

## REVIEW

# Inventories for male and female sexual dysfunctions

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Several illnesses can distress sexual health and disrupt sexuality, an integral part of being human. These illnesses are not different in origin from those affecting other health areas, but, because sexuality is involved, effective communication and empathy between the physician and the patient may be severely hindered by negative feelings such as anxiety and guiltiness. A detailed general and sexual history is, however, an essential step in evaluating patients for sexual dysfunction (SD). Finding the correct way to ask questions and to decode answers on sexual health and disease might be difficult and, in some way, embarrassing. Hence, validated and standardized sexual inventories might help physicians confront SD. These case-history tools have the advantage of being standardized, easy to administer and score, relatively unobtrusive and substantially inexpensive. This review describes the main sexual inventories hitherto described and validated in different sexual areas of health and disease, and the advantages of the two main formats available to clinicians, that is, structured interviews (SIs) and self-report questionnaires (SRQs). Both types of inventories are composed of a set of standardized, written probe questions requiring a finite number of responses, driven by an interviewer (SIs) or by the patients themselves (SRQs). SRQs allow more time and intimacy to organize and develop answers to delicate questions, as are those on sexual life. In addition, SRQs could also be very useful in quantifying disease severity and treatment outcome. On the other hand, SIs help achieve a better patient–physician relationship and reduce the risk of misunderstandings.

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## Sexual health and sexual history

Sexuality is an integral part of being human. Love, affection and sexual intimacy contribute to healthy relationships and a person's happiness and self-esteem. Sexual health is a multifaceted concept that encompasses social constructs and individual behaviors, promoting the best possible sexual functioning in physical, psychological and social environments. Sexual health and attitude are determined by multiple influences such as parents, friends, education, environment and culture, but

the most important influence is individual experience and self-image. Several illnesses can affect sexual health and disrupt sexuality. These illnesses are not different in origin from those affecting other health areas, but, because sexuality is involved, cultural attitudes and social norms often restrain patients from consulting their physicians. When patients finally consult them, they are acutely aware of their sexual troubles, but negative feelings such as anxiety and guiltiness severely hinder the patient–physician relationship and impair effective communication and empathy, that is, the first step towards solving the problem. Establishing an interested and warm relationship is the prerequisite for obtaining an informative and thorough history, the cornerstone of an economical investigation, an accurate diagnosis and a successful treatment. The physician needs to consider the background of the sexual problem, in terms not only of the patients themselves, but also within the context of the couple's relationship and of the family background. At the beginning of the interview, the physician should

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obtain information about the patient's origin, education, job, home, lifestyle, hopes and fears, to get onto friendly terms with him/her. In listening to the patient's history, the physician should pay attention even to the slightest details such as the voice inflection, facial expression and attitude. The physician will then elicit a careful history of the patient's illness not apparently related to the sexual problem, knowing that any event reported by the patient, even trivial or apparently remote, may be the key to the solution of the sexual problem. It is important to note that most sexual dysfunctions are symptoms of other pathological processes that must be correctly identified and, possibly, treated. Hence, predisposing causes of arteriosclerosis such as diabetes mellitus, arterial hypertension and disturbed lipid metabolism must be investigated along with psychiatric diseases and systemic or pelvic neurological disorders. A detailed drug history is obviously essential, in view of the numerous pharmaceutical substances negatively interfering with sexual functioning. Given the personal, interpersonal, social and occupational implications of sexual problems, the assessment of sexual history is altogether complex.

## Sexual inventories

The underlying philosophy of the patient-physician relationship is the acceptance of each person as unique and valuable. There must be a tension between the physician and the patient, a holistic care approach to obtain and use the full range of information to direct the diagnostic and therapeutic intervention. In sexual medicine, this paradigm is not always easy. Finding the correct way to ask questions and to decode answers on sexual health and illnesses might be difficult and, in some way, embarrassing. Hence, expert-guided, validated and standardized sexual inventories (i.e. structured interviews and self-report questionnaires) might help naive and more experienced physicians alike to address sexual health and diseases. In addition, sexual inventories might help to evaluate the outcome of therapies better and more easily. These clinical tools have the advantage of being standardized, easy to administer and score, in that they provide normal values in general and pathological populations, as well as being relatively unobtrusive and substantially inexpensive. However, they carry a risk of oversimplification and are sensitive to language differences (they need to be validated in each language), semantic perception, and to ethnic, religious, education and cultural factors. Despite this, sexual inventories represent a unique tool in the assessment and therapeutic follow-up of patients with sexual dysfunctions. Nonetheless, sexual inventories can be considered a guide, not a substitute for an in-depth sexual history. As stated

above, sexual inventories are divided into two main domains: structured interviews (SIs) and self-report questionnaires (SRQs).<sup>1</sup> Both inventories are composed of a set of standardized, written probe questions requiring a finite number of responses. However, in contrast to SRQ, SIs allow the physician to explain the technical terms used, thus reducing the risk of misunderstandings. The question is read to respondents, who are asked to rephrase it into their own words and answer. Questions likely to lead to dishonesty, because they are embarrassing or considered too private to discuss even with physicians, can be identified by signs of discomfort in respondents and can therefore be rephrased, reassuring about their confidentiality. In addition, the SI, instead of forcing a choice among a limited number of fixed answers, allows the patient to provide a complete and accurate answer, which is then rated by the interviewer. A further advantage of SI over SRQ is that a face-to-face interview facilitates a virtuous, intimate physician-patient relationship.<sup>1,2</sup> On the other hand, SRQ allows thoughts to be organised in a reflective way, which may not be possible during an interview, and permits patients to disclose sensitive information that they might not reveal during the physician-directed interview.<sup>1</sup>

Sexual inventories may be profoundly different, and the choice relies on many scientific criteria (Table 1). Basically, most of them are based on the classic subdivision of the human sexual act: desire or libido, excitation or arousal (erection and lubrication), plateau, orgasm (ejaculation and pleasure) and resolution. Thus, they explore symptoms related to these phases: hypoactive sexual desire (HSD), erectile dysfunction (ED), premature or delayed ejaculation (PE and DE), female anorgasmia, pain during intercourse (dyspareunia). Moreover, some inventories focus on other aspects of sexuality, such as relationship and marital issues, intrapsychic impact or the quality of life during the sexual symptoms and after recovery.

## Search strategy

A systematic search of published male and female inventories was performed using Medline (1969 to May 2005). In an effort to identify the instrument, the search terms 'inventories, questionnaires, interviews and structured interviews' were combined consecutively with the following terms: 'erectile dysfunction', 'impotence', 'sexual health', 'sexual functioning', 'quality of life' and 'premature ejaculation' for males, and 'female sexual dysfunction', 'desire', 'arousal', 'lubrication', 'orgasm', 'satisfaction', and 'pain/discomfort' for females. The search was limited to English-language papers in which the quantification of sexual function and its validation were described. Moreover, only manuscripts reporting the entire version of the inventory were considered.

**Table 1** Criteria for measuring male and female sexual dysfunction questionnaires See (Heiman<sup>64</sup> and Quirk *et al.*<sup>66</sup>)

<i>Criterion</i>	<i>Significance</i>	<i>Note</i>
Reliability	Consistency or repeatability of measurement. It is the inverse of measurement error	The 1.00 coefficient indicates a measurement without errors The 0.00 indicates the absence of consistent variation
Test–retest reliability	Repeated administration of the questionnaire (at 2–4-weeks interval) to the same population	Indicator of the stability of the measure over time
Internal consistency	Homogeneity of item within a domain	
Inter-rater reliability	Consistency between raters for clinician-administered inventories	Are the test items appropriate and complete?
Test validity	The degree to which the tool measures what it purports to measure	Are the tests scores related to some currently available external measure of the same domain?
Concurrent validity	The degree to which the tool measures what it purports to measure	Can the test differentiate between clinical and non clinical samples?
Discriminant validity	The degree to which the tool measures what it purports to measure	How are the scores associated with those from a related but different domain?
Divergent validity	The degree to which the tool measures what it purports to measure	To be used for diagnosis
Sensitivity	Ability to differentiate between individuals with and without sexual dysfunction	
Capacity	Ability to detect treatment-induced changes	To be used in clinical trials
Receiver operating characteristic (ROC)	Analysis establishing the ability to correctly classify a subject's status based on the domain score	For each domain, the area under the ROC curve (AUC) is an overall assessment of a tool's discriminative capability
Other considerations	Test brevity Ease of administration Ease of scoring Cost efficiency Computer compatibility Availability of language translation	

## Male sexual measures: SRQ on sexual function

Table 2 summarizes the most important sexual inventories on male sexual function. As for SRQs, some of them are more directly focused on sexual functions and others mainly investigate quality of life or satisfaction with ED treatments. Other SRQs have been developed to test premature ejaculation. The International Index of Erectile Function (IIEF<sup>3</sup>) is the most frequently used SRQ for the evaluation of male sexual function.<sup>4</sup> It has been widely used for determining the efficacy of treatments in controlled clinical trials.<sup>4</sup> Although the IIEF is a useful instrument, because of its length, it is not as well suited for use in clinical practice. Consequently, an abridged 5-item version of the original 15-item IIEF, the IIEF-5 (Sexual Health Inventory for Men, SHIM<sup>5</sup>) and a 6-item version, the IIEF-6 (the erectile function domain of IIEF-15<sup>6</sup>) were separately developed and validated to diagnose the presence and severity of ED. Although IIEF has been widely considered an excellent tool in the evaluation of the efficacy of drug therapies, it could not analyze pathogenetic components underlining ED and its role in differentiating the various causes of ED has been questioned.<sup>7,8</sup> Finally, a modified version of IIEF asks 15 questions about sexual performance during a single, acute treatment (ACUTE IIEF-15).<sup>9</sup> This modification is useful to assess treatment efficacy not only during a single sexual intercourse but also in masturbation. As the template test is well validated, this modification did not need further validation.

The Brief Sexual Function Inventory for urology (BSFI<sup>10</sup>) is an SRQ developed to measure various domains of sexual function. Potential limitations are the restricted evaluation of erectile and orgasmic functions, and the lack of evidence concerning sensitivity or responsiveness to treatment.<sup>4</sup>

The Florida Sexual History Questionnaire (FSHQ) is an instrument proposed to differentiate organic and psychogenic ED, but the discriminating function for differential diagnosis was complex and difficult to calculate.<sup>11</sup>

The Male Sexual Health Questionnaire (MSHQ) is a new SRQ specifically designed to assess the relevant domains of sexual function and satisfaction and, in particular, ejaculatory dysfunctions including delayed ejaculation and anejaculation.<sup>12</sup> The instrument was also designed to address deficiency in the IIEF and other tools such as heterosexual bias and to assess sexual function independently of the effects of phosphodiesterases-5 inhibitors or other therapies.<sup>12</sup>

The Golombok Rust Inventory of Sexual Satisfaction (GRISS) is an SRQ assessing sexual dysfunction and satisfaction in heterosexual relationships.<sup>13</sup> This instrument has been proposed to detect patients with sexual dysfunctions, as well as to

identify those who are in need of professional assistance or guidance.<sup>14</sup>

The Erection Quality Scale (EQS), unlike other SRQs, can be used with men of all sexual orientations with or without a current partner.<sup>15</sup> The instrument lacks sufficient evidence to prove its usefulness in clinical studies.

The Arizona Sexual Experiences Scale (ASEX) is an SRQ developed to detect and follow up sexual dysfunctions in depressed patients.<sup>16</sup> Recently, it was applied to screen the presence of sexual dysfunctions in end-stage renal disease patients.<sup>17</sup>

The Derogatis Interview for Sexual Functioning was developed in the form of an interview and matching self-report (DISF-SR<sup>18</sup>) to assess sexual function in men and women. It is a simplification of the Derogatis Sexual Function Inventory (DSFI), a very long SRQ with strong psychometric properties, but difficult to use.<sup>19</sup> It explores a broad range of sexual behaviors and has two gender-specific versions. Gender role as assessed by the DSFI has been reported to identify correctly men with organic and psychogenic ED,<sup>20</sup> but other reports were unable to confirm this finding.<sup>21</sup> The tests have been psychometrically validated and widely used but their major drawbacks are, especially for DSFI, their length and complexity, which make them generally unsuitable for clinical studies.<sup>4</sup>

The Sexual Interaction Inventory (SII<sup>22</sup>) consists of a list of 17 heterosexual behaviors. The answers of both members of the couple are summed across all these behaviors and used to derive an 11-item scale profile. The lack of sufficient numbers of clinical controlled studies using this instrument makes SII generally unsuitable for clinical practice.

## Male sexual measures: SRQ on quality of life in ED patients

Although considered a benign disorder (not reducing life-expectancy), ED has specific psychological, relational and psycho-sexual consequences on males including depression, anxiety, sexual avoidance or marital problems,<sup>2,23-31</sup> which eventually impair their quality of life (QoL<sup>32-35</sup>). The importance of QoL as part of overall health is supported by the World Health Organization's definition of health.<sup>36</sup> SRQs on sexual function, like IIEF, primarily focus on the patient's erection and inquire about improvements in the patient's sexual functioning but they do not address issues such as emotional well-being. To better evaluate this aspect, many SRQs specifically designed to evaluate QoL in patients with ED have been developed (see Table 2).

The Self-Esteem and Relationship Questionnaire (SEAR<sup>37</sup>) is a recently validated instrument composed of two domains. Higher scores suggest a better QoL. Psychometric validation and clinical studies showed

**Table 2** Self-reported questionnaires on male sexual function, (QoL) in patients with erectile dysfunction (ED), satisfaction with ED treatments and on premature ejaculation (PE) reported from the most commonly used to the least

<i>Inventory</i>	<i>Items analyzed</i>	<i>Minutes to complete</i>	<i>Particular use and main feature</i>	<i>Internal consistency</i>	<i>Test-retest reliability</i>	<i>Clinical cutoff scores or norms</i>
<i>Self-reported questionnaires on male sexual function</i>						
International Index of Erectile Function (IIEF <sup>3</sup> )	15 items, 5 domains: 1. Sexual desire 2. Erectile function 3. Orgasmic function 4. Intercourse satisfaction 5. Overall satisfaction	10–15	Clinical trials	Total scale $\alpha = 0.91–0.96$ Subscales 1. $\alpha = 0.92–0.96$ 2. $\alpha = 0.92–0.99$ 3. $\alpha = 0.77–0.91$ 4. $\alpha = 0.73–0.88$ 5. $\alpha = 0.74–0.86$	Total scale $r = 0.82$ Subscales 1. $r = 0.84$ 2. $r = 0.64$ 3. $r = 0.71$ 4. $r = 0.81$ 5. $r = 0.77$	No
Sexual Health Inventory for Men (SHIM <sup>5</sup> )	5 items, 2 domains: 1. Erectile function 2. Intercourse satisfaction	5–10	Clinical trials	NA	NA	> 21 no ED Sensitivity = 98% Specificity = 88%
Erectile function domain of IIEF-6 (6)	6 items, 1 domain: Erectile function	5–10	Clinical trials	$\alpha = 0.92–0.99$	$r = 0.64$	> 25 no ED Sensitivity = 89% Specificity = 93%
Brief Sexual Function Inventory for Urology (BSFI <sup>10</sup> )	11 items, 5 domains: 1. Sexual desire 2. Ejaculation 3. Erectile function 4. Perception of sexual problems 5. Sexual satisfaction	5–10	Clinical trials	Subscales 1. $\alpha = 0.92$ 2. $\alpha = 0.95$ 3. $\alpha = 0.62$ 4. $\alpha = 0.81$ 5. $\alpha = \text{NA}$	Subscales 1. $r = 0.89$ 2. $r = 0.85$ 3. $r = 0.79$ 4. $r = 0.87$ 5. $r = \text{NA}$	No
Florida Sexual History Questionnaire (FSHQ <sup>11</sup> )	20 items, 4 domains: 1. Interest and desire for sexual activity 2. Sexual development 3. Current sexual behaviours 4. Satisfaction	15–20	MSD	Total scale $\alpha = 0.90$	Total scale $r = 0.86$	$\leq 72$ organic ED Sensitivity = 71.9% Specificity = 74.7%
Male Sexual Health Questionnaire (MSHQ <sup>12</sup> )	25 items, 3 domains: 1. Erectile function 2. Ejaculation 3. Sexual satisfaction	15–20	MSD	Subscales 1. $\alpha = 0.93$ 2. $\alpha = 0.84$ 3. $\alpha = 0.90$	Subscales 1. $r = 0.94$ 2. $r = 0.85$ 3. $r = 0.88$	No
Golombok Rust Inventory of Sexual Satisfaction (GRISS <sup>13</sup> )	28 items, 7 domains: 1. Erectile function 2. Ejaculation 3. Non sensuality 4. Avoidance 5. Sexual satisfaction 6. Sexual frequency 7. Sexual communication	15–20	Marital diagnosis	Subscales 1. $\alpha = 0.78$ 2. $\alpha = 0.78$ 3. $\alpha = 0.69$ 4. $\alpha = 0.76$ 5. $\alpha = 0.69$ 6. $\alpha = 0.79$ 7. $\alpha = 0.61$	Subscales 1. $r = 0.79$ 2. $r = 0.84$ 3. $r = 0.57$ 4. $r = 0.64$ 5. $r = 0.61$ 6. $r = 0.66$ 7. $r = 0.52$	No

Erection Quality Scale (EQS <sup>15</sup> )	15 items, one domain: Erectile function	10–15	MSD	Total scale $\alpha = 0.94$	Total scale $r = 0.85$	No
Arizona Sexual Experiences Scale (ASEX <sup>16</sup> )	5 items, 5 domains: 1. Sexual desire 2. Sexual arousal 3. Erectile function 4. Orgasm function 5. Sexual satisfaction	5–10	Clinical trials	Total scale $\alpha = 0.81$	Subscales 1. $r = 0.69$ 2. $r = 0.79$ 3. $r = 0.72$ 4. $r = 0.76$ 5. $r = 0.84$	$\leq 11$ no sexual dysfunction Sensitivity = 100% Specificity = 52%
Derogatis Interview for Sexual Functioning Self Report (DSFI-SR <sup>18</sup> )	25 items, 5 domains: 1. Sexual cognition and fantasy 2. Sexual arousal 3. Sexual behaviour and experiences 4. Orgasmic function 5. Sexual desire and relationship	15–20	CSD	Subscales 1. $\alpha = 0.79$ 2. $\alpha = 0.76$ 3. $\alpha = 0.77$ 4. $\alpha = 0.80$ 5. $\alpha = 0.74$	Total scale $r = 0.86$ Subscales 1. $r = 0.90$ 2. $r = 0.82$ 3. $r = 0.81$ 4. $r = 0.83$ 5. $r = 0.80$	No
Derogatis Sexual Function Inventory (DSFI <sup>19</sup> )	245 items, 10 domains: 1. General information 2. Experiences 3. Sexual desire 4. Attitudes (a) Liberalism (b) Conservatism 5. Psychological symptoms 6. Affection (a) Positive total (b) Negative total 7. Gender role definition (a) Masculinity (b) Femininity 8. Fantasies 9. Body image 10. Sexual satisfaction	90–120	CSD	Subscales 1. $\alpha = 0.56$ 2. $\alpha = 0.97$ 3. $\alpha = 0.60$  4a. $\alpha = 0.81$ 4b. $\alpha = 0.86$ 5. $\alpha = \text{NA}$  6a. $\alpha = 0.93$ 6b. $\alpha = 0.94$  7a. $\alpha = 0.84$ 7b. $\alpha = 0.76$ 8. $\alpha = 0.82$ 9. $\alpha = 0.58$ 10. $\alpha = 0.71$	Subscales 1. $r = 0.61$ 2. $r = 0.92$ 3. $r = 0.77$  4a. $r = 0.92$ 4b. $r = 0.72$ 5. $r = 0.90$  6a. $r = 0.75$ 6b. $r = 0.42$  7a. $r = 0.60$ 7b. $r = 0.58$ 8. $r = 0.93$ 9. $r = \text{NA}$ 10. $r = \text{NA}$	No
Sexual Interaction Inventory (SII <sup>22</sup> )	102 items, 5 domains: 1. Frequency dissatisfaction 2. Self-acceptance 3. Sexual pleasure 4. Knowledge of the partner's preferred sexual activities 5. Acceptance of partner	50–60	CSD	Total scale $\alpha = 0.88$	Total scale $r = 0.82$	> 70 large degree of pathology Sensitivity = NA Specificity = NA
<i>Self-reported questionnaires on quality of life in ED patients</i>						
Self-Esteem And Relationship Questionnaire (SEAR <sup>37</sup> )	14 items, 3 domains: 1. Sexual relationship 2. Self-esteem 3. Overall relationship	10–15	Clinical trials	Total score $\alpha = 0.93$  Subscales 1. $\alpha = 0.91$ 2. $\alpha = 0.82$ 3. $\alpha = 0.76$	Total score $r = 0.79$  Subscales 1. $r = 0.78$ 2. $r = 0.72$ 3. $r = 0.57$	No

**Table 2** (Continued)

<i>Inventory</i>	<i>Items analyzed</i>	<i>Minutes to complete</i>	<i>Particular use and main feature</i>	<i>Internal consistency</i>	<i>Test-retest reliability</i>	<i>Clinical cutoff scores or norms</i>
Psychological Impact of Erectile dysfunction (PIED <sup>39</sup> )	16 items, 2 scales: 1. Psychological impact of ED on sexual experience 2. Psychological impact of ED on emotional life	10–15	Clinical trials	Subscales 1. $\alpha = 0.91$ 2. $\alpha = 0.72$	Subscales 1. $r = 0.76$ 2. $r = 0.66$	No
Erectile Dysfunction Effect on Quality of Life Questionnaire (ED-EQoL <sup>41</sup> )	15 items, one domain	10–15	Clinical trials	Total scale $\alpha = 0.95$	Total scale $r = 0.87$	< 15 mild impairment of QoL 15–29 moderate impairment of QoL > 29 severe impairment of QoL Sensitivity and specificity = NA
Quality of life in Male Erectile Dysfunction Questionnaire (QoL-MED <sup>43</sup> )	27 items, 3 domains: 1. Masculinity 2. Emotional responses 3. Overall life satisfaction	15–20	QoL	Total scale $\alpha = 0.94$	Total scale $r = 0.78$	No
Quality of Sexual Life Questionnaire (QVS <sup>34</sup> )	27 items, 3 domains: 1. Sexual life 2. Skills 3. Psychosocial well-being	15–20	QoL	Subscales 1. $\alpha = 0.87$ 2. $\alpha = 0.91$ 3. $\alpha = 0.78$	Subscales 1. $r = 0.50$ – $0.71$ 2. $r = 0.41$ – $0.79$ 3. $r = 0.41$ – $0.66$	No
<i>Self-reported questionnaires on satisfaction with ED treatments</i>						
Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS <sup>44</sup> )	11 items for patient 5 items for partner	10–15	Clinical trials	Subscales patient. $\alpha = 0.90$ partner. $\alpha = 0.76$	Subscales patient. $r = 0.98$ partner. $r = 0.83$	No
Patient and Partner Treatment Satisfaction Scale (TSS <sup>45</sup> )	61 items and 4 modules: Unmedicated patient and partner Medicated patient and partner Six domains for each module 1. Spontaneity 2. Quality of erection 3. Quality of ejaculation 4. Quality of orgasm 5. Sexual pleasure 6. Sexual confidence Six domains for medicated modules 1. Reliability of treatment 2. Convenience 3. Treatment efficacy 4. Conformity to treatment expectations	15–20 for each partner	Clinical trials	NA	NA	No

5. Overall satisfaction  
 6. Intended continued use of the particular drug

		<i>Self reported questionnaires on premature ejaculation</i>					
Chinese Index of Premature Ejaculation (CIPE-10 <sup>50</sup> )	10 items, 5 domains: 1. Libido 2. Erection 3. Timing of ejaculation 4. Satisfaction (male and female) 5. Psychological impact of the symptom (5 items in the short form, CIPE-5)	10–15	PE	NA	NA	> 15: mild PE 10–14: moderate PE <9: severe PE Sensitivity = 97.6% Specificity = 94.74%	
Patient-Reported Outcome (PRO <sup>56</sup> )	5 domains (items): 1. Control over ejaculation 2. Satisfaction 3. Severity of PE 4. Personal distress 5. Interpersonal difficulties	5–10	PE Clinical trials	NA	NA	No	
Structured Interview on erectile dysfunction (SIEDY <sup>2</sup> )	17 items, 3 domains: 1. Scale 1 (organic component of ED) 2. Scale 2 (relationship component of ED) 3. Scale 3 (intrapsychic component of ED)	5–10	Clinical trials	Not applicable	Not applicable	Scale 1 score >3.5 predicted organic origin of ED Sensitivity = 68% Specificity = 68%	

NA = not available. MSD = male sexual dysfunctions. CSD = couple sexual dysfunctions.



its reliability and usefulness in evaluating psychosocial improvements following ED treatments.<sup>37,38</sup>

Psychological Impact of Erectile Dysfunction (PIED<sup>39</sup>) is another questionnaire that has recently confirmed its validity in evaluating QoL according to ED-treatment efficacy.<sup>40</sup>

Erectile Dysfunction Effect on Quality of Life (ED-EQoL) is an SRQ with good reliability, validity and responsiveness to change.<sup>41</sup> Recently, ED-EQoL has confirmed its validity in a sample of patients attending secondary care clinics at a teaching hospital.<sup>42</sup> In particular, at multiple regression analysis, sexual function has been observed as the best predictor of QoL.<sup>42</sup>

Quality of Life in Male Erectile Dysfunction (QoL-MED) questionnaire is the first SRQ evaluating QoL specifically developed for patients with ED.<sup>43</sup> Although the internal consistency and reproducibility were good, the validity of this instrument in measuring disease-specific QoL has not been completely established.

Quality of Sexual Life Questionnaire (QVS<sup>34</sup>) is an instrument composed of three scales: sexual life, skills and psycho-social well-being. The skill scale is probably the most interesting novelty of this instrument, providing additional information about the importance of the disorder perceived by patients, which appeared to be driven by nonclinical factors.<sup>34</sup> The psychometric analysis showed good reliability and validity, but there is not sufficient evidence about the usefulness of this instrument in clinical studies.

### Male sexual measures: SRQ on satisfaction with ED treatments

In the last few years, some SRQs have been developed and validated in order to specifically evaluate the patient and partner's ED-treatment satisfaction (Table 2).

The Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS) is a validated SRQ focusing on patient and partner's subjective evaluation of ED treatment. It has been used in clinical trials showing that the partner's evaluation corroborated the patient's assessments.<sup>44</sup> It, though, nearly exclusively addressed satisfaction with the perceived quality of erection. Conversely, the Treatment Satisfaction Scale (TSS<sup>45</sup>) is a recently validated SRQ aimed at addressing ED treatment satisfaction, both in patients and partners. Its responsiveness to changes over time is currently being validated in international clinical trials.

### Male sexual measures: SRQ on PE

No agreement has been reached on the definition of PE.<sup>46-48</sup> Hence, SRQs dealing with this symptom are

much less important as for their numbers and for clinical and research use, as compared to those described for ED (see Table 2). Other factors that have delayed the development of specific questionnaires were (1) the evidence that PE is a hidden condition, with poor medical knowledge and (2) the absence of officially approved drugs for the treatment of PE. It seems, in fact, evident that part of the scientific success of IIEF was due to the use of sildenafil<sup>49</sup> and subsequent drugs to monitor its efficacy.

The Chinese Index of Premature Ejaculation (CIPE)<sup>50</sup> explores, in the first questions, two important domains as factors, cofactors or sexual consequences of PE: libido (Q1) and frequency of full erections (Q2).<sup>51</sup> Then it weighs the Intravaginal Ejaculation Latency Time (IELT) (Q4)<sup>52,53</sup> and the difficulties in prolonging the intercourse (Q5). Finally, according to the association with 'marked distress or interpersonal difficulty' stated in the definition of PE in the Diagnostic and Statistical Manual of Mental disorders, fourth version (DSM-IV-TR),<sup>54</sup> it explores the psycho-relational impact of PE with five questions: male (Q6) and female (Q7) satisfaction, frequency of female's orgasm (Q8), confidence in successfully completing the intercourse (Q9), and presence of anxiety/depression/stress during sexual activity, as self-reported by the patient (Q10). It is based on a 5-point Likert scale with a total cutoff of 35 defining the PE (specificity: 94.4%; positive predictive value: 96.4%; negative predictive value: 95.6%).

Some authors have indicated that additional patient-reported outcome (PRO) measures may be important and noninterchangeable measures of PE, assessing perception of and satisfaction with ejaculatory control and satisfaction with sexual intercourse.<sup>55</sup> Furthermore, many clinicians consider the stopwatch IELT measurement (based on CIPE) impractical in clinical use. Thus a new PRO SRQ has been recently administered to a large population of 1587 men and their partners.<sup>56</sup> While PRO elicited more complete information from men and their partners than IELT alone, reliability, predictivity and specificity of these measures in assessing PE have not been established so far.

### Male sexual measures: SI on ED

Structured interviews are generally considered a more reliable instrument than SRQ in evaluating the sexual history and in scoring the pathogenetic issues of ED.<sup>1</sup> Hence, the relative absence of research on this topic is overall surprising. Although several SIs on male sexual dysfunctions have been described (see Ackerman and Carey<sup>1</sup> for a review), only pilot studies, with very small patient samples, have been reported, making these tools generally unsuitable for

clinical studies. So far, the only validated SI on ED that showed sufficient usefulness in several clinical studies<sup>23–31</sup> is SIEDY (Structured Interview on Erectile Dysfunction, see Table 2<sup>2</sup>). This is a 13-item interview composed of three scales, which identify and quantify three domains simultaneously present in ED patients (organic: scale 1, marital: scale 2 and intrapsychic: scale 3). Organic, relational and intrapsychic factors are often to be found together and mutually interacting in ED patients. Hence, an anamnestic instrument which simultaneously and quantitatively evaluates them can provide an interesting option for assessment. In addition, SIEDY can predict with 70% sensitivity and specificity the presence of an organic component of ED. SIEDY is therefore a unique, validated SI case-history and diagnostic instrument available to doctors confronting ED.

## Female sexual inventories

While the male sexual function has been deeply dissected, both in its pathophysiology and in the therapy of its diseases and symptoms, a biomedical approach to female sexuality is still overdue. In this respect, SRQs can be useful for the medical sexologist and to improve sexual medicine in this field (see Table 3). The Food and Drug Administration, through the Center for Drug Evaluation and Research, published in 2000 a guidance document on female sexual dysfunctions (FSD<sup>57</sup>). The definition of FSD should include a measurement of personal distress, reflecting a degree of psycho-relational dissatisfaction. This document also recognizes the importance of inventories and self-report measures in clinical and experimental practice.<sup>58</sup>

An assessment of sexual function in three dimensions (libido, sexual activity, sexual satisfaction) can be obtained by the Brief Sexual Function Index for Women (BSFI-W<sup>59</sup>). It has been more recently adapted to use in clinical trials, giving a score for seven domains (sexual thoughts/desire, arousal/lubrication, frequency of intercourse, receptivity, pleasure/orgasm, satisfaction with the relationship, sexual problems).<sup>60</sup> Interestingly, some dimensions of sexual function were scored differently between women with or without partner. Furthermore, this test has been compared to DSFI (see above) and validated for use in oophorectomized and hysterectomized women<sup>60</sup> and in women receiving testosterone.<sup>61</sup> Finally, the BSFI-W has also been modified requesting information about sexual desire, arousal, orgasm and satisfaction during the prior 1-week period.<sup>62</sup>

A psychometrically sound, self-report questionnaire is the Female Sexual Function Index (FSFI), developed to measure FSD.<sup>63</sup> It is easy to administer and proved able to discriminate between clinical and nonclinical populations. Overall test–retest reliability and internal consistency are high for each of the individual domains. Furthermore, it

discriminates very well between FSD and the control group. Its emphasis is on arousal (four items) and lubrication (four items). It is to be noted that the term arousal does not mean here, as in the sexological literature, lubrication, but the feeling of being ‘turned on’ or ‘excited’. This aspect can be sometimes confusing for the patient and needs to be carefully explained during administration. In fact, as suggested by Heiman,<sup>64</sup> the low concordance observed between the measurements of sexual arousal/excitation/lubrication in women may reflect their inability to detect subtle changes in vaginal blood flow. Later, the inventory was specifically validated in women with orgasmic disorders and HSD.<sup>65</sup> The complete FSFI questionnaire, instructions and scoring algorithm can be obtained online ([www.FSFIquestionnaire.com](http://www.FSFIquestionnaire.com)).

The Golombok Rust Inventory of Sexual Satisfaction (GRISS) discussed above was developed in 56 items to evaluate the quality of a relationship and the sexual function in the couple.<sup>13</sup> It thus includes common questions and specific items for both sexes. This inventory is able to discriminate between FSD and normal sexual function in the female domains (anorgasmia, vaginismus, avoidance, nonsensuality and dissatisfaction). Although it is not widespread and rarely used for research, it seems the ideal questionnaire for marital diagnosis.

The Sexual Function Questionnaire (SFQ) has been specifically designed in its 31 items to assess the efficacy of sildenafil in females.<sup>66</sup> Even if it is more time-consuming than most inventories for females, it is expected to be used in clinical trials.

The Female Intervention Efficacy Index (FIEI) is aimed at measuring the outcome efficacy of a treatment such as the Eros Clitoral Device or sildenafil in arousal disorders.<sup>67</sup> It is a brief SRQ that is easy to administer. However, it still needs validation for broader use.

The Profile of Female Sexual Function (PFSF) is a self-report specifically designed to measure the loss of sexual function in postmenopausal women with HSD.<sup>68</sup> It has been validated in 500 oophorectomized women, discriminating these patients from age-matched controls. It is clearly devoted to assess the efficacy of hormonal treatments in menopause.

Other inventories have been published as instruments to measure female sexuality (Short form of the Personal Experiences Questionnaire, SPEQ, derived from the McCoy Female Sexuality Questionnaire, MFSQ<sup>69</sup>). The advantage of the SPEQ is its conciseness (nine items), but it is rarely used both in clinical practice and in research.<sup>70</sup> However, SPEQ has the peculiarity of correlating the FSD with possible sexual failures of the partner.

Finally, in order to measure changes due to illnesses or medications, the Changes in Sexual Functioning Questionnaire has been standardized (CSFQ).<sup>71,72</sup> CSFQ can be completed by questions regarding the degree by which sexual functioning has changed

**Table 3** Female Sexual Inventories reported from the most commonly used to the least

<i>Inventory</i>	<i>Items analyzed</i>	<i>Minutes to complete</i>	<i>Particular use and main feature</i>	<i>Internal consistency</i>	<i>Test-retest reliability</i>	<i>Clinical cutoff scores or norms</i>
<i>Self reported questionnaires on female sexual function</i>						
Brief Sexual Function Index for Women (BSFI-W <sup>59</sup> )	22 items, 3 domains: (libido, intercourse, satisfaction), 7 domains: 1. Desire (sexual thoughts) 2. Arousal (lubrication) 3. Frequency (of sexual activity) 4. Receptivity (initiation) 5. Pleasure (orgasm) 6. Satisfaction (relationship) 7. Sexual problems	15–20	FSD	Total scale $\alpha = 0.70$ Subscales 1. $\alpha = 0.72$ 2. $\alpha = 0.39$ 3. $\alpha = \text{NA}$ 4. $\alpha = 0.45$ 5. $\alpha = 0.72$ 6. $\alpha = 0.61$ 7. $\alpha = -0.08$	NA	No
Female Sexual Function Index (FSFI <sup>63</sup> )	19 items, 6 domains: 1. Desire 2. Subjective arousal 3. Lubrication 4. Orgasm 5. Satisfaction 6. Pain	15–20	Clinical trials	Total scale $\alpha = 0.93\text{--}0.97$ Subscales 1. $\alpha = 0.89\text{--}0.92$ 2. $\alpha = 0.90\text{--}0.95$ 3. $\alpha = 0.93\text{--}0.96$ 4. $\alpha = 0.91\text{--}0.94$ 5. $\alpha = 0.82\text{--}0.91$ 6. $\alpha = 0.92\text{--}0.94$	Total scale $r = 0.88$ Subscales 1. $r = 0.83$ 2. $r = 0.85$ 3. $r = 0.86$ 4. $r = 0.80$ 5. $r = 0.83$ 6. $r = 0.79$	No
Golombok-Rust Inventory of Sexual Satisfaction (GRISS <sup>13</sup> )	28 items, 7 domains: 1. Anorgasmia 2. Nonsensuality 3. Satisfaction 4. Sexual avoidance 5. Sexual communication 6. Sexual frequency 7. Vaginismus	15–20	Marital diagnosis	Subscales 1. $\alpha = 0.83$ 2. $\alpha = 0.78$ 3. $\alpha = 0.64$ 4. $\alpha = 0.82$ 5. $\alpha = 0.61$ 6. $\alpha = 0.79$ 7. $\alpha = 0.73$	Subscales 1. $r = 0.61$ 2. $r = 0.61$ 3. $r = 0.47$ 4. $r = 0.62$ 5. $r = 0.52$ 6. $r = 0.66$ 7. $r = 0.82$	No
Sexual Function Questionnaire (SFQ <sup>66</sup> )	31 items, 7 domains: 1. Desire 2. Physical arousal 3. Lubrication 4. Enjoyment 5. Orgasm 6. Pain 7. Partner satisfaction	20–30	Clinical trials	NA	NA	No
Female Intervention Efficacy Index (FIEI <sup>67</sup> )	7 items: 1. Lubrication 2. Sensation 3. Changes after treatment 4. Pleasure during plateau 5. Orgasm 6. Side effects of a treatment 7. Overall judgment on the treatment	10	Clinical trials	NA	NA	No

Profile of Female Sexual Function (PFSF <sup>68</sup> )	37 items, 7 domains: 1. Sexual desire 2. Arousal 3. Orgasm 4. Sexual pleasure 5. Sexual concerns 6. Sexual responsiveness 7. Sexual self-image	25–30	Clinical trials	Total scale 0.79–0.96 Subscales 1. $\alpha = 0.89–0.94$ 2. $\alpha = 0.81–0.95$ 3. $\alpha = 0.89–0.93$ 4. $\alpha = 0.93–0.96$ 5. $\alpha = 0.74–0.91$ 6. $\alpha = 0.89–0.93$ 7. $\alpha = 0.80–0.87$	Total scale $r = 0.88$ Subscales 1. $r = 0.73–0.76$ 2. $r = 0.61–0.68$ 3. $r = 0.71–0.82$ 4. $r = 0.74–0.80$ 5. $r = 0.57–0.74$ 6. $r = 0.81–0.91$ 7. $r = 0.62–0.78$	Cutoff: NA. Subscales (sensitivity/ specificity obtained comparing by ROC analysis <i>a priori</i> pathological vs normal control): 1. 0.94/0.86 2. 0.93/0.92 3. 0.67/0.92 4. 0.84/0.86 5. 0.89/0.95 6. 0.78/0.92 7. 0.72/0.90
Short form of the Personal Experience Questionnaire (SPEQ <sup>69</sup> )	9 items, 4 domains: 1. Libido (fantasies, frequency of intercourse, love) 2. Arousal (lubrication) 3. Partner's sexual problems 4. Dyspareunia	5–10	FSD	NA	From $r = 0.74$ (dyspareunia) to $r = 0.95$ (feelings for partner)	< 8 FSD Sensitivity = 79% Specificity = 79%
Changes in Sexual Functioning Questionnaire (CSFQ <sup>71</sup> )	35-items, 5 domains: 1. Desire (frequency) 2. Desire (interest) 3. Pleasure 4. Arousal 5. Orgasm	20	Clinical trials	NA	NA	No

FDS = female sexual dysfunctions. The majority of these tools express their discriminative validity as score differences between a pathological group and a control group, but not providing a real cutoff to discriminate pathological from normal. NA = not available.

over time, as well as the extent, nature and cause of the change. However, it is rarely used in clinical and experimental practice.

## Conclusion

The use of clinical inventories before the use of sexually active drugs such as testosterone or type-5 phosphodiesterase inhibitors, is not common. Given the demand for busy endocrinologic, urologic, or gynecologic practice, examination of sexuality issues often falls by the wayside. However, this unfortunately quite common medical behavior carries the risk of producing a reductive sexual medicine, without the required holistic approach.<sup>73</sup> In the clinical setting, the administration of a sexual health inventory may work as an antidote to that. On the other hand, an uncritical use of such inventories may jeopardize diagnosis, when failing to take into account the complexity of human sexual behavior, or when oversimplifying and trivializing sexual function and dysfunction with mere numbers, such as the score obtained from an inventory. Furthermore, while it is true that each disease is different in different patients, this is even more so for sexual symptoms, where individual variability, experience, culture, language make it hard to homogenize diagnoses.

Another caveat arises from the evidence that many inventories have been created to sustain the effectiveness of drugs and treatments psychometrically, in association with the companies involved. This possible bias should be taken into account when judging the scientific literature.

The medical sexologist or the expert in sexual medicine has to choose among sexual inventories based on psychometric properties, to use them as important instruments in clinical and research practice, but should never forget that it is difficult for the patient to talk about his/her sexuality. Thus, the first skill of physicians confronting sexual problems is listening.

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