REVIEW ARTICLE

Questionnaires in the assessment of sexual function in women with urinary incontinence and pelvic organ prolapse

M. Mestre, J. Lleberia, J. Pubill, M. Espuña-Pons

Unidad de Uroginecología, Servicio de Ginecología, Corporació Sanitària i Universitària Parc Taulí, Sabadell, Barcelona, Spain

Unidad de Uroginecología, Institut Clinic de Ginecologia, Obstetricia i Neonatologia (ICGON), Hospital Clinic i Provincial de Barcelona, Barcelona, Spain

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KEYWORDS
Questionnaires; Sexual dysfunction; Urinary incontinence; Pelvic organ prolapse; Pelvic floor

Abstract
Context: Integrating sexual health in clinical practice is important. In women with pelvic floor disorders, the evaluation of the anatomical defects, lower urinary tract function and the anorectal function often receives more attention than the sexual function.

Methods: Review of Medline using defined search terms to identify articles related to sexual health assessment in urogynecology and manual analyses was performed. Only articles published in English or Spanish were included.

Results: Only 50% of women attending urogynecological clinics are sexually active. Of those, 60% present with some sort of sexual dysfunction (FSD). Questionnaires and sexuality scales would facilitate discussion of sexual matters between the Health Care professionals and the women, and may increase the likelihood of FSD being diagnosed. The Pelvic Organ Prolapse Incontinence Sexual Questionnaire (PISQ) and the PISQ-IR (IUGA-Revised) are the only female sexual function specific questionnaires currently validated and developed specifically to assess sexual function in women with urinary incontinence and/or pelvic organ prolapse. Furthermore, the PISQ-IR also allows evaluation of the outcomes of women who are not sexually active when requiring urogynecologic care. PISQ-IR is also designed for international validation. In order to use the PISQ-IR in Spain, a proper interpretation and validation of the questionnaire is needed.

Conclusions: The evaluation of sexual function through specific questionnaires facilitates the identification of the sexual dysfunctions associated to the pelvic floor disorders. The inclusion of sexuality questionnaires as an outcome measure allows to analyze the impact in the sexual life of women treated for an urogynecological problem.

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* Corresponding author.
E-mail address: mespuna@clinic.ub.es (M. Espuña-Pons).

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Introduction

Sexual health is a state of physical, emotional, mental and social well-being associated with sexuality; it is not only the absence of disease, dysfunction or infirmity. Sexual activity in women is important for many different reasons, including the strong need for emotional intimacy. Traditional linear models for sexual response describe it as invariable, equal for men and women, in which desire always precedes arousal. More recently, Basson has developed a new non-linear model for female sexual response integrating emotional intimacy, sexual stimuli and satisfaction in the relationship. This model acknowledges that female sexual functioning is more complex and that it is not linear as in the case of men, with many women starting a sexual encounter from a point of sexual neutrality.

According to the Diagnostic and Statistical Manual of Mental Disorders, DSM-5, female sexual dysfunction (FSD) includes disorders of sexual desire, arousal, orgasm and sexual disorders due to genito-pelvic pain or penetration. In order to diagnose female sexual dysfunction, it is crucial to investigate the degree of concern this problem arises. There is agreement that the definition of female sexual dysfunction implies that the woman is, to a greater or lesser degree, concerned about this sexual problem. There is an association between female sexual dysfunction and poor physical and mental health and impaired quality of life. From the clinical standpoint, it is important to take different factors affecting sexual health into account, the roles of interpersonal, social and mental health contexts are important, but so are chronic conditions and the sexual health of the couple. The effects of this condition on sexual function can be directly mediated by physiological mechanisms or by psychological factors related to the disease. The treatment itself of the disease may affect sexual function. Comorbidities in women with sexual dysfunction are fairly common, and predisposing, precipitating and maintenance factors need to be assessed within the framework of sexual dysfunction assessment.

The roles of urinary incontinence (UI) and pelvic organ prolapse (POP) in sexual function, like any other chronic urogynecologic problem, should not be underestimated in relation to other factors that are considered to be more commonly involved, such as age or menopause, and it is important to consider the role that anatomical–biological factors (for instance, scars, etc.) might have in women’s sexual response. The psychological consequences of pelvic floor disorder (PFD) can be clinically significant and affect sex life (for example, depression related to severe urinary incontinence), thus limiting the response to the ability to start sexual relationships or the sexual response itself (for example, the impact of the symptom and incontinence with intercourse or with orgasm). More specifically, it is important to know the effects on sexual activity and function of pelvic pain secondary to urogynecological problems or to the treatments applied (for example, pain following treatment with transobturator mesh).

Evaluation of sexual activity and function on each new visit should be part of the usual content of patient-care
services consulting on urogynecological problems, with the aim of being able to carry out a screening to identify women with potential sexual problems. It is advisable that the questions associated with sexual activity and function are asked during the clinical interview when the woman is fully dressed and not during the physical examination; we thereby prevent this talking about sexuality from causing greater anxiety and a greater sense of vulnerability, than those which pelvic examination itself entail for most women. The more comfortable the physician feels toward sexual terminology, the easier it will be for the patient to share her sexual concerns and discuss them.

Self-administered questionnaires are an unobtrusive, reproducible method to assess female sexual health. Both clinicians and researchers acknowledge the importance of obtaining information from patients without biases and in a reproducible manner. Questionnaires generally measure “subjective” information in an “objective” manner. Questionnaires are used as Patient-reported outcomes (PROs) in order to: (1) Identify/diagnose individuals with dysfunction; (2) assess the severity of this dysfunction; (3) measure improvement and/or satisfaction with medication; and (4) examine the impact of dysfunction on patient and partner quality of life. The tools used to assess health problems can range from non-validated quality of life questionnaires created ad hoc, to questionnaires designed and validated to assess the impact of a particular health problem and of its treatment on quality of life. The psychometric properties of a questionnaire include its validity, reliability and sensitivity. Validity determines if the questionnaire really measures what it is intended to measure and consists of 3 main components: content validity, construct validity and criterion-related validity. Content validity evaluates whether the questionnaire actually behaves as expected in the studied population. For instance, it can be expected that as urinary incontinence improves, sexual function will also improve. Criterion-related validity evaluates if it correlates well with another gold-standard measurement. The reliability of a questionnaire refers to its ability to measure in a reproducible manner. Two important aspects of reliability are interval consistency and reproducibility. Internal consistency is the degree in which the items on the questionnaire are interrelated, as measured by the item-total correlation or by Cronbach’s alpha coefficient. Questions must be related, but not repeated. Reproducibility determines inter- (reliability between different evaluators) and intra-observer (reliability between the same evaluator) variability. Finally, the sensitivity of a questionnaire is the ability to detect treatment effects and clinically significant changes. The minimal clinically significant difference is associated with sensitivity and represents the clinical relevance of how the questionnaire measures change. Among the validated questionnaires, that is to say, those that have undergone an assessment process ensuring that measurements are accurate and consistent, we can find the so-called generic ones and the condition-specific ones. Generic questionnaires compare function or quality of life among different conditions, whereas condition-specific questionnaires measure the differences between individuals with the same condition. In the case of PROs for sexual function assessment, generic questionnaires are more useful when sexual function is compared between patient groups, for example between women with heart disease and women with urinary incontinence. Condition-specific questionnaires are essential to compare sexual function within the same group, for example between women with urinary incontinence and women with prolapse, and are also a really helpful tool to measure the impact of the treatments applied on the sex lives of women.9

Methods

For this review, we conducted a search on Medline for the publications associated with the assessment of sexual health in urogynecology with the following terms:

(1) Pelvic organ prolapse OR incontinence AND female sexual function.
(2) Female sexual dysfunction AND questionnaires.
(3) “PISQ”

Among the bibliographical references identified, articles were selected based on their clinical relevance, in relation to the goal of our review. We conducted a manual review of the references of each selected article with the aim of identifying non-localized studies in the online search, but which might be potentially relevant for this review. We only considered the articles published in English and Spanish.

Results

Questionnaires for the evaluation of sexual dysfunction prevalence in women with urinary incontinence and pelvic organ prolapse

Table 1 shows the major studies published until now evaluating sexual activity and function in women consulting on an urogynecological problem.7-11 Most of the studies conducted on these women agree that only from 50% to 60% of women seeking consultation in regard to symptoms of incontinence and/or genital prolapse are sexually active. The quality of these studies is highly variable, since some of them use generic questionnaires, others use condition-specific questionnaires amongst the general population, and almost every study excludes those women who are not sexually active. According to these reviewed studies, the prevalence of sexual dysfunction in women with pelvic floor problems (UI and/or POP) ranges from 25% to 60%.7-11

Although both UI and POP are common pathological processes, only a minority of health professionals carries out a screening of all their patients to detect sexual dysfunction. Lack of time, ignorance of therapeutic options to treat sexual dysfunctions and the belief that sexuality is not an important issue among these women due to their advanced mean age, are the reasons referred to by professionals in order to justify why they do not systematically ask about sexual life when taking the urogynecological history.12,13 The sexual lives of the women attended to in clinical practice in urogynecology can be grouped into a first group with pelvic
floor problems, with a "sexual life self-perceived as normal"; these women, during the process of treatment selection for their urogynecological problem, must be informed about the possible impact of the treatment of choice on their sexual lives and consider this issue when making the final treatment selection (for example, SUI or POP surgery). After treatment, the impact on sexual activity and function must be another outcome measurement, assessed both in a subjective and objective manner. Validated questionnaires are the only tools that enable us to quantify changes before and after treatment, and to assess both individually and globally if the impact of the application of a particular treatment has been positive, negative or neutral on the woman’s sexual life. There is a second group of women with urogynecological problems who feel they have "sexual problems" and who are concerned about them. In the case of these patients, it is essential to determine the kind of sexual dysfunction they are suffering from and to which extent pelvic floor dysfunction acts as a predisposing, precipitating or maintenance factor for the sexual dysfunction identified (for example, urinary incontinence and hypoactive sexual desire). Finally, there is a third group of women, who would be patients claiming not to have any kind of sexual activity and on whom we should investigate whether this inactivity is due to causes beyond the process they are consulting on (problems on the part of their partners, they do not have a partner, etc.) or whether they consider it to be associated with the problem they are consulting on (for example, impossibility of intercourse due to a very severe genital prolapse or fear of incontinence during intercourse).  

### Evaluation of the results of treatments for urinary incontinence and pelvic organ prolapse with a generic questionnaire. Female sexual function index

The female sexual function index (FSFI) is the most widely used generic questionnaire to assess female sexual function; it has a total of 19 items evaluating 6 domains of DSF and emphasizes the domain of female sexual arousal disorder which is divided into 2 domains, lubrication and arousal, in order to assess both components: the peripheral one (lubrication) and the central one (arousal and subjective desire).  

Table 2 shows the most relevant studies where this questionnaire has been used to assess the results of different types of treatment.  

### Evaluation of the results of treatments for urinary incontinence and pelvic organ prolapse with a specific questionnaire. Pelvic Organ Prolapse Urinary Incontinence Sexual Questionnaire

The Pelvic Organ Prolapse Urinary Incontinence Sexual Questionnaire (PISQ) has 31 items and comprises 3 dimensions: emotional, physical and that of the partner. It shows construct validity and has undergone external validation, with high correlation between PISQ and the SHF-12 and the scores of the Incontinence Impact Questionnaire; furthermore, the PISQ is sensitive to change. There is a short version with 12 items, the PISQ-12, which is also valid and reliable and

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### Table 1  Major studies examining the activity and sexual function in women with pelvic floor disease.

<table>
<thead>
<tr>
<th>Year</th>
<th>Sample size</th>
<th>Study type</th>
<th>Follow-up</th>
<th>Questionnaires</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>348</td>
<td>Prospective multicenter</td>
<td>Months</td>
<td>Sexual condition-specific questionnaire of 9 items/1 item of the Incontinence Impact Questionnaire-Revised</td>
<td>48% women with PSP women are sexually inactive POP is a more likely cause of sexual inactivity than UI</td>
</tr>
<tr>
<td>2006</td>
<td>450</td>
<td>Observational</td>
<td>Months</td>
<td>Generic sexual questionnaire Female Sexual Function Index (FSFI)</td>
<td>54% patients sexually inactive Sexual dysfunction 64%</td>
</tr>
<tr>
<td>2008</td>
<td>301</td>
<td>Observational</td>
<td>Months</td>
<td>Short form of the Personal Experiences Questionnaire (adapted from McCoy Female Sexuality Questionnaire [PFDI-20])</td>
<td>Higher PFDI rate: worse arousal, orgasm, more dyspareunia. POP III-IV associated to infrequent orgasm</td>
</tr>
<tr>
<td>2009</td>
<td>1735</td>
<td>Observational/multicenter</td>
<td>-</td>
<td>International Consultation on Incontinence Urinary Incontinence Short Form (ICIQ-UI SF) King’ Health Questionnaire (KHQ)</td>
<td>Coital UI is associated to greater UI severity in the ICIQ-UI SF. Coital UI great quality of life impairment in sexually active women</td>
</tr>
<tr>
<td>2013</td>
<td>505</td>
<td>Prospective cohorts</td>
<td>Months</td>
<td>Female Sexual Function Index (FSFI)</td>
<td>25% women with PFD are sexually inactive. Sexual activity rates and sexual function are not different between women with and without pelvic floor disorder</td>
</tr>
</tbody>
</table>
Table 2  Main published studies examining sexual function in different types of treatments of pelvic floor disease with the generic FSFI questionnaire.

<table>
<thead>
<tr>
<th>Study Type</th>
<th>Year</th>
<th>Size</th>
<th>Type of Study</th>
<th>Follow-up</th>
<th>Results</th>
<th>Alcalay et al.</th>
<th>Hoda et al.</th>
<th>Lakeman et al.</th>
<th>Azar et al.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POP surgery with mesh</strong></td>
<td>2011</td>
<td>20</td>
<td>Prospective</td>
<td>12 months</td>
<td>FSFI scores do not change after surgery</td>
<td>-</td>
<td>2011</td>
<td>96</td>
<td>Prospective non-randomized Transobturator meshes (posterior and anterior)</td>
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<tr>
<td><strong>Type of mesh</strong></td>
<td></td>
<td></td>
<td>EndoFast Reliant System</td>
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<td><strong>Follow-up</strong></td>
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<td><strong>Results</strong></td>
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<tr>
<td><strong>POP surgery without mesh</strong></td>
<td>2013</td>
<td>29</td>
<td>Prospective</td>
<td>6 months</td>
<td>FSFI scores do not change after surgery</td>
<td>Serati et al.</td>
<td>2007</td>
<td>76 cases and 67 controls</td>
<td>Prospective 4 months</td>
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<tr>
<td><strong>Type of study</strong></td>
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<td><strong>Follow-up</strong></td>
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<td><strong>Results</strong></td>
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<tr>
<td><strong>IUE rehabilitation treatment</strong></td>
<td>2014</td>
<td>34</td>
<td>Prospective</td>
<td>3 months</td>
<td>Improve after rehabilitation</td>
<td>Lowenstein et al.</td>
<td>2010</td>
<td>176</td>
<td>Prospective 5 months</td>
</tr>
<tr>
<td><strong>Type of study</strong></td>
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<tr>
<td><strong>Follow-up</strong></td>
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<td><strong>Results</strong></td>
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</table>

with a score that has proven to be predictive of the long version, with a Spanish version also being available. The PISQ in both versions, long and short, has been used over the last few years in a great number of studies assessing the results of treatments for urinary incontinence and genital prolapse.

Table 3 shows the most relevant studies where this questionnaire has been used to assess the results of different types of treatment.

One of the major limitations of the PISQ is that it does not allow the assessment of sexual activity and function in women with no partner and who are not considered to be sexually active. This may underestimate the impact of PFD on sexual function, since women with severe PFD may opt not to be sexually active. Taking into account the limitations of the PISQ, the International Urogynecologic Association formed a working group to create validate a questionnaire on sexual function which could be translated and validated into several languages. A multi-center group with centers in the USA and the United Kingdom was created in order to validate this tool into English. This international, multi-center study, sponsored by the International Urogynecologic Association (IUGA), was designed to cope with the limitations of current questionnaires on sexual function, and its aim was to work on and establish the validity, reliability and response capacity of a revised PISQ.

**Pelvic Organ Prolapse Incontinence Sexual Questionnaire, IUGA-revised**

The PISQ questionnaire as revised by the IUGA is called PISQ-IR (IUGA-revised) and enables the assessment of results in women who are not sexually active at the moment of consultation for an urogynecological problem and also in women with anal incontinence. This measurement is now ready for international validation and, in fact, some members of the IUGA have begun its validation into different languages under the tutelage of the IUGA Research Committee.

**Conclusions**

Urogynecological conditions negatively affect quality of life and have an impact on sexual health. The assessment of
Table 3  Main published studies examining sexual function with the PISQ specific questionnaire in women treated for prolapse and incontinence.

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Size</th>
<th>Type of study</th>
<th>Type of mesh</th>
<th>Follow-up</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Haddad et al.</td>
<td>2013</td>
<td>69</td>
<td>Prospective</td>
<td>Previous Gynemesh/Prolift</td>
<td>6 months</td>
<td>Improvement PISQ-12 scores. Slight increase of dyspareunia</td>
</tr>
<tr>
<td>Azaïs et al.</td>
<td>2012</td>
<td>70</td>
<td>Prospective</td>
<td>Elevate</td>
<td>One year</td>
<td>No improvement in sexual function</td>
</tr>
<tr>
<td>Cervigni et al.</td>
<td>2011</td>
<td>97</td>
<td>Prospective</td>
<td>Avaulta</td>
<td>One year</td>
<td>Improved sexuality</td>
</tr>
<tr>
<td>Thakar et al.</td>
<td>2008</td>
<td>35</td>
<td>Prospective</td>
<td>TVT-secure</td>
<td>4 months</td>
<td>Improved sexual function</td>
</tr>
<tr>
<td>Lowder et al.</td>
<td>2010</td>
<td>76</td>
<td>Case-control</td>
<td>TVT/Monarc</td>
<td>6 months</td>
<td>Body image, sexual function and symptoms improve</td>
</tr>
<tr>
<td>Lowenstein et al.</td>
<td>2010</td>
<td>235</td>
<td>Prospective</td>
<td>TVT-o</td>
<td>6 months</td>
<td>POP surgery-improved body image and sexual function</td>
</tr>
<tr>
<td>De Souza et al.</td>
<td>2013</td>
<td>33</td>
<td>Prospective</td>
<td>TVT-secure</td>
<td>One year</td>
<td>Improved sexual function at 6 months and one year</td>
</tr>
<tr>
<td>Lau et al.</td>
<td>2013</td>
<td>87</td>
<td>Prospective</td>
<td>TVT-secure</td>
<td>One year</td>
<td>Improved SUI without improved sexual function</td>
</tr>
<tr>
<td>Handa et al.</td>
<td>2011</td>
<td>445</td>
<td>Prospective</td>
<td>TVT-secure</td>
<td>3 months</td>
<td>Worse PISQ-12 in mixed UI</td>
</tr>
<tr>
<td>Rogers et al.</td>
<td>2008</td>
<td>411</td>
<td>Cases/controls</td>
<td>Tolterodine</td>
<td>12 weeks</td>
<td>Improved quality of life without changes in sexual health</td>
</tr>
</tbody>
</table>

sexual function in women with PFD by using questionnaires enables us to obtain and identify sexual dysfunctions in these women.

The questionnaires used to assess general sexual activity and function are not specifically designed to evaluate the sexual health of women with pelvic organ prolapse and/or incontinence, so they may not be sensitive enough to identify among these women, who have sexual dysfunctions, or to detect significant changes in the sexual health of those women treated for these diseases. The PISQ is the only
condition-specific questionnaire that is extremely useful to for comparing groups of women with different urogynecological problems (POP, UI, etc.). This questionnaire is less useful for comparing groups of women with and without urogynecological disease. The PISQ-IR is the revised version of the PISQ with significant improvements in its structure and designed to provide a tool that enables comparison of results by researchers worldwide.

Conflict of interest

The authors declare that they have no conflict of interest.

References