improvement in sexual function was a result of cure of POP and SUI symptoms. Deterioration of sexual function was due to dyspareunia, fear of causing damage to the surgical result, new symptoms and a disappointing result of surgery.

Conclusions

Our qualitative data show that PISQ is limited in the assessment of sexual function after pelvic floor surgery as it does not assess most surgery-specific negative effects on sexual function.

Introduction

Pelvic organ prolapse (POP) and stress urinary incontinence (SUI) form a major health burden to women. In the USA 11.8% of women undergo at least one surgery for these conditions by the age of 80 years¹. Women with POP and SUI are at a higher risk of sexual dysfunction^{2,3}. However, studies following POP and anti-incontinence surgery show conflicting results regarding the impact on sexual function, ranging from overall improvement⁴⁻⁶, via no change^{7,8} to even deterioration⁹. These variable results may be a reflection of differences in population characteristics, differences in treatment or differences in the measurement of outcome.

In urogynaecology female sexual function has been evaluated using various questionnaires. Questionnaires measure “subjective” information in an “objective” fashion and as such they provide a reproducible method for evaluating female sexual function. Early studies mostly used nonvalidated sexual function questionnaires. Recently, validated sexual function questionnaires have been developed, subdivided into general or condition-specific types. Condition-specific sexual function questionnaires are designed to assess changes in sexual health specifically caused by POP and SUI. Currently, the Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire (PISQ)¹⁰ (including its short-form PISQ-12¹¹) is the only validated condition-specific female sexual function questionnaire available. Other validated condition-specific questionnaires that have been used to assess sexual function following pelvic floor surgery, including The King’s Health Questionnaire¹² and International Consultation on Incontinence Questionnaire – Vaginal Symptoms (ICIQ-VS)¹³, are quality of life questionnaires or symptom severity questionnaires. Although these questionnaires include a few questions addressing sexual function, they really deal with the overall impact of POP or SUI on the patient’s quality of life or measure the presence and severity of symptoms.

The PISQ¹⁰ is optimised to discriminate between women with and without sexual dysfunction, within the group of women with POP and SUI. However, such a questionnaire may not be optimal to detect sexual dysfunction following treatment. This is particularly the case if only selective aspects of sexual function improve, or new aspects due to the treatment become relevant. Our study’s objective was to establish whether PISQ¹⁰ provides full insight in, and covers all relevant aspects of, sexual function following pelvic floor surgery. For this, a mixed quantitative and qualitative study was performed. In comparison to a quantitative study, a qualitative study is able to provide the woman’s view as well as the context of problems, which are necessary to understand the surgery-specific impact on sexual function.

Methods

Women were recruited from two urogynaecology outpatient clinics, led by two consultant urogynaecologists (RT/AHS), in a large university hospital (Croydon University Hospital,

Croydon, UK). Study inclusion criteria included the following: (1) having consented to undergo corrective surgery for POP or SUI; (2) being over 18 years of age; (3) having good comprehension of verbal and written English; (4) having a partner and (5) being sexually active. Exclusion criteria included: malignancy or terminal illness.

Women were selected by the consultant urogynaecologist running the clinic, who tried to select those women who were considered to be “good” informants, i.e. articulate, reflective and likely to share as much information with the interviewer as possible¹⁴. The idea behind qualitative research is to purposefully select participants that will best help the researcher understand the problem and the research question. This does not necessarily suggest random sampling of participants as is typically found in quantitative research¹⁵. The selection of participants was unrelated to whether the woman expressed any concerns regarding her sexual function before surgery.

The indication for having surgery would be the presence of subjective complaints, including feeling of bulge, obstructive defecation or urinary incontinence, explained by an objective indication of disease, such as descent of one or more vaginal compartments (POP) or SUI. Surgery would be indicated when conservative treatment, including pelvic floor exercises and vaginal pessary, was unsuccessful or not wanted (in case of vaginal pessary).

Recruitment occurred over a period of 17 months, from April 2008 to August 2009, until the cohort of women had reached maximum variation with regards to types of surgery and combinations of procedures performed. Over this time period, 220 women were operated on and 37 women were included (17%).

Outcome measures

All participating women were seen before and 3 months after surgery. For quantitative assessment women were asked to complete the PISQ¹⁰. The PISQ is a condition-specific questionnaire validated to evaluate sexual function in sexually active women with POP or SUI. The questionnaire consists of 31 questions that are divided into 3 domains including: ‘Behavioural/Emotive’ (15 questions), ‘Physical’ (ten questions), and ‘Partner-related’ (six questions). The Behavioural/Emotive domain covers sexual desire, frequency of sexual activity, arousal and orgasmic capabilities, whereas the Physical domain assesses more directly the effect of POP and SUI on sexual function. The Partner-related domain assesses the woman’s perception of her partner’s response to the effect of POP and SUI on their sexual functioning, as well as her partner’s own sexual functioning. Questions are scored on a Likert-type scale from 0 (always) to 4 (never). Summary scores, for the entire questionnaire as well as for the different domains, are obtained by unweighted summation of the score for each question. The PISQ total score ranges from 0 to 125 with higher scores reflecting better sexual functioning.

Qualitative assessment consisted of a semi-structured face-to-face interview. All face-to-face interviews were conducted by the first author (AMR), who had been trained in qualitative research methods and interviewing techniques. The interviewer was a female medical

doctor working as a research fellow and was introduced as such. The interviewer was not involved in the treatment of the women and was not present during their clinic visits. Although not a native speaker, she was fluent in the English language. Participants were interviewed within the hospital premises in the privacy of a consulting room without the presence of their partner. At the start of the interview, the interviewer explained the purpose of the study and assured the confidentiality of the collected data to the participant. An interview guide was developed before the start of the study with the help of a clinical psychologist with an expertise on the evaluation of sexual function. The interview guide included open-ended questions addressing different topic areas from which both the interviewer or the interviewee could diverge to pursue an idea in more detail. The template of questions used after surgery is shown in Table 1. The wordings used were not standardised to reflect the women’s own vocabulary while framing the questions. The interview process was audio-taped and each interview was transcribed verbatim.

Table 1 Template for semi-structured interview

Aim of question	Example of question
To introduce the topic and to ascertain the baseline health after surgery.	“As you know we are interested in knowing how conditions like leaking of urine and or sagging of womb, bladder and bowel affects sexual life and also how surgical treatment for these conditions affects sexual life. Could you therefore please tell me as to how you are presently?”
To find out participant’s sexual function after surgery and reasons, if any, for inactivity.	“Could you please tell me if you have resumed sexual activity at present and how your present sexual experience is?” “In case you haven’t resumed sexual activity could you tell me why you are not comfortable with sexual activity as of now?”
To explore the domains of sexual function after surgery further as well as the severity of any problems.	“You mentioned this.....please tell me a bit more about what you mean by this?”
To explore body image and the impact, if any, of the pelvic floor.	“How do you feel presently physically and sexually? Is it any different than before?”
To explore the impact of surgery on sexual function further.	“Could you please describe how it feels the same or how it feels different than before?”
To ascertain the level of intimacy, comfort and satisfaction in sexual relations.	“Could you please describe how it is, to have sex with your partner at present?”
To explore the impact of surgery on sexual relations, as well as any change in partner’s sexual needs and function.	“Could you please tell me if you feel your sexual relations with your partner are the same or not quite the same as before and why you think they feel the same or not the same as before?”
To find anything else relevant to the study once the participant is at ease.	“Is there anything else that you think might be helpful for me to know at this stage?”

Data analysis

Quantitative data analysis was done using the statistical SPSS program (SPSS version 16, SPSS Inc, Chicago, IL, USA). First, descriptive analyses of baseline characteristics were compared between women who did and did not return for follow-up using chi-square or Fisher's exact test for proportions and Student's *t*-test or Mann-Whitney *U* test for continuous variables. Total PISQ and domain scores were calculated and preoperative and postoperative values were compared using Wilcoxon signed rank test. The change in total PISQ and domain scores (delta score) was calculated for each participant by subtracting the preoperative score from the postoperative score. This delta score was normally distributed and a one sample *t* test was used to analyse whether the delta scores were significantly different from 0. A *P*-value of < 0.05 was considered significant.

For analysis of the qualitative data we made use of data matrices¹⁶. First, a list of 12 broad categories was developed to cluster the data. Categories were either introduced into the interviews by the questions in the interview guide or as issues raised by the participants themselves. The 12 categories were: 'resuming sexual activity', 'evaluation of sex life after surgery', 'desire', subdivided into 'drive' (spontaneous sexual interest) and 'motivation' (willingness to engage in sexual activity), 'arousal', 'orgasm', 'dyspareunia', 'symptoms', 'body image', 'overall feelings regarding surgery', 'partner domain', 'relationship' and 'others'. All interviews were subsequently coded and the data from the interviews were coupled to the corresponding categories. In the next step, subcategories were created within each category and each 'verbal unit' of the interview was assigned to a subcategory. Structured as spreadsheet data, the columns were respondents, the rows the detailed subcategories, which were only filled if such response had been given. All interviews were coded by the first author (AMR). A second researcher (AP) went through 25% of the transcripts independently to check for agreement in coding categories. Any discrepancies in coding were discussed between the two researchers and consensus on coding was always reached. There were two main reasons for discrepancy between the researchers. The first cause for discrepancy was a result of overlap between the 'symptoms' and 'resuming sexual activity' categories. Physical complaints were often a cause for delay in resuming sexual activity in which case it was coded both as 'symptoms' and 'resuming sexual activity'. The second cause was the unclear definition of the 'dyspareunia' category. After discussion it was agreed that duration, evaluation and cure of dyspareunia would be coded in the 'dyspareunia' category.

Results

Thirty-seven women were included and 30 (81%) came for follow up after surgery. The interquartile ranges of follow up were: 12-13, 14-15, 16-19 and 20-54 weeks after surgery. One woman had cancelled her surgery because of personal circumstances and the other six were

lost to follow up. The participants demographic data as well as that of the seven women not attending follow up are included in Table 2.

The types of POP surgery performed included: vaginal hysterectomy, anterior repair, posterior repair, sacrocolpopexy, stapled transanal resection of the rectum and vaginal excision of cervical stump either as sole or combined procedures. The types of anti-incontinence surgery performed included: tension-free vaginal tape and transobturator tape. Additionally one woman had a salpingo-oophorectomy, one a laparoscopic aspiration of ovarian cyst and one underwent adhesiolysis.

Table 2 Demographics of women who did and did not return for follow up

	Included women (n= 30)	Women not attending follow up (n= 7)	<i>P</i> -value
Age ^a	49 (36 – 64)	47 (32 – 63)	0.830
Body mass index ^a	28 (20 – 36)	29 (24 – 36)	0.260
Ethnicity			
Caucasian	28 (93%)	7 (100%)	1.000
Other	2 (7%)	0	
Parity ^a	2 (0 – 5)	2 (1 – 3)	0.671
Vaginal parity ^a	2 (0 – 5)	2 (1 – 3)	0.791
Menopausal			
Postmenopausal	14 (47%)	4 (57%)	0.651
Premenopausal	13 (43%)	3 (43%)	
Unsure, post-hysterectomy	3 (10%)	0	
Hormone replacement therapy	6 (20%)	0	0.569
Hypertension	9 (30%)	2 (29%)	1.000
Diabetes	0	1 (14%)	0.184
Previous hysterectomy	11 (37%)	0	0.084
Previous incontinence surgery	6 (20%)	0	0.569
Previous prolapse repair	7 (23%)	0	0.309
Surgery performed			
POP surgery	16 (53%)	2 (29%)	0.644
UI surgery	6 (20%)	1 (14%)	
POP and UI surgery	8 (27%)	3 (43%)	
Surgery cancelled	0	1 (14%)	

^a Represented as median (range).

Quantitative results

Of the 30 included women, four had not resumed sexual intercourse at follow up. For the 26 women who were sexually active both before surgery and at follow up, total PISQ scores had significantly improved after surgery (Table 3). When analysed by domain, improvement was seen in the Physical domain, which measures the direct effect of POP and SUI on sexual

function, as well as in the Partner-related domain, which includes the woman's perception of her partner's response to the effect of POP and SUI on their sexual functioning. There was no change seen in the Behavioural/Emotive domain which evaluates sexual desire, frequency of sexual activity, arousal and orgasmic capabilities (Table 3).

Table 3 PISQ results for 26 sexually active women

	Group analysis			Individual analysis	
	Preoperative ^a	Postoperative ^a	P-value ^b	Delta score ^c	P-value ^d
PISQ total	85 (49-105)	98.5 (56-112)	0.003	9.77 (14.66)	0.002
Domain score					
Behavioural/Emotive	39 (15-46)	42.5 (16-52)	0.220	1.77 (9.24)	0.338
Physical	29 (14-40)	36.5 (23-40)	<0.001	6.35 (6.42)	<0.001
Partner-related	18 (12-22)	20 (14-24)	0.002	1.65 (2.24)	0.001

^a Represented as median (range).

^b Using Wilcoxon signed-rank test.

^c Delta score: change in score per participant, represented as mean (standard deviation).

^d Using one-sample t-test, test value = 0.

Qualitative results

Of the 30 included women the median duration of the interviews before surgery was 21 minutes (range 8 – 72 minutes) and after surgery 24 minutes (range 10 – 43.5 minutes). One woman's interview before surgery was missing because of a technical recording error. The qualitative results are described around the two main categories: “resuming sexual activity” and “evaluation of sex life after surgery”.

Resuming sexual activity

At the time of interview four women had not resumed sexual intercourse. Three of these four women had not resumed sexual intercourse out of fear to undo the effect of surgery, and one woman had separated from her partner. All three women who had not resumed sexual activity out of fear of doing damage, had had previous surgery for the same complaint for which they were currently operated on, i.e. POP or SUI. Women were afraid the transobturator tape sling could be damaged ‘when you've got your legs open’ (n=1), or the mesh used for sacrocolpopexy (n=2) could dislodge during penetrative sex. Additional factors relating to the failure to resume sexual activity in these three women were: partner's physical difficulties and partner's fear of causing pain.

“I suppose it's just this fear that because the mesh is in there and full penetration might sort of... I'm sure it won't do any harm or dislodge anything but I've just got that fear of... that something might happen and I might sort of be back to square one again.” (participant 19)

Of the 26 women who had resumed sexual activity at the time of follow up, nine (34%) had started sexual intercourse around 6 weeks after surgery, and 15 (58%) were sexually active by 10 weeks after surgery. For two women (8%) the resumption of sexual activity was delayed to 3 to 4 months after surgery. The reason why sexual activity had been delayed by 3-4 months was that women wanted to make sure everything was healed completely so as to avoid dyspareunia and doing damage.

Eleven of the 26 women who had resumed sexual activity had had sex only once or twice at the time of their follow up visit. Two of these eleven women had delayed resuming sexual activity by 3-4 months and therefore had not had sex regularly yet. The other women mentioned one or more reasons for this low frequency, either related or unrelated to the surgery. Reasons related to the surgery included: dyspareunia, not being well after surgery, new symptoms such as faecal urgency, used to not having sex (because of avoiding sex when incontinent), and partner afraid of causing pain. Reasons unrelated to the surgery included: no time together, tired, and partner's physical restrictions.

Evaluation of sex life

Twenty women (67%) expressed overall improvement of their sex lives, although 15 of these 20 women also mentioned some factors affecting their sex life negatively. Two women (7%) were negative about their sex lives. Four women (13%) were positive as their sex lives were unchanged and another four women (13%) were not able to comment on their sex lives, because they were not sexually active yet. Both the reasons for improvement, as well as the negative factors, are described in more detail below.

Positive effects on sexual function

Cure of prolapse symptoms

A positive effect on the evaluation of women's sexual lives was seen from the cure of prolapse symptoms for four main reasons. The first reason was an improvement in body image. Following surgery, women described their vagina as “normal” again, which made them feel more confident and more attractive. This improved the evaluation of their sex life, because they no longer had to worry about the presence of POP during sexual activity. Furthermore, worries about their partner's sexual experience, because he might feel or see the prolapse or because of lack of tightness, were resolved.

“It was just awkward before, because there was like this lump there and it was, it was, it wasn't very nice, it was awkward with that like, it's like a growth there. You know, now I haven't got that, it's much better, much, much better.” (participant 1)

“It’s just a relief really that it’s not there. I can’t say that it, it’s just that is all really; it’s just, it’s gone. And uh... It was funny because it felt as if it was, you know, an intrusion and because it has gone everything is a lot more relaxed.” (participant 8)

The second reason was an improvement in genital sensations following POP surgery: women felt more sensitive and tighter.

“Oh yeah, because obviously you can’t feel a lot you know, when everything’s collapsed inside. You can’t, can you, really, because you know, there’s loss of sensation, simply because everything’s you know, well, floppy really, you know. I mean, you know, it obviously does make a difference.” (participant 17)

The last two reasons were related either to relief of discomfort from POP during sexual activity or relief of fear of doing damage to POP during sexual activity.

“It’s a lot better, because obviously I had that, whatever it was, hanging down. That was quite painful, that was quite uncomfortable. Of course now I haven’t got that and it’s a lot better.” (participant 1)

“And, I just felt that if there was going to be any penetration then it would... And I didn’t know looking back, I didn’t know whether penetration could damage it, you know, or whether there would be, make a hole in it or, you know, and what that side effect would be. And I was really worried that it could do damage and then that would cause more damage, and that was in my mind all the time.” (participant 8)

As a result of these four reasons women were less worried about having sex, were more relaxed to let things happen, and were not avoiding sexual activity anymore. A less profound effect was mentioned on arousal and orgasm. Only few women described improvement in their ability to arouse as they did not have to worry about the presence of POP during sexual activity or the possibility of doing damage. For some women orgasm had improved, because of the improvement in genital sensations.

Cure of incontinence

A second positive effect on the evaluation of sex life was as a result of the cure of incontinence, either urinary or anal incontinence. With the cure of coital incontinence women were more confident and more relaxed during sexual activity, because they no longer feared incontinence during intercourse. Furthermore, without the need to empty their bladder or wash before sexual activity (because they had been afraid of smelling of urine or faeces), sex was more spontaneous.

“So maybe let myself go a bit more, and you know not, because you’re not worrying about [incontinence] in the back of your mind, you’re just enjoying it, rather than, you know maybe holding back a bit because of that.” (participant 38)

“I knew I passed urine and I hated that. It made me feel very dirty and very uncomfortable and tense, you know, uh... and so to be able to not do that is great.” (participant 9)

As women did not have to worry about the possibility of coital incontinence their drive, motivation, arousal and orgasm improved. Women were more relaxed and more confident regarding being sexually active and initiating sex and they were more confident during sexual activity. Furthermore, arousal improved as there was no need to void during sexual activity. A further improvement in orgasm occurred, because women did not have to prevent climaxing, which they would have done to prevent coital incontinence.

“Well it makes me feel more confident about orgasm, if that makes sense. That when you kind of, you know, whereas before I was almost like not wanting to orgasm, because, you know, I know that if, when that happens I’m going to pass urine and then that, then that spoils the moment, because you then feel immediately dirty, you know.” (participant 9)

Other positive effects of surgery

Two women described positive effects specifically following hysterectomy: they were no longer afraid of becoming pregnant during sexual activity, there was no need for contraception and no menstrual periods interrupting sexual activity anymore. Furthermore, having a new partner improved one woman’s sexual activity, especially since he complimented her on her vaginal tightness.

Negative effects on sexual function

Dyspareunia

The most common factor negatively influencing the evaluation of sex life after surgery was the presence of dyspareunia. A total of 13 women complained of dyspareunia after surgery. Nine of these women also suffered with dyspareunia before surgery. However, before surgery dyspareunia was caused by the presence of prolapse, whereas after surgery the healing and scar tissue were causing the complaint. In eight of the 13 women postoperative dyspareunia affected their evaluation of their sex life; six women who had had POP surgery as a sole procedure and two who had had POP surgery combined with anti-incontinence surgery. For one woman full penetrative sex was impossible because of dyspareunia. None of the women who had had anti-incontinence surgery as a sole procedure had experienced dyspareunia after surgery.

Due to dyspareunia sex was not enjoyable which affected drive and motivation, resulting in avoidance of sex. Dyspareunia also had an impact on arousal and consequently orgasm, because women were tense because of (fear of) pain, and were more focused on the discomfort than on enjoying sexual stimulation.

Worried about doing damage

For three women their sex life was affected by their worries regarding doing damage to the surgical repair. All three had had POP surgery only. Two of these three women felt their vagina was shorter which also caused dyspareunia.

“It seems that there is an ending, whereas before there didn't seem to be. You seem to hit something. (...) And the feeling that it was going to break, does that make sense? It feels as if it was, it was stretching.” (participant 27)

Because of worrying about doing damage with penetrative sex, drive and motivation could be affected and women found it more difficult to become aroused.

“I just imagine in my head that blood is coming out and you know. You can imagine you're having sex: “Oh my god blood's coming out.” If it comes out what am I going to do? And this and that. It's so many things going through my mind that I don't, I'm not thinking about what I'm doing. That's the reason that I'm not enjoying sex at all.” (participant 32)

New symptoms

Sex life could also be affected by the presence of new physical symptoms, including faecal urgency, prolapse feeling, rectal bleeding and discomfort and swelling of labia. Faecal urgency as a new symptom following combined POP and anti-incontinence surgery was affecting the sex life of one woman, because this symptom required her to plan having sex, rather than it being spontaneous.

“It is horrible to have to plan sort of sex, but we sort of do have to now. I mean we have got to know how my body is working and what time is sort of really bad for me. Like if I eat, within half an hour of eating I'm going to the toilet.” (participant 5)

Of the 30 included women, five mentioned prolapse feeling following surgery and for two it affected their sex life. Physical examination showed POP in a different compartment after combined POP and anti-incontinence surgery in one of these women, but no POP was objectified in the other woman. Although both women felt less confident during sex because of it, due to the concomitant cure of SUI for one woman it did not affect her drive, motivation, arousal or orgasm. The second woman with POP symptoms, that were not objectified, did feel less motivated to be sexually active because of discomfort and because she was afraid to do damage to the prolapse. However, there was no impact on arousal and orgasm.

“Sometimes it makes you not want to do it. If you, if you can feel that it's prolapsed any way during the course of the day, and if I can feel that it's hanging right down, yeah you do feel that you don't want to do it

sometimes, you just can't be bothered, because you know that it's already uncomfortable, so all that's going do is make it worse.” (participant 10)

For one woman drive and motivation were low because she was still suffering with rectal bleeding and pain associated with rectal granulation tissue following a stapled transanal resection of the rectum procedure. Her arousal was low, because mentally she was distracted focusing on the discomfort. Furthermore, she was not completely confident regarding her bladder/bowel function, therefore it was difficult to reach orgasm. Another woman felt her left labia had swollen, and because she was mentally focused on this the intensity of her orgasm was affected.

Unsatisfactory result of surgery

Two women specifically hoped surgery would improve vaginal tightness and genital sensations. After surgery they were unsatisfied with the result, because they had hoped for more tightness, and this negatively affected the evaluation of their sex life.

“Because, you know, I was told that it would be quite tight to start with. Why don't I feel that it is? (...) I suppose I was expecting things to be a bit tighter than they are.” (participant 17)

Other factors with negative effect

Other factors with a negative effect on the evaluation of sex live postoperatively were: partner's physical restrictions, relationship problems, partner worried about causing pain, low sexual drive related to long recovery from surgery or depression and anti-depressant use, which consequently affected arousal and orgasm.

Discussion

Main findings

The objective of this study was to assess whether assessment of sexual function using the PISQ¹⁰ provides full insight into female sexual function following pelvic floor surgery. We showed that although PISQ is complete in representing the positive effects of surgery, most negative effects are not included. Following surgery improvement was seen in PISQ's Physical and Partner-related domains, which measure the impact of POP and SUI on sexual functioning and the woman's perception of her partner's response to this. With the cure of POP and/or SUI as a result of surgery it seems logical that questions such as “Do you avoid sexual intercourse because of bulging in the vagina?”, “Are you incontinent of urine with sexual activity?”, and “Does fear of incontinence restrict your sexual activity?” show improvement. The results from the qualitative interviews confirmed that the improvement in sexual function following

surgery was as a result of the cure of prolapse and incontinence symptoms. Furthermore, the qualitative results gave context and insight as to why the cure of prolapse and incontinence symptoms improve sexual function, including improvement in body image, improvement in genital sensations and the relieve of fear of being incontinent during sexual activity. After surgery, there was no significant change in PISQ's Behavioural/Emotive domain, which evaluates sexual desire, arousal and orgasmic capabilities. Questions such as "Do you feel sexually excited (turned on) when having sexual activity with your partner?", "Do you feel your vagina is so "dry" that sexual intercourse cannot occur?", and "How often are you able to achieve orgasm (climax)?", did not show any change after surgery. In the qualitative interviews women indicated that although there was a positive effect of the cure of prolapse and incontinence symptoms, there was a negative effect on desire, arousal and orgasm from postoperative dyspareunia, new symptoms, a disappointing result of surgery, or being worried about doing damage to the surgical repair. Other than dyspareunia, these negative aspects are not specifically part of the PISQ. Furthermore, the included questions on dyspareunia form only a small part of PISQ's Physical and Partner-related domain scores. Therefore, a deterioration in pain may be neutralised by simultaneous improvement in POP- and SUI-related factors.

Strengths and limitations

Our findings should be interpreted in light of the study limitations. First, our study had a relatively short follow up time of a median of 17 weeks. Some women had not resumed sexual intercourse and others had not had sex regularly yet. The reason for us to choose this follow up time was that women were generally allowed to resume sexual activity 6 weeks postoperatively and with longer follow up time changes unrelated to surgery might impact on sexual function as well. An added advantage is that we now obtained an insight into the reasons why women were reluctant to resume sexual activity. Nevertheless, we acknowledge that our follow up time might not have allowed for full physical recovery from surgery especially when complications occurred. With full physical recovery, issues such as confidence and trust might be regained as well. Future qualitative studies should therefore be conducted at a longer follow up time to study these issues further.

A second limitation is in our patient selection. We chose to use a sample with a large variation of surgical procedures performed in our hospital, so we would be able to comment on common themes associated with pelvic floor surgery. However, we cannot make any conclusions regarding the impact of specific surgeries on the sexual function of women. Furthermore, we did not include any women with vaginal mesh surgery as this type of surgery is not part of our routine practice. The impact of synthetic mesh augmentation at the time of vaginal prolapse repair has been debated in the current literature, as some studies showed increased rates of dyspareunia^{17,18} compared to native tissue repair. Therefore, results from our study might not be representative for this group of women.

A third limitation is in selecting the "good" informants. Experiences and feelings regarding sexual function might have been different in women unwilling to discuss their concerns with their consultant. However, the idea behind selecting participants in qualitative research is to select those women who best help the researcher understand the research question. This does not necessarily involve random sampling of participants as typically found in quantitative research¹⁵. In fact three good descriptions can be better than 12 poor ones. Furthermore, as the women were selected before surgery, we were not able to select participants based on their sexual experiences after surgery, so eliminating bias.

Interpretation

The PISQ¹⁰ was validated to discriminate women with sexual dysfunction from those without, within the group of women suffering with POP and SUI. Although the PISQ has shown its responsiveness to change after pelvic floor surgery^{4,5}, it might not be optimal to detect sexual dysfunction following surgery as new aspects due to the treatment become relevant. By neglecting the negative impact of pelvic floor surgery, PISQ's evaluation of sexual function following surgery might be too positive. Future studies should therefore be conducted to either confirm or reject this questionnaire as a validated tool for diagnosing sexual dysfunction after pelvic floor surgery. This is important, because when counselling women for pelvic floor surgery, information regarding the impact of surgery on sexual function is mandatory. Without a validated tool, research carried out to study the impact of surgery on sexual function is not reliable.

Before resuming sexual activity after surgery women commonly need reassurance about healing from their doctor as well as reassurance that sexual activity is "allowed". As a result of this, sexual problems will not occur until after the postoperative review by the consultant. As women are commonly reluctant to seek help for their sexual concerns¹⁹⁻²¹, it is possible that sexual problems as a result of surgery will go unnoticed. It is therefore important to specifically address the possibility of dyspareunia and other sexual problems following surgery at the early postoperative review and give women the opportunity to return to clinic when sexual problems occur. Furthermore, our qualitative results showed that sexual inactivity can last up to 3 months postoperatively as a result of the fear of doing damage to the surgical repair. Early postoperative counselling should also in part be directed at reassuring women that tapes and meshes are unlikely to dislodge during penetrative sex.

We are not aware of another study that has used a mixed qualitative and quantitative approach to study sexual function following pelvic floor surgery. By comparing qualitative interviews to the results of the PISQ¹⁰ we were able to show both confirmation and disconfirmation between the two. Compared to quantitative research, the qualitative interviews gave a deeper explanation of changes in sexual function and it helped us to understand the context and associations.

Conclusions

Our study has shown that the current condition-specific sexual function questionnaire for assessment of sexual function in women with POP and SUI (PISQ¹⁰) does not measure most surgery-specific deteriorating effects on sexual function. This questionnaire might therefore not be able to discriminate between women with and without sexual dysfunction following pelvic floor surgery. Future studies should therefore be conducted to either confirm or reject this questionnaire as a validated questionnaire for diagnosing sexual dysfunction after pelvic floor surgery.

References

1. Fialkow MF, Newton KM, Lentz GM, Weiss NS (2008) Lifetime risk of surgical management for pelvic organ prolapse or urinary incontinence. *Int Urogynecol J* 19:437-440
2. Rogers RG, Villarreal A, Kammerer-Doak D, Qualls C (2001) Sexual function in women with and without urinary incontinence and/or pelvic organ prolapse. *Int Urogynecol J* 12:361-365
3. Handa VL, Cundiff G, Chang HH, Helzlsouer KJ (2008) Female sexual function and pelvic floor disorders. *Obstet Gynecol* 111:1045-1052
4. Rogers RG, Kammerer-Doak D, Darrow A et al (2006) Does sexual function change after surgery for stress urinary incontinence and/or pelvic organ prolapse? A multicentre prospective study. *Am J Obstet Gynecol* 195:e1-e4
5. Thakar R, Chawla S, Scheer I, Barrett G, Sultan AH (2008) Sexual function following pelvic floor surgery. *Int J Gynecol Obstet* 102:110-114
6. Srikrishna S, Robinson D, Cardozo L, Gonzalez J (2010) Can sex survive pelvic floor surgery? *Int Urogynecol J* 21:1313-1319
7. Pauls RN, Silva WA, Rooney CM et al (2007) Sexual function after vaginal surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol* 197:622.e1-622.e7
8. Occhino JA, Trabuco EC, Heisler CA, Klingele CJ, Gebhart JB (2011) Changes in vaginal anatomy and sexual function after vaginal surgery. *Int Urogynecol J* 22:799-804
9. Helström L, Nilsson B (2005) Impact of vaginal surgery on sexuality and quality of life in women with urinary incontinence or genital descensus. *Acta Obstet Gynecol Scand* 84:79-84
10. Rogers RG, Kammerer-Doak D, Villarreal A, Coates K, Qualls C (2001) A new instrument to measure sexual function in women with urinary incontinence or pelvic organ prolapse. *Am J Obstet Gynecol* 184:552-558
11. Rogers RG, Coates KW, Kammerer-Doak D, Khalsa S, Qualls C (2003) A short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12). *Int Urogynecol J* 14:164-168
12. Kelleher CJ, Cardozo LD, Khullar V, Salvatore S (1997) A new questionnaire to assess the quality of life of urinary incontinent women. *BJOG* 104:1374-1379
13. Price N, Jackson SR, Avery K, Brookes ST, Abrams P (2006) Development and psychometric evaluation of the ICIQ Vaginal Symptoms Questionnaire: the ICIQ-VS. *BJOG* 113:700-712
14. Morse JM (1991) Strategies for sampling. In: Morse JM, ed. *Qualitative Nursing Research: A Contemporary Dialogue*. SAGE Publications: Thousand Oaks (CA), pp 127-145
15. Creswell JW (2009) Qualitative procedures. In: Creswell JW, ed. *Research design: Qualitative, Quantitative and Mixed Methods Approaches*. 3rd ed. SAGE Publications: Thousand Oaks (CA), pp. 173-202
16. Huberman AM, Miles MB (1998) Data Management and Analysis Methods. In: Denzin NK, Lincoln YS, eds. *Collecting and Interpreting Qualitative Materials*. SAGE Publications: Thousand Oaks (CA), pp 179-210
17. Vollebregt A, Fischer K, Gietelink D, Van der Vaart CH (2012) Effects of vaginal prolapse surgery on sexuality in women and men; results from a RCT on repair with and without mesh. *J Sex Med* 9:1200-1211
18. Milani R, Salvatore S, Soligo M, Pifarotti P, Meschia M, Cortese M (2005) Functional and anatomical outcome of anterior and posterior vaginal prolapse repair with prolene mesh. *BJOG* 112:107-111
19. Mercer CH, Fenton KA, Johnson AM et al (2003) Sexual function problems and help seeking behaviour in Britain: national probability sample survey. *BMJ* 327:426-427
20. Shifren JL, Johannes CB, Monz BU, Russo PA, Bennett L, Rosen R (2009) Help-seeking behaviour of women with self-reported distressing sexual problems. *J Women's Health* 18:461-468
21. Moreira ED, Brock G, Glasser DB et al (2005) Help-seeking behaviour for sexual problems: the global study of sexual attitudes and behaviours. *Int J Clin Pract* 59:6-16

**Sexual experiences of male partners before and after
female pelvic floor surgery: A qualitative study**



Anne-Marie Roos, Aggie TG Paulus, Raneer Thakar, Abdul H Sultan
Int Urogynecol J, accepted for publication

Abstract

Introduction and hypothesis

To obtain a precise idea of the partner's thoughts and experiences with regards to the effect of female pelvic floor disorders and surgery on his sexual life.

Methods

Qualitative semi-structured interviews were conducted in eight partners of women undergoing pelvic floor surgery prior to surgery, and in six partners at a median of 18 weeks after surgery. The gathered data was systematically analysed using data matrices.

Results

Although most men evaluated their sex life prior to surgery in a positive way, one or more changes in the sexual life of our participants as a result of the female pelvic floor disorder were common. This was a result of changes in the man's physical sensations and behaviour during sex (direct changes), and changes in the female partner's sexual behaviour and reduced body confidence (indirect changes). The cure of the pelvic floor disorder and changes in vaginal tightness following surgery caused direct improvements in the man's physical sensations, as well as indirect improvements in his sexual experience as a result of positive changes in the woman's sexual behaviour and body confidence.

Conclusions

As only a small group of men participated in this study, the results should be interpreted with caution. The information gathered in our study can provide guidance to clinicians on possible aspects to explore with their patients prior to and after pelvic floor surgery and can form the basis for disease-specific male sexual function questionnaires which can be used in quantitative studies on this topic.

Introduction

Prevalence studies have shown that women with pelvic floor disorders, including pelvic organ prolapse (POP) and urinary incontinence (UI), are more likely to report sexual dysfunction than women without these complaints¹. Based on evidence from studies involving men with erectile dysfunction we know that sexual dysfunction in one half of a couple can result in sexual dysfunction of the other partner as well^{2,3}. Unfortunately, there is scanty data assessing sexual function in partners of women suffering with pelvic floor disorders. Two studies focusing on the partner showed that female bladder problems had a negative effect on the sexual life of one out of five male partners⁴ and that female UI was associated with lower male sexual functioning and sexual satisfaction⁵.

Pelvic floor surgery is the mainstay of therapy for female pelvic floor disorders which seems to have a positive effect on the male partner's sexual function. Improvement in male sexual function is seen both after POP surgery⁶ as well as following female anti-incontinence surgery⁷.

The available data are not only sparse but also limited as they do not explain 'why?' and 'how?' female pelvic floor disorders and surgery impact on the sexual function of the partner. The aim of our study was to obtain a precise idea of the partner's thoughts and experiences with regards to the effect of female pelvic floor disorders and surgery on his sexual life. As the currently available male sexual function questionnaires only measure broad diagnostic categories, we conducted qualitative face-to-face interviews to be able to achieve our aim^{8,9}.

Materials and Methods

The qualitative analysis described in this article is part of a larger prospective study on sexual functioning of women undergoing surgery for pelvic floor disorders along with that of their partners. The results on the sexual functioning of the women prior to and after surgery are published elsewhere^{10,11}. Ethical approval was granted by the Outer South East London Research Ethics Committee (Lewisham Local Research Ethics Committee) (07/Q0701/2), and all participants signed informed consent before entering in the study.

Recruitment and sample size

Recruitment of participants was dependent on the women as only partners of participating women could be included. Women scheduled for pelvic floor surgery were recruited at two urogynecology outpatient clinics at Croydon University Hospital, UK, led by two consultant urogynecologists (RT/AHS). Eligible women were over 18 years of age, considered themselves to be sexually active and had good comprehension of verbal and written English. Women with malignancy or terminal illness were not invited. All but one woman were in a committed

relationship at the time of participation. If the partner was not present during the clinic visit, women willing to participate in the study were given written information to give to the partner explaining the details of the proposed study. The women were contacted at a later time to ask whether her partner was willing to participate in the study as well. Inclusion was from April 2008 until August 2009. Recruitment of the women, and consequently that of the partners, finished when the cohort of women had reached maximum variation with regards to types of surgery and combinations of procedures performed. Since no woman reported having a female partner, all participants were men. Ultimately eight of 37 eligible men (i.e. the participants) were included.

Data collection

Data were gathered by means of a semi-structured face-to-face interview prior to and at three months after surgery. A three month follow up was chosen, because it was expected that the couples would have resumed sexual intercourse by that time, as they were generally advised to refrain from sexual intercourse until only six weeks after surgery. If they hadn't resumed intercourse we were able to identify problems that withheld couples from doing so. The participants were interviewed by the same researcher each time (AMR), separate from their female partners, in the privacy of a consulting room within the hospital premises. This researcher was not involved in the treatment of the women.

The interviewer used a semi-structured interview guide which was developed prior to the start of the study. The interview guide included open-ended questions which were aimed at establishing a general direction for the interview. The interview guides used prior to and after surgery are presented in Table 1 and 2 respectively. By using follow-up questions like: *“Has this always been like this, or has it been a recent change?”*, *“Can you tell me how and why it feels different now?”*, and *“Do you feel that your partner's incontinence/prolapse had an effect on this?”*, the experiences of the participants were further elaborated. The median duration of the interviews was 8.3 minutes (range 5.5 – 16.5) prior to surgery and 14.8 minutes (range 10 – 19.5) after surgery. The interview process was audiotaped and each interview was transcribed verbatim.

Table 1 Interview guide for semi-structured interview prior to surgery

Topic area	Example of question
Sexual experience	“Can you tell me how it is now, having sex with your partner?”
Level of intimacy in current sexual relationship	“And do you think that has had an effect on the intimacy between you and your partner?”
Views and expectations about the forthcoming surgery	“Do you feel that there is something that could enhance your present sexual experience?” “Do you feel like anything would change after surgery?”
Changing needs and/or ability of the female partner	“Do you feel that your sexual role has changed?”
Anything else relevant to the study	“Do you think there is anything else we didn't address that might be important at this stage?”

Table 2 Interview guide for semi-structured interview after surgery

Topic area	Example of question
Sexual function after surgery and reasons for inactivity	“Can you tell me whether you have resumed sexual intercourse?” “And can you tell me how that is right now?”
Views on the impact of surgery on sexual function	“Do you feel that the operation done for your partner had any effect on your present sex life?”
Changing needs and/or ability of the female partner	“Do you feel that your sexual role is the same or is different than before?”
Anything else relevant to the study	“Is there anything else that you think might be helpful for me to know at this stage?”

Data analysis

To systematically analyse the gathered data we made use of data matrices¹². After immersion into the raw data of transcripts and field notes, a ‘start list’ of broad categories for organising the data into meaningful clusters for analysis was developed. During data analysis, we kept the possibility open to add any additional categories. The final list of categories is presented in Table 3. Meta-matrices were created for each category. The columns of these matrices contained the subcategories, which were elaborated and complemented during the data analysis. The rows assembled the data from the different participants. The cells were filled according to a technique termed ‘bracketing’¹³, which couples brackets of corresponding information gained from interviews to the different categories. In first instance, the brackets consisted of so-called thick descriptions, i.e. literal passages from the interview transcripts, which were later summarized into thin descriptions. The different aspects of the sexual experience of our participants were derived from and compared on the basis of the matrices containing thin descriptions. All interviews were coded by the first author (AMR). To increase objectivity the second author (AP) went through 25% of the transcripts and independently coded the data from the interviews according to the list of categories produced by the first author. In author meetings between the first and second author the categories, the subcategories and part of the coding were discussed and consensus was formed on how to categorize the data.

Results

Prior to surgery, eight men were interviewed. Their mean age was 53 (range 36 - 63) years. With four participants their partner was having POP surgery only, for three POP surgery was combined with anti-incontinence surgery and one participant's partner suffered from fecal urgency and incontinence for which she underwent anal sphincter repair combined with perineal reconstruction. Six men attended their follow-up visit after surgery at a median follow-up of

18 weeks (range 13 – 24). Of the two participants lost to follow-up, one partner had had POP surgery and one partner combined POP and anti-incontinence surgery.

Sexual experience prior to surgery

The majority of participants (n=5) evaluated their sexual life as either positive or unchanged compared to before the pelvic floor disorder occurred. The other participants (n=3) were negative about the quality of their sexual life.

Although the majority gave a good evaluation of their sexual life, changes in the sexual life as a result of their partner’s pelvic floor disorder were described by seven of the eight participants. Changes were divided into direct or indirect effects. Direct effects were defined as changes in the participant’s physical sensations or changes in his own sexual behaviour. This included: awareness of the presence of the prolapse, i.e. seeing or feeling it, fear of causing pain or damage to the prolapse, and a decrease in the variety of sexual positions because in certain sexual positions the prolapse is more prominent or certain positions increase partner’s urge to use the bathroom in case of incontinence. These direct effects are illustrated by the following quotations:

“I can actually feel [the prolapse] as well, so it’s a little off putting.” (participant 8)

“I mean I’ve seen the, I’ve seen, and I think how can she walk about with that prolapse hanging out of her like that? For me to impose myself on her is just not in my nature.” (participant 7)

Table 3 List of categories for data analysis

Time of interview	Data category
Prior to surgery	<ul style="list-style-type: none"> • Evaluation of sex life prior to surgery • Factors influencing sex life prior to surgery • Behavioural and emotional response to changes in sex life caused by the female’s pelvic floor disorder • Views and expectations about the forthcoming surgery • Effect of changes in sex life caused by the female’s pelvic floor disorder on relationship as a whole • Others
After surgery	<ul style="list-style-type: none"> • Evaluation of sex life after surgery • Reason for improvement in sex life, or absence of negative change, after surgery • Factors that affect resuming sexual activity • Factors that affect sex life negatively after surgery • Effect of surgery on the relationship as a whole • Change in sexual role after surgery • Thoughts / activities in the waiting to start penetrative sex • Others

“I would say [the things I can do are] limited, because of, because of the situation it’s limited. (...) because in certain positions she feel likes she wants to go to the toilet. So, it’s definitely affecting me in that way, both of us.” (participant 5)

Indirect effects were defined as changes in the female partner’s body confidence or sexual behaviour which affected the participant’s sexual experience. Body confidence issues included: being embarrassed about the prolapse or incontinence, not feeling tight enough to satisfy their partner, or feeling less of a woman as a result of the pelvic floor disorder. Changes in the female partner’s sexual behaviour included: being focused on the possibility of incontinence, incontinence or urge to use the bathroom during sexual activity and a decrease in the initiation of sexual activity / wish to have sex. As the participants indicated:

“...because obviously with the prolapse she feels very awkward about it. Having sex just doesn’t, doesn’t enter her mind, you know.” (participant 8)

“There is always not, not being entirely focused on being intimate with each other. It’s always keeping an ear open for the need to go to the bathroom or... but it doesn’t allow things to flow smoothly. It’s always interruption, interruption, interruption. So that can be a bit annoying sometimes.” (participant 5)

Factors influencing the sexual life that were not associated with the female partner’s pelvic floor disorder included: lifestyle (work, children), participant’s physical problems, and erectile dysfunction.

There were four different types of emotive responses of the participants to the changes in their sexual life as a result of the female’s pelvic floor disorder. These included: (1) believing POP or incontinence is not an obstacle for sexual activity, (2) respecting partner’s wish not to have sex as partner’s health is more important, (3) denying a negative effect from female’s pelvic floor disorder and (4) frustration. As indicated per response:

(1) “I mean, be nice if [the prolapse] wasn’t there, but it is, so it’s something that we have to just work around.” (participant 2)

(2) “And the most important thing is that she is healthy and ok, you know, that’s, as far as I’m concerned, you know. I’m not going to worry about anything else providing that she is ok (...) It’s not as though we are looking at having any more children or anything, you know.” (participant 4)

(3) “No she seems to think I can’t feel her when I’m inside her, but I can, you know, I can feel her.” (participant 6)

(4) “I suppose, it’s more frustrating, I’m frustrated, because obviously we are not having sex as often as we used to. And I believe sex is a big, it’s an important role in a relationship, it’s closeness.” (participant 8)

Sexual experience after surgery

At follow up three of the six participants had not resumed regular sexual activity. The delay in resuming sexual activity was caused by the physical recovery of the partner and her will to commence penetrative sex, the partner's fear of pain, their own fear of causing pain and life stressors like taking care of an unwell mother or a busy work schedule. Two of the three respondents who had fully resumed intercourse had also experienced fear of causing pain with the resumption of sexual activity, however this had improved since and was not influencing their current sexual life.

"I think personally, she wanted, she would have been ok. It was me who was a bit apprehensive to push in, you know, into all of that, but... I didn't, I didn't, although she said it wouldn't hurt, it wouldn't hurt her, but I, I was a bit worried, I was a bit worried." (Participant 7)

Overall the evaluation of the participants sexual life following surgery was positive. The participants who had fully resumed sexual activity had noticed an improvement in their sexual experience or no change in a sexual life unchanged by the pelvic floor disorder prior to surgery. The participants who had not resumed regular sexual activity yet were positive about the experience they had had, or hadn't noticed any negative changes.

The cure of the female pelvic floor symptoms had a positive effect on the men's sexual experience. With the relief of POP the male's physical sensations were better. Furthermore, the majority of men commented on an improvement, or the absence of a negative change, in vaginal tightness.

"The feel, yeah, it wasn't very nice before; there was obviously a prolapse there. It didn't, not only it didn't feel nice, it didn't look very nice either, cause it actually prolapsed out. But because that's not there anymore, so, you know, it's much better." (participant 2)

Participants also noticed positive changes in their partner's body confidence and behaviour during sex as a result of the cure of the pelvic floor disorder. The female partner was no longer worried about incontinence, the presence of the prolapse or lack of vaginal tightness during sexual activity. This had an indirect positive effect on the man's sexual satisfaction and reduced his anxiety about erectile dysfunction.

"I think she is more confident. Obviously her prolapse was quite pronouncing it's bound to affect your confidence to a certain extent. (...) It's just satisfaction-wise I think ... just having the satisfaction for myself isn't, I mean obviously it's nice, but for her to be enjoying as well is a big thing for me, you know. And she does seem to be enjoying it and says she's enjoying it. Like for me I don't think that she always did before." (participant 2)

"I think before because where she used to think she was big and I couldn't feel her now she knows I can. Well I could before, but she would never believe me because she always believed she was that big. (...) I don't get the 3 degree, the third degree afterwards, which is good. Cause, you know, you haven't got to worry about it, it's, it's nice." (participant 6)

Factors that affected the sexual life negatively following surgery included: partner's post-operative dyspareunia, her reduced interest in sex and vaginal dryness.

Discussion

This study has provided an insight into a mostly neglected area of urogynecology: the impact of female pelvic floor disorders and surgery on the male partner's sexual experience. Although previously explored with general sexual function questionnaires, to the best of our knowledge we are the first to use qualitative semi-structured face-to-face interviews.

We previously reported that pelvic floor disorders have a negative effect on women's body image which leads to a decrease in women's motivation to be sexually active¹⁰. During sexual activity women are mentally distracted, because of worries related to the presence of the prolapse or the fear of incontinence¹⁰. As is shown in the current analysis, in addition to direct changes in the man's physical sensations and behaviour during sex, this changed behaviour of the female can also contribute negatively to the sexual experience of the male partner. Despite this most men had a positive response to these changes in their sexual life and evaluated their sexual life in a positive way. This is in line with a previous study on this subject which showed that compared to their female partner, men are less likely to consider their female partner's urinary problems to negatively affect their sexual life⁴.

Previous research has shown a general improvement in men's sexual interest, sexual drive and sexual satisfaction following surgery for POP⁶ and an increase in sexual desire following anti-incontinence surgery⁷. Furthermore, following POP surgery, men considered their erectile and orgasmic difficulties as less of a problem⁶. The current analysis showed that following female pelvic floor surgery the cure of pelvic floor disorders and changes in vaginal tightness caused direct improvements in the man's physical sensations, as well as indirect improvements in his sexual experience as a result of positive changes in the woman's sexual behaviour and body confidence. A positive change in the woman's sexual behaviour and body confidence can improve the man's sexual satisfaction and reduce his anxiety about erectile dysfunction. Despite this improvement, we have previously shown¹¹ that women's motivation to be sexually active can also be negatively affected following surgery as a result of postoperative dyspareunia, new symptoms, a disappointing outcome of surgery and fear of doing damage to the surgical result¹¹. In the current analysis the men described that the physical recovery of the women, her fear of pain and also the men's fear of causing pain caused a delay in resuming regular sexual activity.

There are some limitations to consider. Unfortunately, we were only able to recruit eight of the 37 potential partners and only six returned for follow-up (16%). The reason for the difficulties in recruitment of the partners could be embarrassment of the men to talk about sexual issues. Furthermore, reliance on the assistance of the women to recruit their partners might have influenced the number of men that decided to participate as well, as previous studies have shown that women can be embarrassed to communicate openly with their partner regarding their pelvic floor disorders^{4,14}. This may have caused selection bias as well, as couples that are willing to openly discuss sexual matters may have different views on sexual function as compared to non-communicative couples. The embarrassment that surrounds talking about sex could also be the reason for the relatively short duration of the interviews. Most men had never talked about their sex life with a healthcare professional and some showed relief when the interview was finished. However, the shortest interviews were held with the men who found their sex life was unchanged by their partner's pelvic floor disorder, so this impacted on the interview duration as well.

All interviews were done by the same interviewer which means all participants were interviewed in the same manner. Nevertheless, talking about sexual experiences with a female interviewer could have contributed to the embarrassment. Some men might have also been reluctant to "complain" about their sex life, because their partner was having a problem that necessitates surgery. Men may have had a different attitude to the effects of the pelvic floor disorder if their partner had not been seeking treatment for it.

As a result of the small number of men we were able to recruit we cannot guarantee saturation of results and therefore the results should be interpreted with caution. However, while not encompassing all possible sexual health difficulties experienced by the men, we believe the findings can provide guidance to clinicians on possible aspects to explore with their patients and can provide a basis for further qualitative studies and for formulating condition-specific tools for quantitative studies on this subject.

References

1. Handa VL, Cundiff G, Chang HH, Helzlsouer KJ (2008) Female sexual function and pelvic floor disorders. *Obstet Gynecol* 111:1045-1052
2. Chevret M, Jaudinot E, Sullivan K, Marrel A, De Gendre AS (2004) Impact of erectile dysfunction (ED) on sexual life of female partners: assessment with the Index of Sexual Life (ISL) questionnaire. *J Sex Marital Ther* 30:157-172
3. Fisher WA, Rosen RC, Eardley I, Sand M, Goldstein I (2005) Sexual experience of female partners of men with erectile dysfunction: the female experience of men's attitudes to life events and sexuality (FEMALES) study. *J Sex Med* 2:675-684
4. Nilsson M, Lalos O, Lindkvist H, Lalos A (2011) Impact of female urinary incontinence and urgency on women's and their partners' sexual life. *Neurourol Urodynam* 30: 1276-1280
5. Bekker MD, Beck JJH, Putter H et al (2010) Sexual experiences of men with incontinent partners. *J Sex Med* 7:1877-1882
6. Kuhn A, Brunnmayr G, Stadlmayr W, Kuhn P, Mueller MD (2009) Male and female sexual function after surgical repair of female organ prolapse. *J Sex Med* 6:1324-1334
7. Berglund A-L, Eisemann M, Lalos A, Lalos O (1996) Social adjustment and spouse relationships among women with stress incontinence before and after surgical treatment. *Soc Sci Med* 42:1537-1544
8. Greenhalgh T, Taylor R (1997) How to read a paper: Papers that go beyond numbers (qualitative research). *BMJ* 315:740-743
9. Doshani A, Pitchforth E, Mayne C, Tincello DG (2009) The value of qualitative research in urogynaecology. *BJOG* 116:3-6
10. Roos AM, Thakar R, Sultan AH, Burger CW, Paulus ATG (2013) Pelvic Floor Dysfunction: Women's sexual concerns unraveled. *J Sex Med*. doi: 10.1111/jsm.12070, epub ahead of print
11. Roos AM, Thakar R, Sultan AH, De Leeuw JW, Paulus ATG (2014) The impact of pelvic floor surgery on female sexual function: A mixed quantitative and qualitative study. *BJOG* 121:92-100
12. Huberman AM, Miles MB (1998) Data Management and Analysis Methods. In: Denzin NK, Lincoln YS, editors. *Collecting and Interpreting Qualitative Materials*, 1st ed. SAGE Publications, Thousand Oaks (CA), pp 179-210
13. Denzin NK (1989) *Interpretive Interactionism*. Sage Publications, Newbury Park, CA.
14. Nilsson M, Lalos A, Lalos O (2009) The impact of female urinary incontinence and urgency on quality of life and partner relationship. *Neurourol Urodynam* 28: 976-981



General discussion and conclusion

The focus of this thesis is on sexual dysfunction in urogynaecology, which was studied in a large university hospital in the greater London region, United Kingdom. A number of previous studies have demonstrated an association between pelvic floor disorders, including pelvic organ prolapse (POP) and stress urinary incontinence (SUI), and female sexual dysfunction¹⁻⁶. This indicates that women who seek urogynaecological care will be of increased risk of experiencing sexual dysfunction and the physician who treats these women should be aware of this problem. In this chapter a general discussion with regards to the research questions is presented, taking into consideration methodological strengths and limitations. Finally, conclusions are presented and recommendations with regards to future research and clinical practice are proposed.

General discussion

Question 1: “What is the prevalence of sexual problems in women attending urogynaecology clinics when using a short screening tool?”

In **chapter 2** we established the prevalence of sexual problems in the general gynaecology and urogynaecology clinics of a large university hospital by using a simple screening tool⁷. We demonstrated that sexual complaints are highly prevalent, as we were able to identify sexual complaints in 38% of new patients presenting with a urogynaecological complaint and in 35% of women presenting with a gynaecological complaint. Multivariate analysis showed that, after adjustment for confounding factors, having a urogynaecological complaint compared to having a gynaecological complaint independently increased the risk of suffering with a sexual problem.

Furthermore, we found that one out of five women with a sexual complaint volunteered this as part of their main complaint, while the remaining only mentioned it after completing the three screening questions regarding sexual function. This indicates that if physicians ask specifically about sexual problems, patients are more likely to admit having a sexual problem than when the patient has to bring up the subject herself.

In order to diagnose sexual dysfunction, one should not just assess the presence of a sexual problem, but also the “personal distress” caused by the problem. This is in accordance with the definition of female sexual dysfunction by the International Consensus Development Conference on female sexual dysfunction⁸. According to their definition a sexual problem can only be considered as dysfunction when it causes personal distress. By introducing a fourth question (“Are any of your sexual problems bothersome?”) we showed that only 45% of the women with sexual complaints actually found them to be bothersome. This confirms that

when considering subjectively experienced distress as a necessary criterion for the diagnosis of female sexual dysfunction prevalence estimates decrease significantly^{9,10}.

Question 2: “Is assessment of female sexual dysfunction part of routine practice for British urogynaecologists?”

As patients are more likely to admit to have sexual problems when asked directly, a proactive attitude from the physician is warranted to identify these problems. In **chapter 3** the results from a survey on the practice of members of the British Society of Urogynaecology (BSUG) with respect to patient assessment of sexual dysfunction were presented. Although 97% of respondents thought screening for sexual dysfunction was important (ranging from somewhat to extremely important), only half of them regularly did with lack of time being the most important barrier. Furthermore, many respondents mentioned “being unsure about therapeutic options” or “don’t know what or how to ask” as barriers for screening. This reflects a deficiency in knowledge and training, which was confirmed by 76% of respondents who found their training with respect to female sexual dysfunction was unsatisfactory.

There is a similarity in trends between the UK and other countries. In a survey amongst members of the American Urogynecologic Society¹¹ 50% of respondents who completed some post-residency training in urogynaecology stated that the training with respect to female sexual dysfunction was unsatisfactory. Another survey amongst urologists and urology residents in The Netherlands¹² showed that Dutch urologists tend to underestimate the prevalence of female sexual dysfunction in their practice and lack of knowledge on therapeutic options is the main reason for 13.6% of them to avoid asking patients about sexual dysfunction. This highlights the global need for more attention to female sexual dysfunction both in the undergraduate and postgraduate curriculum. More education and training will increase urogynaecologists’ and urologists’ competence to enquire about these problems and to adequately treat them.

It is ultimately challenging for physicians to deal with sexual problems as the nature of this matter is quite sensitive. Finding the correct way to ask questions is essential. Therefore, clinicians should be made familiar with quick screening tools for female sexual dysfunction so they will be able to identify sexual problems without adding lots of time to the clinic visit.

Question 3: “How do POP and SUI impact on the different sexual dysfunction categories?”

It is important for physicians who treat patients with POP and SUI to understand the impact of these conditions on sexual function. Previous studies have found conflicting results on how POP and SUI affect the different female sexual dysfunction categories including sexual desire,

arousal, orgasm and sexual pain^{3,13}. The results presented in **chapter 4** showed that sexual dysfunction in women suffering from POP and SUI is strongly related to women’s body image. Previously, a correlation between decreased (genital) body image and decreased sexual function was shown in women with POP^{14,15}. In addition to this, our results show that women themselves perceive body image issues as the most important factor altering their sexual life.

The sexual dysfunction category desire is most commonly affected as a result of POP and SUI. An important finding of our study is the distinction women make between two components of desire: ‘drive’ and ‘motivation’. ‘Drive’ is described as the biological component of desire evidenced by spontaneous sexual interest, while ‘motivation’ is characterized by the willingness of a person to engage in sexual activity¹⁶. Although ‘drive’ was not commonly affected by POP and SUI, a decrease in ‘motivation’ was the sexual dysfunction most frequently mentioned. The distinction between ‘drive’ and ‘motivation’ was specifically present in the responses of our participants, however this distinction is not commonly addressed in general sexual function questionnaires. When just asking a general question on desire, the specific impact of POP and SUI on either ‘drive’ or ‘motivation’ will be missed.

Question 4:

- a. How does pelvic floor surgery impact on the sexual functioning of the female patient?
- b. Does the current condition-specific sexual function questionnaire (PISQ¹⁷) cover all relevant aspects of sexual function following pelvic floor surgery?

As POP and SUI have an adverse effect on female sexual function, we would expect that surgery to cure these conditions automatically leads to an improvement in sexual function. However, current evidence on sexual function following pelvic floor surgery is conflicting. In **chapter 5** it is shown that improvement in sexual function following pelvic floor surgery was seen as a result of the cure of POP and SUI symptoms. However, a negative effect on sexual desire, arousal and orgasm was seen from postoperative dyspareunia, new symptoms, a disappointing result of surgery or being worried about doing damage to the surgical repair. By comparing the results from the qualitative interviews to the prospective quantitative results from the PISQ¹⁷ we found that in the assessment of sexual function following pelvic floor surgery the PISQ is complete in representing the positive effects of surgery, but most negative effects are not included. Other than dyspareunia, the surgery-specific negative aspects are not part of the PISQ. The PISQ¹⁷ was originally validated to discriminate the women with sexual dysfunction from those without, within the group of women suffering with pelvic floor disorders. Although the PISQ has shown its responsiveness to change after pelvic floor surgery^{18,19}, it is not an optimal tool to identify women with sexual dysfunction following surgery, because new aspects of sexual dysfunction become relevant after treatment. As a result of not measuring the negative impact of pelvic floor surgery, PISQ’s evaluation of sexual function following

surgery might be too positive. Future studies should therefore be conducted to either reject or validate this questionnaire for the evaluation of sexual function after pelvic floor surgery.

Recently, the International Urogynecological Association (IUGA) created a revised version of the original PISQ: PISQ IUGA-Revised (PISQ-IR)²⁰. This questionnaire addresses some limitations of the original PISQ, including evaluating the impact of pelvic floor dysfunction on a woman's decision not to be sexually active and also creating a condition-specific measure of sexual function for women with anal incontinence. However, the PISQ-IR²⁰ also fails to address the possible negative effects of surgery. Therefore, it is also not an optimal tool for the evaluation of sexual function following pelvic floor surgery.

Question 5: What are the partner's individual thoughts and experiences with regards to the effect of POP and SUI, as well as pelvic floor surgery, on his/her sexual life?

Chapter 6 of this thesis described the results of our qualitative study on the impact of POP and SUI, as well as their surgical treatment, on the partner's sexual experience. Previous studies on this subject used male sexual function questionnaires which didn't give information regarding the partner's individual thoughts and experiences with regards to this. Our qualitative study, conducted solely in male partners, showed that prior to surgery, the vast majority of partners experienced changes in their sexual life as a result of female POP or SUI. There were direct changes in the male's physical sensations and behaviour during sex, and also indirect changes as a result of the female partner's altered sexual behaviour and reduced body confidence. Most men in our study population however had a positive response to these changes and evaluated their sex life in a positive way despite the occurrence of these changes. Following female pelvic floor surgery resuming penetrative sex was mostly dependent on the physical recovery of the women, but the men's fear of causing pain could also be the cause of delay. Our study showed that the relief of POP and SUI symptoms and changes in vaginal tightness following surgery caused direct improvements in the male partner's sexual sensations, as well as indirect improvements as a result of positive changes in the woman's sexual behaviour and body confidence.

As a result of the small number of men we were able to recruit we cannot guarantee saturation of results and therefore the results should be interpreted with caution. However, while not encompassing all possible sexual health difficulties experienced by the men, we believe the findings can provide guidance to clinicians on possible aspects to explore with their patients and can provide a basis for further qualitative studies and for formulating condition-specific tools for quantitative studies on this subject.

Methodological considerations of qualitative results

Selection of study population and generalizability of results

There are some choices in the selection of study participants that could have an impact on the generalizability of our results presented in chapter 4 and 5. However, one should keep in mind that generalization is a term that is used in a limited way in qualitative research, since the intent of this form of research is not to generalise findings to individuals, sites, or places outside of those under study²¹. In fact, the value of qualitative research lies in the particular description and themes developed in context of a specific site. All patients recruited for the studies described in this thesis were recruited at Croydon University Hospital in Croydon, United Kingdom. Croydon University Hospital is a large university hospital within the municipality of Croydon; a large town in the Southern Greater London region. Cultural differences in ideas about sexuality might have an impact on the generalizability of our results to women from rural areas as well as to women from outside of the United Kingdom.

Secondly, we selected women planning to have pelvic floor surgery. Women scheduled to undergo pelvic floor surgery are more likely to have an affected sexual life than women who do not opt for surgery. In addition to this, women who suffer from sexual dysfunction might have been more keen to enter into the study as it would give them the opportunity to discuss their concerns. Therefore, the severity of the sexual problems presented in the participating women might not be representable to all women suffering with POP or SUI.

We chose to use a sample with a large variation of surgical procedures performed in Croydon University Hospital. This way we were able to comment on common themes of sexual function associated with pelvic floor surgery. However, we cannot draw any conclusions regarding the impact of specific surgeries on the sexual function of women. Furthermore, we did not include any women with vaginal mesh surgery as this type of surgery is not part of the clinic's routine practice. The impact on sexual function of synthetic mesh augmentation at the time of vaginal prolapse repair has been debated in the current literature, as some studies showed increased rates of dyspareunia compared to native tissue repair^{22,23}. Therefore, results from our study might not be representable for this group of women.

Despite these limitations in the selection of the participants, we believe that the sample composition was sufficiently heterogeneous to represent a larger group of women undergoing pelvic floor surgery.

Follow-up

The studies presented in chapter 5 and 6 had a relatively short median follow-up time of respectively 17 and 18 weeks after surgery. As a result of this, some couples had not resumed sexual intercourse and others only had had sex once or twice at the time of their follow-up visit. The reason for us to choose this follow-up time was that it was expected that the couples would have resumed sexual intercourse by that time, as women were generally advised to

refrain from sexual intercourse until only six weeks after surgery. With a longer follow-up a higher percentage of participants might get lost to follow-up. Furthermore, time changes unrelated to surgery might impact on sexual function as well. These time changes could include for example further ageing effects of the pelvic floor, changing hormone levels, development of a chronic illness, and so on. An added advantage is that with our follow-up time we got an insight into the reasons why women or their partners were reluctant to resume sexual activity. Nevertheless, we do acknowledge that our follow-up time might not have allowed for full physical recovery from surgery especially when complications occurred. With full physical recovery, issues such as confidence and trust might be regained as well. Future qualitative studies should therefore be conducted at a longer follow-up time to study these issues further.

Qualitative analysis

The qualitative data presented in this thesis were systematically analysed using data matrices as described by Huberman and Miles²⁴. Validity and reliability in qualitative research do not carry the same connotations as in quantitative research²¹. Qualitative validity means that the researcher employs certain procedures to check for the accuracy of the findings. In this thesis this has been done by using patient quotes to convey the findings throughout the various chapters. Qualitative reliability indicates that the research approach is consistent across different researchers. This has been established by cross-checking 25% of coding by a second researcher and to check for agreement between the two.

All interviews were done by the same interviewer which means all participants were interviewed in the same manner and the interviewer only had to build rapport during the first interview. Seeing a familiar face after surgery could improve the atmosphere of feeling at ease and could increase and deepen the information that was shared. Nevertheless, the researcher's personal characteristics could have also biased the responses of the participants²¹. Talking about sexual experiences one on one with a female interviewer was thought to make it easier for the women to express their concerns. However, for the men this could have contributed to the embarrassment already associated with talking about sexual function. It is possible that the men in this study might have spoken differently and more openly with a male interviewer. Furthermore, bias could have also occurred due to the fact that participants might have wanted to please the interviewer by giving her information and examples of situations they wouldn't normally see as problems.

Conclusions and recommendations

Clinical practice

The results presented in this thesis show that sexual concerns are highly prevalent amongst women suffering with POP and SUI. However, the majority of women do not bring up these

sexual concerns themselves. Therefore physicians should be open in the discussion on sexual health and actively try to discover sexual concerns by direct questioning. By bringing up the subject of sexual health, doctors acknowledge the importance of this part of well-being, which would validate women's sexual concerns and could modify their help-seeking behaviour in the future. Unfortunately, many physicians who treat women with pelvic floor disorders feel they do not have sufficient knowledge to approach the subject of sexual health. This highlights that there is a need for more emphasis on female sexual function and dysfunction in the training of (uro)gynaecologists. Furthermore, it is recommended that clinicians are made familiar with short screening tools to identify sexual problems, as quick screening tools are more likely to be incorporated in clinical practice than lengthy questionnaires. However, when screening for sexual dysfunction both associated with the sexual problems should always be established in order not to over-diagnose sexual dysfunction.

After diagnosing sexual dysfunction the clinician can determine whether (a) the concern can be addressed during the current appointment, (b) a follow-up visit is needed to allow more time to address the concern adequately, or (c) the sexual problem is beyond the physician's scope of training and it's better to refer the patient to another colleague or specialist, for example a psychosexual counsellor. This way, physicians have the possibility of referring the patient if they do not feel adequately trained on the subject of sexual dysfunction without denying the patient treatment.

Since pelvic floor disorders are not life-threatening disorders and corrective surgery is elective, the presence or absence of sexual dysfunction should be taken into account when selecting the appropriate management for POP and SUI. In order to have realistic expectations of their sexual functioning after surgery, patients need to be informed prior to surgery that despite the possible positive effect on their sexual function from the cure of prolapse or incontinence symptoms, improvements in sexual function are not always guaranteed and occasionally there may be deteriorations as a result of the treatment itself.

Sexual functioning is a dynamic issue which generally occurs with a partner. Clinicians should be aware that female POP and SUI, as well as pelvic floor surgery do not just impact on the sexual experience of the women, but on that of the male partner as well. It is important to discuss these concerns openly with couples and to take this into consideration when counselling for treatment.

Future research

The results of this thesis gave more insight into the aetiology of sexual dysfunction in women with POP and SUI prior to and after surgery. The results showed us that the PISQ¹⁷ is limited in the assessment of sexual function following surgery as this questionnaire does not represent most new aspects of sexual dysfunction that can occur due to the treatment. In addition to this, we believe that the PISQ¹⁷ is less useful for the clinical and research setting, because it doesn't assess the impact on the different female sexual dysfunction categories, including:

sexual desire, arousal, orgasm and sexual pain. Furthermore, as the level of distress associated with the sexual problem is not established, which is a necessary criterion for the diagnosis of sexual dysfunction according to the formal classification systems^{8,25-27}, the questionnaire cannot be used for the diagnosis of female sexual dysfunction. In the revised version of the PISQ (PISQ-IR²⁰) unfortunately only one of these issues has been addressed: the PISQ-IR now includes a subscale for both arousal and orgasm and one for desire. However, it is still not possible to diagnose sexual dysfunction using the PISQ-IR as the level of distress associated with, for example, problems with arousal or desire is not established. Furthermore, the PISQ-IR does not assess the surgery specific impact on sexual function and is therefore not optimal for diagnosing sexual dysfunction following pelvic floor surgery.

We therefore propose a concept for a new condition-specific sexual function questionnaire that, after validation, may be used in women suffering with POP and incontinence (either urinary or faecal), prior to and after pelvic floor surgery (addendum 1 and 2). The PISQ¹⁷, PISQ-IR²⁰ and FSFI²⁸ were selected as the basis of this new condition-specific questionnaire, making corrections and additions according to the new insights gained in **chapter 4 and 5** of this thesis.

The proposed new concept questionnaire is divided into four major categories “General”, “Prolapse”, “Incontinence” and “Surgery”. Each category is further divided into five categories: drive, motivation, arousal, orgasm and sexual pain. The “General” domain is aimed to be used to diagnose sexual dysfunction as it also includes questions on personal distress. In addition to this, the “General” domain can be used to compare the presence of sexual dysfunction prior to and after surgery. The “Prolapse” and “Incontinence” domains are aimed to be used to objectify the impact of these conditions on sexual function and preoperative results can be compared to results after surgery. The “Surgery” domain is created to ascertain the impact of surgery and can be compared between different groups of patients and types of surgery. To simplify the completion of the questionnaire, separate questionnaires were designed for use prior to treatment (addendum 1) and for use after treatment (addendum 2). Furthermore, the new questionnaire incorporates a separate part for women who are not sexually active, which can be used to evaluate the impact of POP, incontinence and pelvic floor surgery on women’s decision not to be sexually active.

Compared to the currently available sexual function questionnaires, the proposed new concept questionnaire is expected to have multiple advantages. As opposed to the general sexual function questionnaires FSFI²⁸ and Golombok-Rust Inventory of Sexual Satisfaction²⁹, the “General” domain of the proposed new questionnaire also takes into account “personal distress” and is therefore expected to be able to actually diagnose female sexual dysfunction. Compared to the condition-specific PISQ¹⁷ the new concept questionnaire evaluates the condition-specific impact of POP and incontinence on the different female sexual dysfunction domains, which makes it more useful for diagnosis of sexual dysfunction in the clinical and research setting. Furthermore, the proposed questionnaire will be the first questionnaire

measuring the specific impact of pelvic floor surgery on female sexual function. This way one is able to evaluate the prevalence of female sexual dysfunction following pelvic floor surgery. However, it is important to emphasize that before this questionnaire can be used in clinical practice and research, validation studies need to be conducted to ensure our questionnaire meets established psychometric principles, including validity, reliability and responsiveness.

Furthermore, the results from **chapter 6** of this thesis can form the basis for formulating tools for quantitative assessment of the effect of female POP and incontinence, as well as pelvic floor surgery, on male sexual functioning.

References

1. Athanasiou S, Grigoriadis T, Chalabalaki A, Protopapas A, Antsaklis A (2012) Pelvic organ prolapse contributes to sexual dysfunction: a cross-sectional study. *Acta Obstet Gynecol Scand* 91:704-709
2. Handa VL, Harvey L, Cundiff GW, Siddique SA, Kjerulff KH (2004) Sexual function among women with urinary incontinence and pelvic organ prolapse. *Am J Obstet Gynecol* 191:751-756
3. Handa VL, Cundiff G, Chang HH, Helzlsouer KJ (2008) Female sexual function and pelvic floor disorders. *Obstet Gynecol* 111:1045-1052
4. Salonia A, Zanni G, Nappi RE et al (2004) Sexual Dysfunction is Common in Women with Lower Urinary Tract Symptoms and Urinary Incontinence: Results of a Cross-Sectional Study. *European Urology* 45:642-648
5. Sen I, Onaran M, Aksakal N et al (2006) The impact of urinary incontinence on female sexual function. *Advances in therapy* 6:999-1008
6. Novi JM, Jeronis S, Morgan MA, Arya LA (2005) Sexual function in women with pelvic organ prolapse compared to women without pelvic organ prolapse. *J Urol* 173:1669-1672
7. Plouffe Jr L (1985) Screening for sexual problems through a simple questionnaire. *Am J Obstet Gynecol* 151:166-168
8. Basson R, Berman J, Burnett A et al (2000) Report of the international consensus development conference on female sexual dysfunction: definitions and classifications. *J Urol* 163: 888-893
9. Shifren JL, Monz BU, Russo PA, Segreti A, Johannes CB (2008) Sexual problems and distress in United States women. *Obstet Gynecol* 112:970-978
10. Knoepp LR, Shippey SH, Chen CCG, Cundiff GW, Derogatis LR, Handa VL (2010) Sexual complaints, pelvic floor symptoms, and sexual distress in women over forty. *J Sex Med* 7:3675-3682
11. Pauls RN, Kleeman SD, Segal JL, Silva WA, Goldenhar LM, Karram MM (2005) Practice patterns of physician members of the American Urogynecologic Society regarding female sexual dysfunction: results of a national survey. *Int Urogynecol J* 16:460-467
12. Bekker M, Beck J, Putter H et al (2009) The place of female sexual dysfunction in the urological practice: Results of a Dutch survey. *J Sex Med* 6:2979-2987
13. Rogers RG, Villarreal A, Kammerer-Doak D, Qualls C (2001) Sexual function in women with and without urinary incontinence and/or pelvic organ prolapse. *Int Urogynecol J* 12:361-365
14. Lowenstein L, Gamble T, Sanses TV et al, for the Fellow's Pelvic Research Network (2009) Sexual function is related to body image perception in women with pelvic organ prolapse. *J Sex Med* 6:2286-2291
15. Zielinski R, Miller J, Kane Low L, Sampsel C, DeLancey JOL (2012) The relationship between pelvic organ prolapse, genital body image, and sexual health. *Neurourol Urodynam* 31:1145-1148
16. Kingsberg S, Althof SE (2009) Evaluation and treatment of female sexual disorders. *Int Urogynecol J Pelvic Floor Dysfunct* 20:S33-43
17. Rogers RG, Kammerer-Doak D, Villareal A, Coates K, Qualls C (2001) A new instrument to measure sexual function in women with urinary incontinence or pelvic organ prolapse. *Am J Obstet Gynecol* 184:552-558
18. Thakar R, Chawla S, Scheer I, Barrett G, Sultan AH (2008) Sexual function following pelvic floor surgery. *Int J Gynecol Obstet* 102:110-114
19. Rogers RG, Kammerer-Doak D, Darrow A et al (2006) Does sexual function change after surgery for stress urinary incontinence and/or pelvic organ prolapse? A multicentre prospective study. *Am J Obstet Gynecol* 195:e1-e4
20. Rogers RG, Rockwood TH, Constantine ML et al (2013) A new measure of sexual function in women with pelvic floor disorders (PFD): the Pelvic Organ Prolapse/Incontinence Sexual Questionnaire, IUGA-Revised (PISQ-IR). *Int Urogynecol J* : epub ahead of print
21. Creswell JW (2009) Qualitative procedures. In: Creswell JW, editor. *Research design: Qualitative, Quantitative and Mixed Methods Approaches*. 3rd ed. Thousand Oaks (CA): SAGE Publications; pp. 173-202
22. Vollebregt A, Fischer K, Gietelink D, Van der Vaart CH (2012) Effects of vaginal prolapse surgery on sexuality in women and men; results from a RCT on repair with and without mesh. *J Sex Med* 9:1200-1211
23. Milani R, Salvatore S, Soligo M, Pifarotti P, Meschia M, Cortese M (2005) Functional and anatomical outcome of anterior and posterior vaginal prolapse repair with prolene mesh. *BJOG* 112:107-111
24. Huberman AM, Miles MB (1998) Data Management and Analysis Methods. In: Denzin NK, Lincoln YS, editors. *Collecting and Interpreting Qualitative Materials*. 1st ed. Thousand Oaks (CA): SAGE Publications; pp. 179-210
25. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (DSM-IV). Retrieved from: <http://allpsych.com/disorders/dsm.html>
26. World Health Organization. *ICD-10: International Classification of Diseases*. 2010, World Health Organization, Geneva.
27. Basson R, Wierman ME, van Lankveld J, Brotto L (2010) Summary of the recommendations on sexual dysfunctions in women. *J Sex Med* 7:314-326
28. Rosen R, Brown C, Heiman J et al (2000) The Female Sexual Function Index (FSFI): A multidimensional Self-report Instrument for the assessment of female sexual function. *J Sex Marital Ther* 26:191-208
29. Rust J, Golombok S (1986) The GRISS: a psychometric instrument for the assessment of sexual dysfunction. *Arch Sex Behav* 15:157-165



English summary

The aim of this thesis is to enhance the understanding of sexual dysfunction within the field of urogynaecology and to draw the attention of the healthcare providers to this subject. The focus is on the prevalence of sexual problems in urogynaecology clinics, the clinical attention of the urogynaecologist to female sexual dysfunction, the impact of pelvic organ prolapse (POP), stress urinary incontinence (SUI) and pelvic floor surgery on the sexual functioning of the female patient, as well as the impact on the sexual functioning of the partner.

Chapter 1 of this thesis gives an overview of the current literature on sexual dysfunction within the field of urogynaecology and presents the research questions of this thesis. POP and SUI are frequently occurring conditions. Although conservative management, including pelvic floor muscle training, is usually the first line of treatment, more than one out of ten women will undergo at least one operation for either POP or SUI in her life. Sexual dysfunction is described as the absence or impairment of the sexual response or the physical reactions during sexual activity despite adequate stimulation. Sexual dysfunction is subdivided into four categories: sexual desire disorder, sexual arousal disorder, orgasmic disorder and genital or abdominal pain during or after sexual activity (dyspareunia). A necessary criterion for the diagnosis of sexual dysfunction is the presence of the person's distress caused by the sexual disorder.

Women with POP and SUI are more likely to suffer from sexual dysfunction compared to women without these complaints. Among sexually active women presenting to a urogynaecology clinic the prevalence of sexual dysfunction ranges from 48 to 64%. Population based studies showed that women don't easily seek help for their sexual concerns and only one out of five women with a sexual concern contacts a healthcare provider. Reasons for this could be embarrassment, believing that the healthcare provider will not be able to provide help and the perception that sexual problems are not a real health problem. A sexual problem is therefore often only identified when a healthcare provider specifically informs about it.

Generally spoken, to this day, the attention of urogynaecologists to sexual dysfunction seems to be insufficient. A survey amongst urogynaecologists in the United States of America showed that only a minority screened their patients for sexual dysfunction, with lack of time as the most important barrier. As cultural believes are an important factor in discussing sexual problems, the question is whether similar results will be found in other countries as well.

The use of a standardized questionnaire may ease the identification of patients with sexual problems. A short screening questionnaire can be very useful in identifying a sexual problem without adding too much time. In **chapter 2** we describe the prevalence of sexual problems within patients presenting to a general gynaecology or a urogynaecology clinic in a large

teaching university hospital in the United Kingdom. The prevalence of sexual problems was assessed using a simple screening questionnaire. All new patients answered three short questions regarding their sexual functioning: (1) Are you sexually active? (yes/no). If not active, state reason. (2) Is sex painful? (yes/no). (3) Do you have any problems with sex? (yes/no). If yes, state problem. As distress caused by the sexual problem is a necessary criterion for the diagnosis of sexual dysfunction a fourth question was introduced: Are any of your sexual problems bothersome? (yes/no).

A total of 1,194 new patients presenting to a general gynaecology and urogynaecology clinic answered the three short questions regarding their sexual functioning. Thirty-five per cent of the women with a general gynaecological complaint and 38% of the women with an urogynaecological complaint admitted having a sexual problem. A multivariate analysis showed that urogynaecological complaints were significantly associated with the presence of sexual problems.

Seventeen percent of women with a sexual problem presented her complaint to the physician herself, while the remaining only mentioned it after completing the three screening questions regarding sexual function. We conclude that physicians need to be alert in identifying sexual dysfunction, because most women will only admit having a sexual problem when asked directly. The use of a short screening questionnaire can be helpful with the identification.

Two hundred and ninety questionnaires also included the question on bother. Only 45% of women with sexual complaints found them to be bothersome. To prevent over-diagnosis of sexual dysfunction physicians always need to establish the presence of personal distress from the sexual problem.

Chapter 3 describes the results of a study on the general practice of members of the British Society of Urogynaecology (BSUG) with respect to the identification of sexual dysfunction. Furthermore, this study compares the general practice of members of BSUG to the results of a study on the general practice of members of the American Urogynecologic Society (AUGS) previously reported. An anonymous digital questionnaire was sent to all members of BSUG (n=150). Of the 100 questionnaires that were returned 95 (63.3 %) were suitable for analysis.

Ninety-eight percent of respondents thought screening for sexual dysfunction was important to a greater or lesser extent. However, only 50% of respondents regularly screened for sexual dysfunction at clinic visits and 49.5% after surgery. Amongst AUGS members 77% regularly screened during clinic visits and 76% after surgery. The most important barrier for screening was lack of time, both for members of BSUG as well as for members of AUGS. Other barriers often mentioned were insecurity about therapeutic options (25%) and don't know what or how to ask (20%). This reflects a deficiency in knowledge and training, which was confirmed by 76% of respondents who found their training with respect to female sexual dysfunction was unsatisfactory.

These results show that screening for sexual dysfunction is not part of routine practice for half of BSUG members. This highlights the need for improvement in both the education of medical students as well as the postgraduate curriculum and training. (Uro)gynaecologists need to be made more competent and familiar with enquiring about sexual problems and adequately treating them. Physicians should also be made more familiar with the existence of short screening questionnaires to identify sexual problems that don't take too much time.

Although previous literature has shown that women with POP and SUI have a higher risk of suffering from sexual dysfunction compared to women without these complaints, the results with respect to the effect of POP and SUI on the different sexual dysfunction categories are conflicting. While some studies showed an association of POP and SUI with reduced sexual arousal and difficulties in reaching an orgasm, others did not confirm this association. These conflicting results could be the result of discrepancies in patient's characteristics or discrepancies in the definition of disease, but they could also be the result of the use of different questionnaires to diagnose sexual dysfunction. Owing to the subjective nature of sexual function, there is no gold standard for the diagnosis of sexual dysfunction.

To explain these conflicting results a qualitative study can be very useful. A qualitative study describes the view of the women themselves and does not rely on predetermined answers as is the case with questionnaires. A qualitative study not only describes the experiences of the women, but also explains the context of the problems and is therefore able to explain 'why?' and 'how?' POP and SUI impact on the different sexual dysfunction categories.

Chapter 4 describes the results of a qualitative study on the effect of POP and SUI on the different sexual dysfunction categories. Thirty-seven women awaiting pelvic floor surgery in a large university hospital in the United Kingdom underwent a semi-structured interview on the effect of their prolapse or SUI symptoms on their sexual functioning. The most important cause for the negative effect of the prolapse and incontinence symptoms on the sexual life was a negative effect of these symptoms on the woman's body image. Both POP and SUI had a negative impact on the woman's body image. Women with POP had a negative image of their vagina as a result of the presence of the prolapse which led to insecurity regarding their partner's sexual experience. Women with SUI were embarrassed about their incontinence and the need to wear pads. Furthermore, they feared smelling of urine. Worries during sexual activity about the presence of prolapse, discomfort from the prolapse and reduced genital sensations were the most important reasons for reduced desire and arousal and difficulties reaching an orgasm in women with POP. Fear of incontinence during intercourse affected desire, arousal, and orgasm and could be a cause for dyspareunia in women with SUI.

Desire was divided into two main elements: "drive" and "motivation". Although "drive," i.e. spontaneous sexual interest, was not affected by POP and SUI, a decrease in "motivation", or the willingness to engage in sexual activity, was the most common sexual dysfunction mentioned.

Most sexual function questionnaires do not include this division in desire. However, by just including a general question regarding desire, the specific impact on motivation can be missed. This could leave the association between reduced desire and pelvic floor problems undiscovered.

As the presence of POP and SUI directly and indirectly causes sexual dysfunction, one can assume that surgery to cure these conditions would automatically lead to an improvement in sexual function. However, current evidence on sexual function following pelvic floor surgery is conflicting. Some studies have shown improvement in sexual function following pelvic floor surgery, while others showed no change or even deterioration. The discrepancies in outcome of sexual function following surgery might be a reflection of the use of different questionnaires to diagnose sexual dysfunction. The currently available sexual function questionnaire designed specifically for the use in women suffering with POP and urinary incontinence (Pelvic Organ Prolapse / Urinary Incontinence Sexual Function Questionnaire (PISQ)) has been validated to discriminate women with and without sexual dysfunction within the group of women suffering with POP and urinary incontinence. However, it is unsure whether this questionnaire can be used to identify sexual dysfunction following pelvic floor surgery. If only selective aspects of sexual function improve, or if different aspects become relevant as a result of the treatment, the ability of the questionnaire to identify sexual dysfunction could be affected. In order to establish whether the PISQ covers all relevant aspects of sexual function following pelvic floor surgery a qualitative study can be useful. In comparison to a quantitative study, a qualitative study is able to provide the woman's view as well as the context of problems, which are necessary to understand the surgery specific impact on sexual function.

Chapter 5 describes the results of a prospective mixed quantitative and qualitative study on the impact of pelvic floor surgery on female sexual function. Women undergoing corrective surgery for POP or SUI in a large university hospital in the United Kingdom were seen prior to and at 17 weeks (median) after surgery. At both visits the women completed the PISQ questionnaire and underwent a semi-structured qualitative interview.

After surgery a significant improvement was seen in the total PISQ score ($p=0.003$) as well as in the 'Physical' ($p<0.001$) and 'Partner Related' ($p=0.002$) domains, but not in the 'Behavioural/Emotive' domain ($p=0.220$). This means a reduction in the direct effect of POP and SUI on sexual function ('Physical' domain) and an improvement in the woman's perception of her partner's response to the impact of POP and SUI on their sexual life ('Partner Related' domain). No difference was seen in desire, frequency of sexual activity, arousal and orgasm ('Behavioural/Emotive' domain). Analysis of the qualitative data confirmed that the improvement in sexual function was as a result of the cure of prolapse and incontinence symptoms. There was, however, also a negative effect on desire, arousal and orgasm from postoperative dyspareunia, fear of damaging the surgical result, new symptoms and a disappointing result

of surgery. Other than dyspareunia these factors are not part of the PISQ questionnaire. However, they are important in the diagnosis of sexual dysfunction following pelvic floor surgery. We therefore conclude that the PISQ is not optimal for identifying the specific negative effects on sexual function after pelvic floor surgery. By neglecting the negative impact of pelvic floor surgery, PISQ's evaluation of sexual function following surgery might be incomplete or too positive. Future studies should therefore be conducted to either confirm or reject this questionnaire as a validated tool for diagnosing sexual dysfunction after pelvic floor surgery.

Chapter 6 describes the results of a study on the effect of female POP and SUI on the sexual functioning of the male partner. Sexual functioning generally occurs with, and is dependent on a partner. A person's sexual dysfunction can therefore result in sexual dysfunction of the partner as well. Until now very little research has been done to assess the sexual functioning of partners of women suffering of POP and SUI. Most previous studies used general questionnaires used for diagnosing sexual dysfunction in the male partner. However, by using general questionnaires they didn't yield specific information regarding the male partner's individual thoughts and experiences with regards to the effect of POP and SUI on the couple's sexual life. To understand how female pelvic floor disorders, and their surgical treatment, influence the sexual functioning of the partner, a qualitative study was performed in partners of women undergoing surgery for pelvic floor disorders.

Eight men underwent semi-structured face-to-face interviews prior to and at 18 weeks (median) after their partner's surgery. The men described both direct changes in their physical sexual sensations or sexual behaviour as a result of their female partner's pelvic floor dysfunction, as well as indirect changes in their sexual experience as a result of changed sexual behaviour of their female partner. However, most men were understanding of these changes and still evaluated their sex life in a positive way.

Postoperatively, resuming sexual activity was influenced by both the physical recovery of the female partner as well as by the fear of the man to hurt his partner. The evaluation of the sex life following surgery was positive. The cure of the pelvic floor disorder and the improvement in the tightness of the vagina resulted in both a direct positive effect on the physical sexual sensations of the man, as well as in a positive indirect effect as a result of an improvement of the female partner's self-confidence.

As only a small group of men participated in this study, the results should be interpreted with caution. However, while not encompassing all possible sexual health difficulties experienced by the men, the findings can provide guidance to clinicians on possible aspects to explore with their patients and can provide a basis for further qualitative studies and for formulating condition-specific tools for quantitative studies on this subject.

The studies presented in this thesis focus on sexual dysfunction in the field of urogynaecology. As POP and SUI have a large impact on the female sexual function, understanding and awareness

of female sexual dysfunction is crucial amongst healthcare professionals involved in their care. More emphasis on female sexual function and dysfunction in the training of (uro)gynaecologists is therefore necessary. The results of this thesis have given insight into how we can improve our current questionnaires for diagnosing sexual dysfunction within the group of women suffering with pelvic floor disorders both before and after surgery. In the addendum a proposition for a new questionnaire is presented. However, before this questionnaire can be used in clinical practice and research, validation studies need to be conducted to ensure its validity, reliability and responsiveness.

Nederlandse samenvatting

Het doel van dit proefschrift is het verbeteren van de kennis over seksuele disfunctie binnen de uro-gynaecologie en het vestigen van de aandacht van de zorgverleners hierop. De focus ligt op de prevalentie van seksuele problemen binnen een gespecialiseerd uro-gynaecologie spreekuur, de aandacht van gynaecologen met een subspecialisatie in uro-gynaecologie voor seksuele disfunctie in de dagelijkse praktijk, de invloed van verzakkingen van de inwendige geslachtsorganen (prolaps), stressincontinentie en bekkenbodemchirurgie op het seksueel functioneren van de vrouwelijke patiënt, alsmede de invloed hiervan op het seksueel functioneren van de partner.

Hoofdstuk 1 van dit proefschrift geeft een overzicht van de huidige literatuur op het gebied van seksuele disfunctie binnen de uro-gynaecologie. Ook worden in dit hoofdstuk de onderzoeksvragen van het proefschrift gepresenteerd. Prolaps en stressincontinentie zijn frequent optredende aandoeningen. Hoewel conservatieve behandeling, waaronder bekkenbodemfysiotherapie, meestal de behandeling van eerste keus is, zal meer dan een op de tien vrouwen op enig moment in haar leven een operatie voor prolaps of stressincontinentie ondergaan. Seksuele disfunctie wordt omschreven als het ontbreken, of het in mindere mate optreden, van de seksuele respons of de lichamelijke reacties bij seksuele activiteit ondanks adequate stimulatie. Seksuele disfunctie is onderverdeeld in vier categorieën: verstoring van het seksueel verlangen, de seksuele opwinding, of het bereiken van een orgasme of de aanwezigheid van genitale of abdominale pijn tijdens of na seksuele activiteit (dyspareunie). Er kan alleen van seksuele disfunctie gesproken worden wanneer de persoon de verminderde seksuele functie ook daadwerkelijk als een klacht ervaart.

Vrouwen met prolaps en stressincontinentie hebben een hoger risico op seksuele disfunctie in vergelijking met vrouwen zonder deze klachten. Onder seksueel actieve vrouwen die een gespecialiseerd uro-gynaecologie spreekuur bezoeken, varieert de prevalentie van seksuele disfunctie tussen de 48 en 64%. Populatiestudies hebben aangetoond dat vrouwen niet makkelijk hulp zoeken voor hun seksuele problemen en slechts één op de vijf vrouwen met een seksueel probleem zoekt contact met een zorgaanbieder. Dit kan het gevolg zijn van schaamte, het gevoel dat de zorgaanbieder geen hulp zou kunnen bieden en de opvatting dat seksuele problemen geen echt gezondheidsprobleem zouden zijn. Seksuele problemen worden daarom vaak alleen ontdekt als de zorgaanbieder hier actief naar vraagt.

Tot op heden lijkt de aandacht voor seksuele problematiek van gynaecologen met een subspecialisatie in uro-gynaecologie echter onvoldoende. Uit onderzoek onder gynaecologen met deze subspecialisatie in de Verenigde Staten van Amerika bleek dat slechts een minderheid zijn patiënten vroeg naar het bestaan van seksuele problemen. De belangrijkste barrière die hiervoor werd aangegeven was het gebrek aan tijd. Cultuur is een belangrijke factor in het

bespreken van seksuele problematiek en de vraag is dan ook of in andere landen vergelijkbare resultaten gevonden zouden worden.

Het gebruik van gestandaardiseerde vragenlijsten kan het identificeren van patiënten met seksuele problematiek vergemakkelijken. Een korte screenende vragenlijst kan heel nuttig zijn om een seksueel probleem op te sporen zonder dat het veel tijd kost. In **hoofdstuk 2** beschrijven wij de prevalentie van seksuele klachten binnen de groep patiënten die een algemeen gynaecologie of een uro-gynaecologie spreekuur bezochten in een groot opleidingsziekenhuis in Engeland. De prevalentie van seksuele problemen werd geïnventariseerd met behulp van een eenvoudige screenende vragenlijst. Alle nieuwe patiënten beantwoordden drie korte vragen over hun seksueel functioneren: (1) Bent u seksueel actief? (ja/nee). Wanneer u niet seksueel actief bent, benoem de reden. (2) Is geslachtsgemeenschap pijnlijk? (ja/nee). (3) Ondervindt u problemen in het seksueel functioneren? (ja/nee). Indien ja, omschrijf dan uw probleem. Omdat het als een klacht ervaren van het seksuele probleem een essentieel criterium is voor het stellen van de diagnose “seksuele disfunctie” werd een vierde vraag geïntroduceerd: Ondervindt u hinder van een van uw seksuele problemen? (ja/nee).

In totaal beantwoordden 1.194 nieuwe patiënten die het algemene gynaecologie en het uro-gynaecologie spreekuur bezochten de drie korte vragen over het seksueel functioneren. Vijfendertig procent van de vrouwen met een algemene gynaecologische klacht en 38% van de vrouwen met een bekkenbodemplaat gaf aan een seksueel probleem te hebben. Een multivariate analyse toonde aan dat bekkenbodemplaten significant geassocieerd waren met het bestaan van seksuele problemen.

Zeventien procent van de vrouwen met een seksueel probleem presenteerde deze klacht zelf aan de arts, terwijl de overige patiënten de klacht alleen meldden bij het invullen van de drie vragen over het seksueel functioneren. Wij concluderen hieruit dat artsen alert moeten zijn op het identificeren van seksuele disfunctie, omdat de meeste vrouwen seksuele problemen alleen melden wanneer zij hier specifiek naar gevraagd worden. Een korte screenende vragenlijst kan hierbij behulpzaam zijn.

Tweehonderdnegenentwintig vragenlijsten bevatten ook de vraag over het ervaren van hinder van het seksuele probleem. Slechts 45% van de vrouwen zei dit daadwerkelijk te ervaren. Om te vermijden dat de diagnose “seksuele disfunctie” onjuist wordt gesteld, moeten artsen altijd aantonen dat een patiënt haar seksuele probleem ook als klacht ervaart.

In **hoofdstuk 3** worden de resultaten van een onderzoek naar het gebruikelijke beleid van de leden van de British Society of Urogynaecology (BSUG) met betrekking tot het identificeren van seksuele disfunctie beschreven. In dit onderzoek werd tevens het gebruikelijke beleid van leden van BSUG vergeleken met de resultaten van het onderzoek onder leden van de American Urogynecologic Society (AUGS) dat eerder werd gepubliceerd. Een anonieme digitale vragenlijst werd gestuurd naar alle leden van BSUG (n=150). Van de 100 vragenlijsten die werden teruggestuurd waren er 95 (63,3%) bruikbaar voor analyse.

Achttien procent van de respondenten vond het identificeren van seksuele disfunctie in meer of mindere mate belangrijk. Echter, slechts 50% van de respondenten screenen hun patiënten regelmatig op het bestaan van seksuele disfunctie tijdens een polibezoek en 49,5% deed dit ook postoperatief. Onder leden van AUGS screenen 77% regelmatig tijdens een polibezoek en 76% postoperatief. De belangrijkste barrière om te screenen was het gebrek aan tijd, zowel bij leden van BSUG alsook bij leden van AUGS. Andere vaak genoemde barrières waren onzekerheid over therapeutische opties (25%) en niet weten wat of op welke manier te vragen (20%). Dit duidt op een deficiëntie in kennis en training, wat werd bevestigd door 76% van de respondenten die hun training ten aanzien van seksuele disfunctie onbevredigend vonden.

Deze resultaten laten zien dat seksuele disfunctie geen standaard onderdeel vormt van de dagelijkse praktijk voor de helft van de leden van BSUG. Er lijkt daarom een noodzaak te bestaan voor het verbeteren van zowel het onderwijs voor studenten Geneeskunde alsook het postacademisch onderwijs en training. (Uro)gynaecologen dienen meer competent en vertrouwd te raken met het vragen naar seksuele problematiek en met het adequaat behandelen hiervan. Artsen zouden ook bekend moeten worden gemaakt met het bestaan van korte screenende vragenlijsten om seksuele problematiek te identificeren zonder dat dit veel tijd kost.

Hoewel de bestaande literatuur laat zien dat vrouwen met prolaps en stressincontinentie een hoger risico op seksuele disfunctie hebben in vergelijking met vrouwen zonder deze klachten, zijn de resultaten met betrekking tot de invloed van prolaps en stressincontinentie op de verschillende categorieën van seksuele disfunctie inconsistent. Terwijl sommige onderzoeken een associatie van prolaps en stressincontinentie met verminderde opwinding en moeilijkheden met orgasme lieten zien, konden andere onderzoeken deze associatie niet bevestigen. Deze inconsistente resultaten kunnen het gevolg zijn van verschillen in karakteristieken van de onderzoekpopulaties of verschillen in de definitie van de aandoening. Daarnaast kunnen deze inconsistenties ook het gevolg zijn van verschillen in de gebruikte vragenlijsten om seksuele disfunctie te diagnosticeren. Seksuele functie is een subjectieve beleving en er is geen gouden standaard voor het diagnosticeren van seksuele disfunctie.

Om de inconsistente resultaten te begrijpen kan een kwalitatief onderzoek heel nuttig zijn. Een kwalitatief onderzoek geeft de mening van de vrouwen zelf weer en is niet afhankelijk van vooraf bepaalde antwoorden zoals in vragenlijsten. Een kwalitatief onderzoek beschrijft niet alleen de eigen ervaringen van de vrouwen, maar verklaart ook de achtergrond van de problemen en kan daarom verklaren ‘waarom?’ en ‘hoe?’ prolaps en stressincontinentie de verschillende categorieën van seksuele disfunctie beïnvloeden.

Hoofdstuk 4 beschrijft de resultaten van een kwalitatief onderzoek naar het effect van prolaps en stressincontinentie op de verschillende categorieën van seksuele disfunctie. Zevenendertig vrouwen die op de wachtlijst stonden voor een bekkenbodemoperatie in een groot opleidingsziekenhuis in Engeland ondergingen een semi-gestructureerd interview over het effect van hun

prolaps- of stressincontinentieklachten op hun seksueel functioneren. De belangrijkste oorzaak voor het negatieve effect van prolaps- en stressincontinentieklachten op het huidige seksleven was een negatief effect van deze klachten op het eigen lichaamsbeeld van de vrouwen. Zowel prolaps als ook stressincontinentie hadden een negatieve invloed op het eigen lichaamsbeeld van de vrouw. Vrouwen met prolaps hadden een negatief beeld van hun vagina als gevolg van de prolaps wat tot onzekerheid leidde over de seksuele ervaring van hun partners. Vrouwen met stressincontinentie schaamden zich voor hun incontinentie en de noodzaak tot het gebruik van incontinentieverband. Tevens waren zij bang dat zij naar urine zouden ruiken. Zorgen tijdens de seksuele activiteit over de aanwezigheid van de prolaps, pijn als gevolg van de prolaps en verminderde genitale sensibiliteit, waren de belangrijkste redenen voor verminderd verlangen en opwinding en moeilijkheden met het bereiken van een orgasme voor vrouwen met prolaps. Angst voor incontinentie tijdens geslachtsgemeenschap beïnvloedde verlangen, opwinding en orgasme en kon een reden zijn voor dyspareunie in vrouwen met stressincontinentie.

Verlangen was verdeeld in twee elementen: 'seksuele drift' en 'motivatie'. Alhoewel 'seksuele drift', beschreven als spontane seksuele interesse, niet beïnvloed werd door prolaps of stressincontinentie, was verminderde 'motivatie', ofwel de bereidheid om seksueel actief te zijn, het meest genoemde seksuele probleem. De meeste seksuele vragenlijsten gebruiken deze verdeling binnen verlangen niet. Echter door slechts in het algemeen te vragen naar verlangen wordt het specifieke effect op motivatie mogelijk gemist. Dit kan er voor zorgen dat de associatie tussen verminderd verlangen en bekkenbodempromblematiek niet wordt gevonden.

Aangezien de aanwezigheid van prolaps en stressincontinentie zowel direct als indirect seksuele disfunctie veroorzaken, kan men aannemen dat een corrigerende operatie automatisch zal leiden tot een verbetering van het seksueel functioneren. Desondanks is de huidige literatuur tegenstrijdig over dit onderwerp. Er zijn onderzoeken die een verbetering laten zien, maar ook onderzoeken die geen verandering of zelfs verslechtering van het seksueel functioneren na bekkenbodempromblematiek laten zien. De discrepantie in deze resultaten kunnen het gevolg zijn van het gebruik van verschillende vragenlijsten om seksuele disfunctie te diagnosticeren. De huidige seksuele vragenlijst die speciaal ontwikkeld is voor vrouwen met prolaps en incontinentie (Pelvic Organ Prolapse / Urinary Incontinence Sexual Function Questionnaire (PISQ)) is gevalideerd voor het onderscheiden van vrouwen met en zonder seksuele disfunctie binnen de groep vrouwen met prolaps- of incontinentieklachten. Het is echter onzeker of deze vragenlijst ook gebruikt kan worden voor het op de juiste wijze detecteren van seksuele disfunctie na bekkenbodempromblematiek. Wanneer alleen bepaalde aspecten van het seksueel functioneren verbeteren of wanneer als gevolg van de operatie andere aspecten van het seksueel functioneren belangrijk worden, zou dit de juiste beoordeling van seksuele disfunctie kunnen beïnvloeden. Om te beoordelen of de PISQ alle relevante aspecten van het seksueel functioneren na bekkenbodempromblematiek bevat kan een kwalitatief onderzoek uitkomst bieden. In

vergelijking tot een kwantitatief onderzoek kan een kwalitatief onderzoek de mening van de vrouw zelf en de context van de problemen verschaffen die noodzakelijk zijn om de invloed van de operatie op het seksueel functioneren te begrijpen.

In **hoofdstuk 5** worden de resultaten van een prospectief gemengd kwantitatief én kwalitatief onderzoek naar de invloed van bekkenbodempromblematiek op het seksueel functioneren beschreven. Vrouwen die een operatie voor de correctie van prolaps en/of stressincontinentie ondergingen in een groot opleidingsziekenhuis in Engeland, werden zowel voor de operatie, als ook 17 weken (mediaan) na de operatie gezien. Zowel voor als na de operatie beantwoordden de vrouwen de PISQ vragenlijst en ondergingen zij een semi-gestructureerd kwalitatief interview.

Na de operatie was er een significante verbetering in de totale PISQ score ($p=0.003$) alsmede in de domeinen 'Lichamelijk' ($p<0.001$) en 'Partner Gerelateerd' ($p=0.002$), maar niet in het domein 'Gedrag/Gevoel' ($p=0.220$). Dit betekent dat het directe effect van prolaps en incontinentie op het seksueel functioneren was verminderd ('Lichamelijk' domein) en de perceptie van de vrouw met betrekking tot de reactie van de partner op het effect van prolaps en incontinentie op het seksleven was verbeterd ('Partner Gerelateerd' domein). Er werd geen verschil gezien in seksueel verlangen, frequentie van seksuele activiteit, opwinding en orgasme ('Gedrag/Gevoel' domein). Analyse van de kwalitatieve data bevestigde dat verbetering in het seksueel functioneren het resultaat was van de genezing van de prolaps- en/of stressincontinentieklachten. Er was echter ook een negatief effect op verlangen, opwinding en orgasme als gevolg van postoperatieve dyspareunie, angst voor het beschadigen van het resultaat van de operatie, nieuwe symptomen en een teleurstellend resultaat van de operatie. Behalve dyspareunie komen deze factoren niet aan bod in de PISQ, maar zij zijn wel belangrijk voor het diagnosticeren van seksuele disfunctie na bekkenbodempromblematiek. Wij concluderen daarom dat de PISQ niet geschikt is om specifieke negatieve effecten op het seksueel functioneren na bekkenbodempromblematiek op te sporen. Beoordeling van het seksueel functioneren na operaties voor bekkenbodempromblematiek met behulp van de PISQ kan daarom een onvolledig of te positief beeld opleveren. Validatie van deze vragenlijst voor de diagnostiek van seksueel disfunctioneren na bekkenbodempromblematiek is daarom noodzakelijk.

In **hoofdstuk 6** worden de resultaten beschreven van een onderzoek naar het effect van prolaps en stressincontinentie op de seksuele ervaring van de mannelijke partner. Seksualiteit wordt meestal beleefd met, en is mede afhankelijk van, een partner. Seksueel disfunctioneren van een persoon kan daarom leiden tot seksueel disfunctioneren van de partner. Tot op heden is er weinig onderzoek gedaan naar het seksueel functioneren van partners van vrouwen met prolaps en stressincontinentie. De meeste onderzoeken die gedaan zijn gebruikten algemene vragenlijsten voor het diagnosticeren van seksuele disfunctie bij de mannelijke partner. Daarmee geven zij echter geen specifieke informatie over de gedachten en ervaringen van

de partner met betrekking tot het effect van prolaps en stressincontinentie op het seksleven. Om te begrijpen hoe vrouwelijke bekkenbodemp Problemen, en de chirurgische behandeling hiervan, het seksueel functioneren van de partner kunnen beïnvloeden, werd een kwalitatief onderzoek gedaan bij partners van vrouwen die een operatie voor bekkenbodemp Problematiek ondergingen.

Acht mannen ondergingen kwalitatieve semi-gestructureerde interviews voorafgaand aan en achttien weken (mediaan) na de operatie van hun partner. De mannen beschreven zowel directe veranderingen in hun fysieke seksuele sensaties of seksueel gedrag als gevolg van de vrouwelijke bekkenbodemp Problematiek alsook indirecte veranderingen in hun seksuele beleving als gevolg van veranderd seksueel gedrag van hun vrouwelijke partner. De meeste mannen waren echter begripvol voor deze veranderingen en beoordeelden hun seksleven toch positief.

Postoperatief werd het hervatten van de seksuele activiteit beïnvloed door zowel het fysieke herstel van de partner alsook door de angst van de man om zijn partner pijn te doen. De evaluatie van het seksleven na de operatie was positief. De genezing van de bekkenbodemp klachten en het verbeteren van de weefselspanning van de vagina zorgde voor zowel een direct positief effect op de fysieke seksuele sensaties van de man alsook voor een indirect positief effect als gevolg van een verbetering in het zelfvertrouwen van de vrouw.

Omdat slechts een kleine groep mannen meedeed aan dit onderzoek moeten wij voorzichtig zijn met onze conclusies. Hoewel het onderzoek mogelijk niet alle seksuele problemen omvat die worden ervaren door de mannelijke partner, kunnen de bevindingen als leidraad dienen voor artsen over welke eventuele aspecten te bespreken met hun patiënten. Verder kunnen de resultaten van dit onderzoek de basis vormen voor toekomstige kwantitatieve onderzoeken en voor het formuleren van een vragenlijst specifiek voor mannelijke seksuele problemen als het gevolg van bekkenbodemp Problematiek bij hun partner.

De in dit proefschrift beschreven onderzoeken behandelen seksuele disfunctie binnen de urogynaecologie. Gezien de grote impact van prolaps en stressincontinentie op het seksleven van vrouwen, is het belangrijk dat de specialisten die deze vrouwen behandelen deze seksuele problematiek begrijpen en zich bewust zijn van het vóórkomen ervan. Meer aandacht voor dit onderwerp binnen de opleiding is daarom aangewezen. De resultaten van dit proefschrift hebben ons ideeën gegeven voor het verbeteren van de huidige vragenlijsten voor het diagnosticeren van seksuele disfunctie in vrouwen met bekkenbodemp Problematiek, zowel voor als na operatief ingrijpen. In het addendum wordt een voorstel voor een nieuwe vragenlijst gepresenteerd. Echter voordat deze vragenlijst in de praktijk en in onderzoek gebruikt kan worden, moet onderzoek uitgevoerd worden om de validiteit en betrouwbaarheid van de vragenlijst te verzekeren alsmede de mogelijkheid van de vragenlijst om veranderingen waar te nemen (responsiviteit).

**Addendum 1: Sexual Function Questionnaire for
Pelvic Floor Surgery (SFQ-PFS)**

Pre-treatment version

**Addendum 2: Sexual Function Questionnaire for
Pelvic Floor Surgery (SFQ-PFS)**

Post-treatment version

Sexual Function Questionnaire for Pelvic Floor Surgery (SFQ-PFS)

Pre-treatment version

Subject identifier Date

Instructions: Following is a list of questions about your sexual life. All information is strictly confidential. While answering the questions consider your sexuality during the past 4 weeks. If you do not consider yourself to be sexually active only fill out domain **D** of this questionnaire.

In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation and vaginal intercourse.

Sexual intercourse is defined as penile penetration (entry) of the vagina.

Please check the box that best answers the question for you.

CONCEPT

A. GENERAL

1. What best represents how you feel about your sex life?

- Very satisfied
- Satisfied
- Not satisfied, nor dissatisfied
- Dissatisfied
- Very dissatisfied

2. How would you rate your level (degree) of sexual desire? This can include spontaneous feelings of sexual interest or desire, presence of sexual thoughts or fantasies, or a desire triggered when sexually active.

- Very high
- High
- Moderate
- Low
- Very low or none at all

3. Do you worry about your level (degree) of sexual desire?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

4. How would you rate your level (degree) of motivation or willingness to be sexually active with your partner? (Low motivation could include trying to avoid or refusing sexual activity or intercourse)

- Very high
- High
- Moderate
- Low
- Very low or none at all

5. Do you worry about your level (degree) of motivation or willingness to be sexually active with your partner?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

6. How would you rate your level (degree) of sexual arousal (“feeling turned on”) during sexual activity?

- Very high
- High
- Moderate
- Low
- Very low or none at all

7. Do you worry about your level (degree) of sexual arousal (“feeling turned on”) during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

8. How would you rate your ability to become lubricated (“wet”) during sexual activity or intercourse?

- Very high
- High
- Moderate
- Low
- Very low or none at all

9. Do you worry about your ability to become lubricated (“wet”) during sexual activity or intercourse?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

10. How often are you able to achieve an orgasm (climax) with sufficient sexual stimulation?

- Almost always or always
- Most times
- Sometimes
- A few times
- Almost never or never

11. Do you worry about your ability to achieve an orgasm (climax)?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

12. How would you rate the intensity of your orgasm (climax)?

- Very high
- High
- Moderate
- Low
- Very low or no orgasm at all

13. Do you worry about the intensity of your orgasm (climax)?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

14. How would you rate your level (degree) of discomfort or pain during or following sexual activity or intercourse?

- Very low or none at all
- Low
- Moderate
- High
- Very high

15. Do you worry about the presence of discomfort or pain during or following sexual activity or intercourse?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

B. INCONTINENCE

Next are some questions that will evaluate the impact of several symptoms associated with incontinence (either urinary or faecal) on your sexual functioning. If you do not suffer with incontinence (either urinary or faecal) please skip this part of the questionnaire and continue with domain "C. PROLAPSE".

16. Are you incontinent of urine with sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

17. Are you incontinent of stool with sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

18. Do you fear incontinence (either stool or urine) with sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to question 16 ,17 and 18 was "almost never or never", please continue with question 20. Otherwise continue with question 19.

19. Does the occurrence or the fear of incontinence (either stool or urine) during sexual activity:

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... affect your ability to get aroused?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

20. Do you fear smelling of urine?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

21. Do you fear smelling of stool?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

22. Do you feel dirty/unclean because of your incontinence (either from stool or urine)?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to question 20, 21 and 22 was “almost never or never”, please continue with question 24.
Otherwise continue with question 23.

23. Does the fear of smelling of urine or stool, or you feeling dirty/unclean:

..... affect spontaneous feelings of sexual interest or desire?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

Almost never or never A few times Sometimes Most times Almost always or always

24. Do you experience an urge to pass urine during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

25. Do you experience an urge to defecate during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

26. Do you interrupt sexual activity because of the need to use the toilet (either for urine or stools)?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to question 24, 25 and 26 was “almost never or never”, please continue with question 28.
Otherwise continue with question 27.

27. Do interruptions during sexual activity, because of the need to use the toilet (either for urine or stools):

..... affect spontaneous feelings of sexual interest or desire?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

Almost never or never A few times Sometimes Most times Almost always or always

C. PROLAPSE

Next are some questions that will evaluate the impact of prolapse (vaginal bulge) on your sexual functioning.
If you do not suffer with prolapse symptoms please skip this part of the questionnaire and return the questionnaire to your physician.

28. Do you experience negative emotions because of the prolapse (vaginal bulge) such as embarrassment, feeling less attractive or lower self-confidence?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

29. Do you worry about the presence of your prolapse (vaginal bulge) during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to both question 28 and 29 was “almost never or never”, please continue with question 31.
Otherwise continue with question 30.

30. Does worrying or thinking about the presence of prolapse (vaginal bulge):

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

31. Do you experience pain/discomfort from the prolapse (vaginal bulge) during sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

32. Are you afraid of pain/discomfort from the prolapse (vaginal bulge) during or after sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to both question 31 and 32 was "almost never or never", please continue with question 34.
Otherwise continue with question 33.

33. Does the presence or fear of pain/discomfort from the prolapse (vaginal bulge):

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

34. Do you experience reduced sensations in your genital area during sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to question 34 was "almost never or never", please continue with question 36.
Otherwise continue with question 35.

35. Does the reduction of sensations in your genital area during sexual activity:

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

36. Are you afraid of damaging the prolapse (vaginal bulge) during sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

37. Are you afraid sexual activity or intercourse will make the prolapse (vaginal bulge) worse?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to both question 36 and 37 was "almost never or never", please do not complete question 38 and return the questionnaire to your physician. Otherwise continue with question 38.

38. Does fear of damaging the prolapse (vaginal bulge) or making it worse:

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

D. NOT SEXUALLY ACTIVE

Please only fill out this part of the questionnaire if you do not consider yourself to be sexually active.

The following are a list of reasons why you might not be sexually active, for each one, please indicate how strongly you agree or disagree with it as a reason you are not sexually active.

	strongly agree	.	.	.	strongly disagree
Condition-specific					
• due to bladder or bowel problems (urinary or faecal incontinence)	1	2	3	4	5
• due to prolapse (a feeling of a bulge)	1	2	3	4	5
General					
• no partner	1	2	3	4	5
• no interest in being sexually active	1	2	3	4	5
• other health problems	1	2	3	4	5
• pain during or after sexual activity	1	2	3	4	5
Partner					
• because of my partner's health problems	1	2	3	4	5
• because of my partner's sexual difficulties (erectile and ejaculation difficulties)	1	2	3	4	5

Sexual Function Questionnaire for Pelvic Floor Surgery (SFQ-PFS)

Post-treatment version

Subject identifier Date

Instructions: Following is a list of questions about your sexual life. All information is strictly confidential. While answering the questions consider your sexuality during the past 4 weeks. If you do not consider yourself to be sexually active only fill out domain E of this questionnaire.

In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation and vaginal intercourse.

Sexual intercourse is defined as penile penetration (entry) of the vagina.

Please check the box that best answers the question for you.

CONCEPT

A. GENERAL

1. What best represents how you feel about your sex life?

- Very satisfied
- Satisfied
- Not satisfied, nor dissatisfied
- Dissatisfied
- Very dissatisfied

2. How would you rate your level (degree) of sexual desire? This can include spontaneous feelings of sexual interest or desire, presence of sexual thoughts or fantasies, or a desire triggered when sexually active.

- Very high
- High
- Moderate
- Low
- Very low or none at all

3. Do you worry about your level (degree) of sexual desire?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

4. How would you rate your level (degree) of motivation or willingness to be sexually active with your partner? (Low motivation could include trying to avoid or refusing sexual activity or intercourse)

- Very high
- High
- Moderate
- Low
- Very low or none at all

5. Do you worry about your level (degree) of motivation or willingness to be sexually active with your partner?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

6. How would you rate your level (degree) of sexual arousal (“feeling turned on”) during sexual activity?

- Very high
- High
- Moderate
- Low
- Very low or none at all

7. Do you worry about your level (degree) of sexual arousal (“feeling turned on”) during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

8. How would you rate your ability to become lubricated (“wet”) during sexual activity or intercourse?

- Very high
- High
- Moderate
- Low
- Very low or none at all

9. Do you worry about your ability to become lubricated (“wet”) during sexual activity or intercourse?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

10. How often are you able to achieve an orgasm (climax) with sufficient sexual stimulation?

- Almost always or always
- Most times
- Sometimes
- A few times
- Almost never or never

11. Do you worry about your ability to achieve an orgasm?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

12. How would you rate the intensity of your orgasm (climax)?

- Very high
- High
- Moderate
- Low
- Very low or no orgasm at all

13. Do you worry about the intensity of your orgasm (climax)?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

14. How would you rate your level (degree) of discomfort or pain during or following sexual activity or intercourse?

- Very low or none at all
- Low
- Moderate
- High
- Very high

15. Do you worry about the presence of discomfort or pain during or following sexual activity or intercourse?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

B. INCONTINENCE

Next are some questions that will evaluate the impact of several symptoms associated with incontinence (either urinary or faecal) on your sexual functioning. If you do not suffer with incontinence (either urinary or faecal) and have not had treatment for incontinence symptoms please skip this part of the questionnaire and continue with domain "C. PROLAPSE".

16. Are you incontinent of urine with sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

17. Are you incontinent of stool with sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

18. Do you fear incontinence (either stool or urine) with sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to question 16 ,17 and 18 was "almost never or never", please continue with question 20. Otherwise continue with question 19.

19. Does the occurrence or the fear of incontinence (either stool or urine) during sexual activity:

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... affect your ability to get aroused?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

20. Do you fear smelling of urine?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

21. Do you fear smelling of stool?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

22. Do you feel dirty/unclean because of your incontinence (either from stool or urine)?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to question 20, 21 and 22 was “almost never or never”, please continue with question 24.
Otherwise continue with question 23.

23. Does the fear of smelling of urine or stool, or you feeling dirty/unclean:

..... affect spontaneous feelings of sexual interest or desire?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

Almost never or never A few times Sometimes Most times Almost always or always

24. Do you experience an urge to pass urine during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

25. Do you experience an urge to defecate during sexual activity?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

26. Do you interrupt sexual activity because of the need to use the toilet (either for urine or stools)?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to question 24, 25 and 26 was “almost never or never”, please continue with question 28.
Otherwise continue with question 27.

27. Do interruptions during sexual activity, because of the need to use the toilet (either for urine or stools):

..... affect spontaneous feelings of sexual interest or desire?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

Almost never or never A few times Sometimes Most times Almost always or always

C. PROLAPSE

Next are some questions that will evaluate the impact of prolapse (vaginal bulge) on your sexual functioning. If you do not suffer with prolapse symptoms and have not received treatment for prolapse please skip this part of the questionnaire and continue with domain “D. SURGERY”.

28. Do you experience negative emotions because of the prolapse (vaginal bulge) such as embarrassment, feeling less attractive or lower self-confidence?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

29. Does the presence of prolapse (vaginal bulge) cause you to worry about your partner’s sexual experience?

- Almost never or never
- A few times
- Sometimes
- Most times
- Almost always or always

If your answer to both question 28 and 29 was “almost never or never”, please continue with question 31.
Otherwise continue with question 30.

30. Does worrying or thinking about the presence of prolapse (vaginal bulge):

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

31. Do you experience pain/discomfort from the prolapse (vaginal bulge) during sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

32. Are you afraid of pain/discomfort from the prolapse (vaginal bulge) during or after sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to both question 31 and 32 was "almost never or never", please continue with question 34.
Otherwise continue with question 33.

33. Does the presence or fear of pain/discomfort from the prolapse (vaginal bulge):

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

34. Do you experience reduced sensations in your genital area during sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to question 34 was "almost never or never", please continue with question 36.
Otherwise continue with question 35.

35. Does the reduction of sensations in your genital area during sexual activity:

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

36. Are you afraid of damaging the prolapse (vaginal bulge) during sexual activity?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

37. Are you afraid sexual activity or intercourse will make the prolapse (vaginal bulge) worse?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to both question 36 and 37 was "almost never or never", please continue with question 39.
Otherwise continue with question 38.

38. Does fear of damaging the prolapse (vaginal bulge) or making it worse:

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

D. SURGERY

Next are some questions that will evaluate the impact of your recent surgery on your sexual functioning.

39. Do you feel you have completely recovered physically from surgery?

- Almost always or always
 Most times
 Sometimes
 A few times
 Almost never or never

If your answer to question 39 was “almost always or always”, please continue with question 41.

Otherwise continue with question 40.

40. Does your lack of physical recovery following surgery

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

41. Following surgery, do you experience vaginal pain or discomfort during sexual intercourse?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

42. Do you feel that after surgery the length of your vagina is causing pain or discomfort during sexual intercourse?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

43. Do you feel that after surgery the tightness of your vagina is causing pain or discomfort during sexual intercourse?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to question 41, 42 and 43 was “almost never or never”, please continue with question 45.

Otherwise continue with question 44.

44. Does pain or discomfort following surgery

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

45. Following surgery, do you fear pain or discomfort?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to question 45 was “almost never or never”, please continue with question 47.

Otherwise continue with question 46.

46. Does fear of pain or discomfort

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

47. Following surgery, do you worry about damaging the surgical repair?

- Almost never or never
 A few times
 Sometimes
 Most times
 Almost always or always

If your answer to question 47 was "almost never or never", please do not complete question 48 and return the questionnaire to your physician. Otherwise continue with question 48.

48. Do worries about damaging the surgical repair

..... affect spontaneous feelings of sexual interest or desire?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your motivation or willingness to be sexually active with your partner?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to get aroused?

- Almost never or never A few times Sometimes Most times Almost always or always

..... affect your ability to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... prevent you from trying to reach an orgasm?

- Almost never or never A few times Sometimes Most times Almost always or always

..... cause tension and pain during sexual activity?

- Almost never or never A few times Sometimes Most times Almost always or always

E. NOT SEXUALLY ACTIVE

Please only fill out this part of the questionnaire if you do not consider yourself to be sexually active.

The following are a list of reasons why you might not be sexually active, for each one, please indicate how strongly you agree or disagree with it as a reason you are not sexually active.

	strongly agree	.	.	.	strongly disagree
Condition-specific					
• due to bladder or bowel problems (urinary or faecal incontinence)	1	2	3	4	5
• due to prolapse (a feeling of a bulge)	1	2	3	4	5
General					
• no partner	1	2	3	4	5
• no interest in being sexually active	1	2	3	4	5
• other health problems	1	2	3	4	5
• pain during or after sexual activity	1	2	3	4	5
Partner					
• because of my partner's health problems	1	2	3	4	5
• because of my partner's sexual difficulties (erectile and ejaculation difficulties)	1	2	3	4	5
Surgery					
• pain as a result of the surgery	1	2	3	4	5
• fear of causing damage to the surgical repair	1	2	3	4	5
• not physically recovered following surgery	1	2	3	4	5
• my partner is afraid of causing pain	1	2	3	4	5

Chapter 10

List of co-authors and their affiliations

List of publications

Portfolio

Word of thanks/dankwoord

Curriculum Vitae

List of co-authors and their affiliations

Curt W Burger

Erasmus MC, University Medical Centre Rotterdam
Department of Obstetrics and Gynaecology
Rotterdam, The Netherlands

Jan Willem de Leeuw

Ikazia Ziekenhuis
Department of Obstetrics and Gynaecology
Rotterdam, The Netherlands

Aggie TG Paulus

Maastricht University
School of Public Health and Primary Care (CAPHRI)
Faculty of Health, Medicine and Life Sciences, Department of Health Services Research
Maastricht, The Netherlands

Abdul H Sultan

Croydon University Hospital
Department of Obstetrics and Gynaecology
Croydon, United Kingdom

Inka Scheer

Croydon University Hospital
Department of Obstetrics and Gynaecology
Croydon, United Kingdom

Ranee Thakar

Croydon University Hospital
Department of Obstetrics and Gynaecology
Croydon, United Kingdom

List of publications

Publications related to this thesis

Chapter 2

Roos AM, Sultan AH, Thakar R. Sexual problems in the gynecology clinic: are we making a mountain out of a molehill? *Int Urogynecol J* 2012;23(2):145-52

Chapter 3

Roos AM, Thakar R, Sultan AH, Scheer I. Female sexual dysfunction: are urogynecologists ready for it? *Int Urogynecol J* 2009;20(1):89-101

Chapter 4

Roos AM, Thakar R, Sultan AH, Burger CW, Paulus ATG. Pelvic Floor Dysfunction: Women's Sexual Concerns Unraveled. *J Sex Med* 2014;11(3):743-752

Chapter 5

Roos AM, Thakar R, Sultan AH, de Leeuw JW, Paulus ATG. The impact of pelvic floor surgery on female sexual function: a mixed quantitative and qualitative study. *BJOG* 2014;121(1):92-101

Chapter 6

Roos AM, Paulus ATG, Thakar R, Sultan AH. Sexual experiences of male partners before and after female pelvic floor surgery: a qualitative study. *Int Urogynecol J* 2014 *In press*

Other publications

Roos AM, Abdool Z, Thakar R, Sultan AH. Predicting anal sphincter defects: the value of clinical examination and manometry. *Int Urogynecol J* 2012;23(6):755-63

Roos AM, Abdool Z, Sultan AH, Thakar R. The diagnostic accuracy of endovaginal and trans-perineal ultrasound for detecting anal sphincter defects: The PREDICT study. *Clin Radiol* 2011;66(7):597-604

Roos AM, Thakar R, Sultan AH. Outcome of primary repair of obstetric anal sphincter injuries (OASIS): does the grade of tear matter? *Ultrasound Obstet Gynecol* 2010;36(3):368-74

Roos AM, Sultan AH, Thakar R. St. Mark's incontinence score for assessment of anal incontinence following obstetric anal sphincter injuries (OASIS). *Int Urogynecol J* 2009;20(4):407-410

Ikram MK, Janssen JA, **Roos AM**, Rietveld I, Witteman JC, Breteler MM, Hofman A, van Duijn CM, de Jong PT. Retinal vessel diameters and risk of impaired fasting glucose or diabetes: the Rotterdam study. *Diabetes* 2006;55(2):506-10

Portfolio

Summary of PhD training and teaching

Name PhD candidate:	A.M.E. (Anne-Marie) Roos
Erasmus MC Department:	Obstetrics and Gynaecology
PhD Period	January 2008 – November 2013
Promotor:	Prof.dr. C.W. Burger
Copromotors:	Dr. J.W. de Leeuw Dr. A.T.G. Paulus

	Year	Workload ECTS/days
--	-------------	-------------------------------

Degrees

Master of science in Clinical Epidemiology, NIHES, Rotterdam, The Netherlands	2002-2004	35 ECTS
--	-----------	---------

Including:

- **Erasmus summer programme:**
 - Principles of Research in Medicine and Epidemiology
 - Introduction to Data-Analysis
 - Clinical Decision Analysis
 - Regression Analysis
 - Methods of Clinical Research
 - Clinical Trails
 - Topics in Meta-Analysis
 - Pharmaco-epidemiology
 - Survival Analysis
 - Topics in evidence-based medicine
 - Epidemiology and Public Health
 - Study Design for Scientific Medicine
- **Core curriculum**
 - Study Design
 - Discussion Meeting Research Proposal
- **Skills courses**
 - Introduction to Medical Writing
 - Using local Computer Facilities

	Year	Workload ECTS/days
(Degrees continued)		
• Advanced short courses		
• Analysis of Time-varying Exposures		
• Psychiatric Epidemiology		
• Cardiovascular Disease Epidemiology		
• Quantitative Models for Evaluation of Tropical Disease Control		
• Johns Hopkins Bloomberg School of Public Health		
• Multilevel Models		
• Conducting Epidemiological Research		
• Tobacco Control: National and International Approaches		
• Pharmacoepidemiology		
• Epidemiology of HIV/AIDS		
• Nutritional Epidemiology		
General courses		
• Endoanal and Pelvic floor ultrasound masterclass: Hands-on workshop, Croydon University Hospital, United Kingdom	2007	1 day
• Childbirth and Pelvic Floor Trauma, Joint RCOG/BSUG meeting	2008	1 day
• Third and Forth Degree Perineal Tears: Hands-on Workshop, Croydon University Hospital, United Kingdom	2008	1 day
• Episiotomy and Second Degree Perineal Tears: Hands-on workshop, Croydon University Hospital, United Kingdom	2008	1 day
• Qualitative Research Methods, University of Oxford, United Kingdom	2009	5 days
Attendance of conferences		
• International Urogynecology Association (IUGA), 33rd annual meeting, Taipei, Taiwan	2008	2.5 days
• International Continence Society (ICS), 38th Annual Meeting, Cairo, Egypt	2008	2.5 days

	Year	Workload ECTS/days
(Attendance of conferences continued)		
• International Urogynecology Association (IUGA), 34th annual meeting, Como, Italy	2009	2.5 days
• British Society of Urogynaecology (BSUG), annual research meeting, London, UK	2009	1 days
• Joint annual meeting of the International Continence Society (ICS) and International Urogynecological Association (IUGA), Toronto, Canada	2010	2.5 days
• International Urogynecology Association (IUGA), 37th annual meeting, Brisbane, Australia	2012	2.5 days
Oral podium presentations		
• Roos A , Thakar R, Sultan AH. Sexual problems in the gynaecology clinic: Are we making a mountain out of a molehill? <i>Joint annual meeting of ICS and IUGA, Toronto, Canada</i>	2010	1.5 ECTS
• Roos A , Abdool Z, Sultan AH, Thakar R. Predicting anal sphincter defects; the value of history, clinical examination and manometry. <i>Mayday Research Day, Mayday University Hospital, Croydon, UK</i>	2010	1.5 ECTS
• Roos A , Thakar R, Sultan A, Lone F. Female Sexual Dysfunction: the silent affliction? <i>British Society of Urogynaecology (BSUG), annual research meeting, London, UK</i>	2009	1.5 ECTS
• Reid A, Roos A , Sultan AH, Thakar R. Anal Incontinence 3 years after Obstetric Anal Sphincter Injury (OASIS). <i>British Society of Urogynaecology (BSUG), annual research meeting, London, UK</i>	2009	1.5 ECTS
• Roos A , Thakar R, Sultan AH, Lone F. Female Sexual Dysfunction: the silent affliction? <i>Mayday Research Day, Mayday University Hospital, Croydon, UK</i>	2009	1.5 ECTS

	Year	Workload ECTS/days
(Oral podium presentations continued)		
• Roos A , Scheer I, Thakar R, Sultan AH. Predicting postpartum stress incontinence: who is at risk? <i>Mayday Research Day 2009, Mayday University Hospital, Croydon, UK</i>	2009	1.5 ECTS
• Roos A , Thakar R, Sultan AH. Outcome of primary repair of Obstetric Anal Sphincter Injuries (OASIS): Does the grade of tear matter? <i>Mayday Research Day, Mayday University Hospital, Croydon, UK</i>	2008	1.5 ECTS
• Roos A , Sultan AH, Thakar R. Female sexual dysfunction: are urogynecologists ready for it? <i>Mayday Research Day Mayday University Hospital, Croydon, UK</i>	2008	1.5 ECTS
• Roos AM , Thakar R, Sultan AH. Outcome of primary repair of Obstetric Anal Sphincter Injuries (OASIS): Does the grade of tear matter? <i>IUGA, 33rd annual meeting, Taipei, Taiwan</i>	2008	1.5 ECTS
• Sultan AH, Roos AM , Thakar R. Persistent anal sphincter defects after primary repair of Obstetric Anal Sphincter Injuries (OASIS) - Does it affect quality of life? <i>IUGA, 33rd annual meeting, Taipei, Taiwan</i>	2008	1.5 ECTS
Poster presentations		
• Roos A , Thakar R, Sultan AH, Paulus AGT. Prolapse and incontinence surgery: Women's sexual concerns unravelled. <i>IUGA, 37th annual meeting, Brisbane, Australia</i>	2012	1 ECTS
• Roos A , Thakar R, Sultan AH, Paulus AGT. Female pelvic floor surgery and sexuality: What about the partner? A qualitative study. <i>IUGA, 37th annual meeting, Brisbane, Australia</i>	2012	1 ECTS
• Roos A , Abdool Z, Thakar R, Sultan AH The value of endovaginal and transperineal ultrasound in detecting anal sphincter defects. <i>Joint annual meeting of ICS and IUGA, Toronto, Canada</i>	2010	1 ECTS

	Year	Workload ECTS/days
(Poster presentations continued)		
• Roos A , Abdool Z, Sultan AH, Thakar R Predicting anal sphincter defects; the value of history, clinical examination and manometry. <i>Joint annual meeting of ICS and IUGA, Toronto, Canada</i>	2010	1 ECTS
• Roos A , Abdool Z, Thakar R, Sultan AH. The value of endovaginal and transperineal ultrasound in detecting anal sphincter defects. <i>Mayday Research Day, Mayday University Hospital, Croydon, UK</i>	2010	1 ECTS
• Roos A , Thakar R, Ilcyszyn A, Walther B, Sultan AH. Anal and urinary incontinence in nulliparous women – prevalence and risk factors. <i>IUGA, 33rd annual meeting Taipei, Taiwan</i>	2008	1 ECTS
• Roos A , Sultan AH, Thakar R. Female sexual dysfunction: are urogynecologists ready for it? <i>ICS, 38th annual meeting, Cairo, Egypt</i>	2008	1 ECTS
• Roos A , Thakar R, Sultan AH. Is the St. Mark's scoring system suitable for assessment of anal incontinence following repair of obstetric anal sphincter injuries (OASIS)? <i>ICS, 38th annual meeting, Cairo, Egypt</i>	2008	1 ECTS
• Roos A , Sultan AH, Thakar R. Female sexual dysfunction: are urogynecologists ready for it? <i>IUGA, 33rd annual meeting, Taipei, Taiwan</i>	2008	1 ECTS
• Roos A , Thakar R, Sultan AH. Is the St. Mark's scoring system suitable for assessment of anal incontinence following repair of obstetric anal sphincter injuries (OASIS)? <i>IUGA, 33rd annual meeting, Taipei, Taiwan</i>	2008	1 ECTS
• Sultan AH, Roos A , Thakar R. Persistent anal sphincter defects after primary repair of Obstetric Anal Sphincter Injuries (OASIS) - Does it affect quality of life? <i>ICS, 38th Annual Meeting, Cairo, Egypt</i>	2008	1 ECTS

Word of thanks / Dankwoord

Na ruim zes jaar is het moment eindelijk daar: de verdediging van mijn proefschrift. Bij deze zou ik graag een aantal mensen willen bedanken die me tijdens mijn promotietraject hebben geholpen.

First of all I would like to thank all the women and men who have participated in the various studies and who have had the courage to share their most personal and intimate experiences with me. Without you there wouldn't have been a thesis to defend.

Dear Miss Thakar and Mr Sultan, thank you so much for giving me the opportunity to work on this special project. It was a huge inspiration to work with you in such an internationally respected unit. Being far away from home you were like a family to me. I want to thank you for everything you have taught me such as conducting research projects, writing and presenting abstracts and research papers, running a perineal clinic, performing endoanal scans and many more things. Thank you for taking me to the various annual IUGA and ICS meetings where I have been able to present the results of my research projects. Finally, I'd like to thank you for all the lovely dinners at the many Indian restaurants in and around Croydon. I went from a spice level 2 to an 8!

Prof.dr. C.W. Burger, beste Curt, bedankt dat je mijn promotor wilde zijn. Jij had de helikopter view om de algemene voortgang en het kwaliteitsniveau te bewaken. Daarnaast zorgde jij ervoor dat ik in contact kwam met de juiste mensen die ik nodig had om me verder te helpen bij mijn onderzoek. De pragmatisch aanpak die jij hanteert weet ik erg te waarderen. Heel hartelijk dank hiervoor.

Dr. J.W. de Leeuw, beste Jan Willem, na drie maanden te hebben gewerkt in het Ikazia ziekenhuis “stuurde” jij me naar Croydon met de opdracht om één artikel te publiceren. Het werd iets meer dan dat! Het werd twee en een half jaar en ik heb er uiteindelijk negen gepubliceerde artikelen en een proefschrift aan overgehouden. Jij hebt me vanaf het begin gestimuleerd om te promoveren en ik heb er geen spijt van gehad. Jij introduceerde me bij Curt en bij mijn terugkomst in Nederland had jij een ANIOS plek voor mij in het Ikazia waarbij ik deels aan mijn onderzoek kon werken. Bedankt dat je me al die tijd hebt geholpen en hebt gemotiveerd om “de steen rollende te houden”.

Dr. A.T.G. Paulus, beste Aggie, al ontmoette ik je pas later in mijn promotietraject, ik kan eerlijk zeggen dat ik zonder jouw hulp mijn proefschrift niet had kunnen afronden. Ik kwam bij jou voor hulp met het analyseren van mijn kwalitatieve data, een cruciaal onderdeel van mijn onderzoek. Jij dacht mee over de beste manier van analyseren van de data. Stapje voor stapje

begeleidde je mij bij de analyse en jouw positieve instelling en aanmoediging hierbij waren enorm waardevol voor mij. Dit heeft ervoor gezorgd dat er weer vooruitgang kwam in mijn promotietraject en dat ik uiteindelijk tot dit resultaat ben gekomen. Heel veel dank hiervoor.

Furthermore, I would like to thank all the beautiful people I've met during my time in Croydon (Mayday) University Hospital and whom I was able to share my ups and downs with. Thank each one of you for your personal advise, your encouragement, the input for my research projects, and your help with collecting and analysing data. But most of all I want to thank you for the fun times we have had together, in the research office, during perineal clinic, during one of many dinners and at the IUGA and ICS meetings. Ginny, Kirstan, Jacqui, the ladies from the Lancaster suite Dahlia, Wendy, and Anne, Reebea, Zeelha, Yemi, Farah, Ksenia, Annette and Kim, thank you for being my friends.

De maatschap gynaecologie van het Ikazia ziekenhuis. Mijn eerste baan was bij jullie en ik ben me daarom altijd verbonden blijven voelen met het Ikazia. Bedankt voor de steun en het vertrouwen toen ik na twee en een half jaar terugkwam in Nederland en weer als ANIOS aan de slag ging bij jullie. Ik ben jullie ook zeer erkentelijk voor de tijd die ik kreeg om te werken aan mijn promotieonderzoek.

De vakgroep Health Services Research van de Universiteit van Maastricht, in het bijzonder prof.dr Dirk Ruwaard (vakgroepvoorzitter) en prof.dr Silvia Evers. Bedankt dat ik welkom was binnen de vakgroep en ik gebruik mocht maken van jullie faciliteiten. Door de dagelijkse structuur en de wetenschappelijke omgeving kon ik vaart maken in de data analyse.

Prof.dr. G.J. Bonsel, prof.dr C.H. Bangma en prof.dr W.C.M. Weijmar Schultz hartelijk dank voor uw bereidheid om deel uit te maken van de leescommissie en uw tijd voor het beoordelen van mijn manuscript. Prof. Bonsel in het bijzonder wil ik u bedanken voor uw suggesties rondom de methode van kwalitatief onderzoek en het schrijven van een kwalitatief onderzoeksartikel.

Al mijn lieve vrienden en familie wil ik bedanken voor de leuke tijd die we samen hebben en voor de steun en interesse tijdens mijn promotietraject. Een aantal vrienden en familie wil ik graag apart bedanken.

De tiger girls, Jojanneke, Jacqueline and Marianne. Ik had in Croydon geen collega's die ook met een promotie bezig waren en daarom was het heel fijn om mijn ervaringen met jullie te kunnen delen. De weekendjes met jullie waren altijd een heerlijke afleiding van de wetenschap. Ik ben heel blij dat wij met z'n vieren zo goed kunnen shoppen, lachen, kletsen en natuurlijk dansen! Nu ik ook klaar ben met mijn promotieonderzoek, kunnen we eindelijk dat weekendje weg gaan plannen!

Lieve papa en mama, bedankt dat jullie er altijd voor mij zijn en altijd in mij geloven. Het is zo belangrijk om te weten dat je ouders altijd achter je staan en trots op je zijn. Zo'n ouder wil ik ook voor Robin zijn. Ik wil jullie bedanken voor alle kleine dingetjes, zoals boodschappen doen in Croydon als ik al weer aan het werk was, en voor de grote dingen zoals jullie hulp bij het organiseren van mijn promotiefeest. Ik houd heel veel van jullie.

En ten slotte mijn man Pim. Ja, ook jou wil ik bedanken. Heel lang leek er geen einde aan het promotietraject te komen en ik weet dat dat niet altijd even makkelijk was voor jou. Maar nu is het eindelijk klaar! Bedankt voor je steun en liefde. Ik houd van je.

Curriculum Vitae

Anna Maria Elisabeth (Anne-Marie) Roos was born April 17th 1982 in The Hague, The Netherlands. In 1999 she graduated from highschool (VWO) at the Hofstad Lyceum in The Hague. In 2000, after studying Law for 1 year as a consequence of the *nummerus fixus*, she secured a place for the medical training program at the Erasmus University in Rotterdam. The fifth and sixth year she followed two years of clinical internships at the St Elisabeth Hospital in Tilburg as well as the Groote Schuur Hospital in Cape Town, South-Africa and at the MHC Westeinde Hospital in The Hague. Parallel to her medical training she obtained a Master of Science degree in Clinical Epidemiology in 2004 at the Netherlands Institute for Health Sciences (nihes) in Rotterdam.

She obtained her medical degree in 2007 and started working as a junior resident (ANIOS) in Obstetrics and Gynaecology at the Ikazia Hospital in Rotterdam. Between 2008 and 2010 she worked at Croydon University Hospital (Mr A.H. Sultan and Miss R. Thakar) in the United Kingdom as a urogynaecology research-fellow for a 2.5-year period. During this period she published a number of papers focussing on *obstetric anal sphincter injury* and *female sexual dysfunction*. The work conducted in this period turned out to be the start of her PhD thesis. Finalisation of her PhD thesis was done at The Department of Obstetrics and Gynaecology at the Erasmus University Rotterdam (Prof. Dr. C.W. Burger and Dr. J.W. De Leeuw) in collaboration with The Department of Health Services Research at the Maastricht University (Dr. A.T.G. Paulus). In the period 2010 to 2013 she worked as a junior resident (ANIOS) in Obstetrics and Gynaecology both at the Ikazia Hospital and the Sint Fransiscus Gasthuis in Rotterdam and simultaneously worked on finishing her PhD thesis.

Anne-Marie is married to Pim Lievens since 2011 and in 2013 they became the proud parents of their son Robin. She started her residency (AIOS) in Obstetrics and Gynaecology in June 2013 at Reinier de Graaf Hospital in Delft where she is still working today.