Measuring sexual function in community surveys: Development of a conceptual framework

Abstract

Among the many psychometric measures of sexual (dys)function, none is entirely suited to use in community surveys. Faced with the need to include a brief and non-intrusive measure of sexual function to a general population survey, we developed a new measure. We present findings from qualitative research with men and women in the community designed to inform the conceptual framework for this measure. We conducted 32 semi-structured interviews with individuals recruited from a general practice, an HIV/AIDS charity and a sexual problems clinic. From their accounts we identified 31 potential criteria of a functional sex life. Using evidence from our qualitative data and the existing literature, and applying a set of decision rules, the list was reduced to 13 (eight for those not in a relationship) and a further eight criteria were added to enable individuals to self-rate their level of function and indicate the severity of difficulties. These criteria constitute a conceptual framework that is grounded in participant perceptions; is relevant to all regardless of sexual experience or orientation; provides opportunity to state the degree of associated distress; and incorporates relational, psychological and physiological aspects. It provides the conceptual basis for a concise and acceptable measure of sexual function.

Introduction

Asking questions about sexual function in community surveys is challenging. This is partly because the parameters set by the research context are demanding. They include the need to minimise respondent burden; to ensure acceptability (Dunn, Jordan, Croft, & Assendelft, 2002); and to ensure relevance to diverse sections of the population. Where sexual function is measured within a larger questionnaire survey covering other aspects of health, brevity is vital; space often permits only one question per difficulty (Hayes & Dennerstein, 2005). Measures of sensitive behaviours have potential to seem intrusive and even offensive (Loewnthal, 2001), particularly where they may be unexpected, as in a general health survey. The challenge is to achieve a balance between accuracy and acceptability. Community-based measures should also have public health utility, providing useful information on the likely burden of ill health and an indication of how many and who might require professional help. As far as possible, they should avoid including those with transient difficulties and those whose sexual difficulties represent an adaptive response to their particular situation.

The survey team of the [text omitted for blinding] sought a measure of sexual function that covered the key domains and could be completed by all, regardless of gender, sexual orientation, recent sexual experience and relationship status. It needed to be brief (less than 20 items), acceptable, have public health utility and ideally, be informed by the perceptions and experiences of men and women themselves.

We reviewed 54 psychometric measures but did not find one that met our specific needs [ref omitted for blinding]. For example, of three validated measures with male and female versions, two were too long (the GRISS (Rust & Golombok, (1985)) and the DISF-SR (Derogatis, 1997)),

one was relevant only to couples in heterosexual relationships (the GRISS), and one omitted key domains and asked about function only over the past week (the ASEX) (Mcgahuey et al., 2000)). An inferior but tolerable option was to use a different measure for men and women. Among the extensively validated female measures, the FSFI (Rosen et al., 2000) is fairly brief (19 items) but does not measure the degree of personal unease related to symptoms. Among the extensively validated male measures, the IIEF (Rosen et al., 1997) is sufficiently brief (11 items) but is focused on erectile function, may be considered intrusive by a general population sample (e.g. 'how often were your erections hard enough for penetration?') is unsuitable for gay men, and does not ask about the degree of personal unease related to symptoms. In general, many measures are unsuited to community surveys because they have been designed as end points in clinical trials and so tend to focus on biomedical aspects of sexual dysfunction (Corona, Jannini & Maggi, 2006), often to the neglect of relational and subjective aspects of the sexual experience. Finally, few of the existing validated measures have followed US Food and Drug Administration (FDA) guidelines about involving patients in their development (Dennerstein, 2010).

Having not found a suitable measure, we embarked on a programme of development work to produce a tailor-made measure from first principles. A crucial first step was to identify the criteria that should be included within the construct of sexual function. An overriding concern was to ensure that the conceptual framework for the measure would reflect both biomedical and psychosocial perspectives, and would take account of the meaning and significance of sexual function for men and women themselves. In this paper we describe the research that generated the conceptual framework upon which the measure was designed. Elsewhere we describe the psychometric development and validation of the subsequent measure (manuscript under submission).

Methods

We carried out qualitative research aimed at exploring the meaning of sexual function in the context of the every day lives of men and women. A literature review guided selection of discussion points for interviews and eventual decisions about inclusion or exclusion of elements in the conceptual framework.

Sampling strategy

Maximum variation sampling was used to include a wide range of sexual function experience. This was achieved by purposefully recruiting three groups of participants:

1) Those who self-identified as having sexual difficulties (consecutive patients attending a National Health Service (NHS) sexual problems clinic in London; n= 6;);

2) Those with conditions associated with sexual difficulties (individuals with diabetes and depression selected randomly from the diabetes patient list and depression patient list of a General Practitioner (GP) clinic in London and invited to participate by letter (n=13); and individuals with HIV, selected via snowballing techniques from an HIV charity in a regional town (n=3));

3) A community group of consecutive attendees at the same GP surgery, recruited from the

waiting room by the first author (n=10).

The first group comprised those with experience of sexual difficulties for which they had sought help; the second group comprised individuals who, because of underlying health problems (diabetes, depression and HIV), might be expected to be experiencing some problems but had not necessarily sought help for them or self-identified as having difficulties (sub-clinical); the third group represented a proxy to a general population sample, with some individuals experiencing difficulties and others not. Non-English speakers and those under the age of 18 were excluded from the sample. Fieldwork was brought to an end when subsequent interviews began to yield little in the way of new information (saturation point).

Data collection

Interviews were framed by a topic guide that sought to facilitate disclosure of personal experiences. Open-ended questions probed the range of criteria used by participants in assessing their sex lives and what they saw as problematic and non-problematic for themselves (see box one). Detailed probing encouraged participants to describe and explain the criteria they considered important. For those who described any sexual concern or problem (n=25), further discussion sought to explore the impact of that problem on their lives.

Box 1. Interview Topic Guide (excerpt)

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|How would you describe a good-enough/satisfactory/ideal sexual           |
|relationship?                                                             |
|What about a good-enough/satisfactory/ideal sexual act/sexual activity?  |
|How would you describe an unsatisfactory/unacceptable/not OK sexual       |
|relationship?                                                             |
|What about unsatisfactory sex/sexual activity?                            |
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Interviews were undertaken by [first author] (30 interviews) and [second author] (2 interviews), and lasted between 45 minutes and two hours. Interviews were recorded (with permission) and transcribed verbatim. Participants signed an informed consent form prior to interview.

Use of the term ‘sexual function’ was avoided during interviews so as to make no assumptions of its meaning for participants. Instead we offered several plain-language terms (satisfactory/OK for you/ideal/good-enough) and asked participants to think in terms of what was realistic rather than ideal.

Analysis

Interview transcripts were read and checked as part of the familiarisation process. They were then read again and catalogued according to broad themes (such as orgasm, satisfaction and frequency) and entered into an Excel spreadsheet which served as a data retrieval tool.

As described previously (Mitchell, 2010; Mitchell, 2011), Close examination of the narrative provided by each individual enabled participants to be categorised according to their experience of sexual difficulties (see Table One). Individuals who described no significant frustration or difficulty were categorised as ‘functional’; those who expressed minor frustrations and/or difficulties but no significant concern about these experiences were categorised as ‘dissatisfied’;

and those who described significant problem(s), some level of distress and had also either sought or considered clinical help were categorised as ‘problematic’.

Once the data had been mapped, the analysis moved to an interpretative phase, drawing on principles of Grounded Theory (Strauss, 1987; Charmaz, 2006). This is an analytical approach particularly suited to generating dense theoretical accounts grounded in data (Green & Thorogood, 2009). We read the transcripts once more, undertaking line-by-line analysis (or open coding) to identify potential criteria of functional sex; we then used axial coding to explore dimensions of these criteria and relationships between them (see Strauss, 1987). For example, we identified dimensions of the criterion of compatibility as: sexual role/identity, preference for sexual activities, and motive for sex. Throughout, we sought data (quotes/text) that would both confirm and challenge our emerging list of criteria. It was not possible to double code the transcripts but reliability was enhanced via discussion between authors, both of whom are experienced qualitative researchers.

Table 1. *Characteristics of the Interviewees (n=32)* (reproduced from Mitchell, 2010 and Mitchell, 2011)

Characteristic	Functional	Dissatisfied	Problematic
Total No. in group	7	9	16
No. of men/women	2 / 5	3 / 6	10 / 6
Mean age (range)	38.7 (23 – 62)	52.1 (31 – 78)	52.8 (33 – 70)
Recruitment group			
Community	4	4	2
GP Diabetes/Depression	3	3	7
list	-	2	1
HIV charity	-	-	6
Sexual Problems clinic			
Partnership status			
Single	2	5	5
Married/co-habiting	4	4	9
Non-cohabiting partner	1	-	2
Sexual Orientation			
Heterosexual	7	5	15
Lesbian	-	1	-
Gay	-	2	1
Bisexual	-	1	-

Literature review

Prior to and during fieldwork we undertook a comprehensive review of the literature, including a review of measures of sexual dysfunction. We searched key databases - Pubmed; BIDS; Psychinfo, Medline, IBSS and Psych lit – as well as reviewing the reference lists of key articles. We used a range of search terms related to the concept of sexual dysfunction: sexual function/dysfunction, sexual satisfaction/dissatisfaction, sexual function disturbance(s), sexual adjustment. We used the ‘OR’ operator to include specific terms within this concept (e.g.premature ejaculation and dysparuenia), as well as the AND operator to combine the central concept with terms related to measurement (classif*, measure*, model, psychometric), and with terms related to epidemiology and aetiology (aetiology, prevalence, epidemiol*).

Ethical Approval

[text omitted for blinding]

Building the conceptual framework

A conceptual framework outlines a preferred approach to a problem. In our case the purpose of the framework was to describe the phenomenon we were setting out to measure (i.e. sexual function).

We based our framework on the World Health Organisation (WHO) definition of sexual dysfunction: "The various ways in which an individual is unable to participate in a sexual relationship as he or she would wish. Sexual response is a psychosomatic process and both psychological and somatic processes are usually involved." (World Health Organisation, 1992; pg 191). Given that we aimed to develop a population metric rather than clinical measure, we used the term 'sexual function', defining it as the converse of this WHO definition – the capability of an individual to participate in a sexual relationship as he or she would wish.

The development of the framework was guided by our psychosocial perspective and by our inductive approach (deriving criteria from participant accounts). Our review of the literature also urged the adoption of a number of key precepts. These included i) the need to avoid equating vaginal intercourse and sex (Sandfort & de Keizer, 2001; Boyle, 1993); ii) to view subjective experience and physiological signs as equally valid (Bancroft, Loftus & Long, 2003; Sugrue & Whipple, 2001), and iii) to regard the sexual relationship as integral to sexual function (Conaglen, 2001; Tiefer, Hall & Travis, 2002).

Decision rules to guide the inclusion and exclusion of criteria

From the outset of the qualitative analysis, it was clear that we would identify more criteria from the data than would be possible to include in the final conceptual framework. To help decide which criteria to keep we set up three decision rules:

1) If two criteria overlap, exclude the criteria for which the evidence is weakest
2) Exclude any criterion that interview respondents regarded as desirable rather than essential.
3) Exclude any criteria that are associated with sexual function, rather than part of the construct itself.

With regard to the third exclusion criteria we defined associated factors as any criteria that could be construed as antecedent to, or an outcome of, a functioning sex life or criteria that were "a degree or so removed from explicit sexual behaviour" (Derogatis, 1997; pg 293); in other words, criteria that represented the context of a sex life (whether personal, relational or physical), or criteria that might be viewed as aetiological agents. The decision was complicated by the fact that the same criterion may be considered part of the construct by some, and an associated factor by others. Whether a criterion belongs within or outside depends on the underlying concept of sexual function. The logic is somewhat circular; the conceptual framework is essentially determined by the criteria incorporated within it, yet the choice of criterion is determined by the underlying

concept of sexual function.

The decision to exclude or include each criteria was guided by our qualitative data analysis, an examination of the existing literature, and the application of logic.

Results and Discussion

Through analysis of participant accounts we identified 31 criteria of functional sex. By grouping together conceptually similar criteria, we identified three main aspects of sexual function: psycho-physiological; relational; functional sexual self (individual sexuality and ability to have positive sexual experiences); and self-rating/severity. This latter group of criteria measured the severity of problematic sexual experiences, as well as the quality of an overall sex life. We describe each group of criteria in turn, summarising our evidence to support the inclusion or exclusion of criteria within that aspect.

The Psycho-physiological aspect

We examined the qualitative data to see whether aspects of sex associated with established diagnostic criteria (desire, arousal, orgasm and lack of pain/discomfort) were important to participants. We identified several further psycho-physiological criteria that were also considered important by participants. The evidence and decision for each criterion is summarised in table two.

Criteria	Findings from qualitative study	Evidence from literature	Decision
Desire	Desire viewed as important, not only for intercourse but for maintaining intimacy and closeness. Desire plays important role within relationship Experiencing a period of reduced desire is common Most participants expected and accepted that desire would diminish in certain circumstances, e.g. being single, experiencing work-related stress, feeling depressed. Loss of desire that turned into avoidance of sexual activity was considered highly problematic. It was construed as a form of denial or ignoring the problem (F50-54)(	Lack of interest is the most common female difficulty (Mercer et al, 2003; Laumann, Paik, & Rosen, 1999) but is also common in men. Clinical patients often present with loss of desire in conjunction with another problem (Bancroft, 2009). Most existing measures include desire as an item.	Item on desire included based on strong evidence from qualitative study and literature.
Subjective arousal, Lubrication,	Arousal viewed as important. Difficulty becoming aroused viewed as a profound problem	The DSM IV TR (American Psychiatric Association, 2000) classifies arousal as	Strong evidence to include specific items on lubrication

Erection	(M60-64). Arousal said to contribute to greater enjoyment and as well as conveying to a partner that they are sexually attractive and wanted. Participants mentioned many subjective signs of arousal including feeling excited, losing inhibition, tingling and quickened heart rate. Among women, lubrication (feeling wet (F60-64); damp in the vagina (F70-74)) regarded as the primary sign of arousal, though many other signs mentioned. Absence of lubrication perceived as easy to remedy and because it was not considered so salient, its absence did not necessarily signify failure to become aroused. Vaginal dryness could become a problem if externally applied lubricant was not used or failed to work, leading to dry and painful sex. For men, an erection (a springing to life (M50-54)), appeared to be the indication of arousal that mattered most. Many men, though not all, equated an erection with arousal. Where penetrative intercourse was regarded as the only 'proper' way of having sex, erectile failure precluded sex or at least made it very, very difficult (M60-64). Men with erectile difficulties said they experienced feelings of inadequacy, failure and loss of self-esteem. It was difficult for them to convince their partner	erectile disorder for men and inadequate lubrication-swelling response for women. Subjective assessment of arousal not currently included in the DSM, though frequently asked in measures of sexual dysfunction, for example: the GRISS((Rust & Golombok, 1985) the BISF-W (Taylor, Rosen, & Leiblum,1994)).	and erectile difficulties. Based on qualitative study, item on subjective arousal/excitement included

	that they were finding sex pleasureable. Partners are likely to interpret erectile failure as a lack of attraction towards themselves.		
Orgasm: Ability to reach, Timing, Quality	Some participants (women more than men) held the view orgasm helped to complete sex but was more a bonus than a necessity. Others viewed it as essential to satisfaction: The definition of a good satisfactory sexual experience [is] that both of you would mutually enjoy it equally… that both of you would therefore experience orgasms […] (M55-59). An orgasm was seen as spanning a whole gradient of different sexual experiences (F45-49) and could vary in quality. The male orgasm was considered fairly easy to achieve. So if a man had difficulty reaching orgasm, his female partner might interpret his difficulty either as her failure to provide sufficient stimulation, or as an indication that he was not sexually attracted to her. The female orgasm was regarded by men as more exciting (“like Everest compared to a molehill” M70-74) but more elusive (like looking for a needle in a haystack; M55-59). There was a common view among heterosexual participants that an orgasm completed sex or rounded it off (F40-44) and thus a sooner-than-desired orgasm was problematic.	Inability to reach orgasm is the second most frequently reported female problem (Meston, Hull, Levin & Sipski, 2004); Premature ejaculation is the most common problem affecting men (Barnes & Eardley, 2007). Orgasmic disorder and premature ejaculation are classified as dysfunctions in the DSM-IV TR (American Psychiatric Association, 2000); Most existing measures include items on premature ejaculation and difficulty reaching orgasm.	Strong evidence to support inclusion of items on difficulty reaching orgasm and early orgasm. Item on quality not included because: It overlaps with item on enjoyment; and insufficient evidence from qualitative study to suggest that it was essential.
Pain and discomfort	Pain considered by all to be at odds with a good	Dyspareunia is defined as genital pain	Strong evidence from

	enough sex life. Most participants felt it would be awful (F20-24) and distressing (M60-64) to experience a level of pain that precluded sex or prevented enjoyment. Participants felt that pain might also signal a deeper underlying physical problem in need of attention. Three participants described pain during intercourse and all had found it problematic. A woman in her forties with vulvodynia described how constant pain had dominated her life leading directly to depression, unemployment and ultimately, the break-up of her relationship.	associated with sexual intercourse in DSM-IV (American Psychiatric Association, 2000). Painful intercourse is reasonably common (Mercer et al, 2003). Pain is included as an item in several measures. For example: the GRISS (Golombok & Rust, 1985) the SFQ (Quirk, Heiman, Rosen, Laan, Smith & Boolell, 2002) the BISF-W (Taylor, Rosen, & Leiblum, 1994))	qualitative study and literature to support inclusion of item on pain.
Enjoyment Novelty Satisfaction	Around a third of participants spontaneously mentioned enjoyment, novelty, excitement, satisfaction or related terms when asked to describe ideal or functional sex. In long-term relationships, maintaining excitement was often regarded as an important challenge. For several participants with sexual difficulties, a key concern was that they had stopped enjoying sex. Participants used the term ‘excite’ or ‘excitement’ variously to describe: a state of arousal (feeling excited; F42), the experience of orgasm (crescendo of sexual excitement; F33), as well as a feeling of attraction (they find you sexually exciting; M55). The term ‘satisfaction’ was used in a range of ways: either	Sexual dissatisfaction is significantly associated with physical dysfunction (Öberg, Fugl-Meyer, & Fugl-Meyer, 2004; Dunn, Croft, & Hackett, 2000), but it is still possible to report satisfaction with one’s sexual relationship at the same time as reporting sexual difficulties (Read, King, & Watson, 1997). Subjective pleasure is particularly important to women (Bancroft, Loftus, & Long, 2003). Lack of enjoyment often cited a problem by female attendees at sexual problem clinics (Warner, 1987) Lack of enjoyment/satisfaction is not currently included in DSM-IV TR (American Psychiatric Association, 2000),	Items on enjoyment and overall satisfaction included, supported by literature and particularly by qualitative data. We excluded novelty because the qualitative data suggested that it was desirable rather than essential.

	interchangeably with orgasm; to describe a specific encounter; or to talk about sex life overall. Lack of satisfaction was described in various ways: feeling empty (F30-34); not getting what you wanted (F35-39); not feeling content and complete (F45-49).	although several measures include it as an item.	
Anxiety	Several respondents described finding it difficult to relax and let go. This hampered their ability to receive pleasure and thus precluded good enough sex. Anxiety viewed both as a cause and outcome of other difficulties. One man described how anxiety about his ability to perform sexually was the source of his difficulties. He recalled how concentrating too hard on making sex work (this must work, this has got to happen) led to anxiety rather than enjoyment (M30-34). For other participants, anxiety arose from (and subsequently reinforced) another problem. For one man in his sixties, the anxiety associated with his erectile difficulties eventually became the core problem: M60-65: [The anxiety is more distressing] because I think this is the cause of it. I could feel myself becoming nervous. When I was feeling anxious I knew wouldn't be able to [get an erection]. Once I got to that state I knew that that was it.	Link between anxiety and poor sexual function is well established (Purdon & Holdaway, 2006; Rosen & Althof, 2008). Anxiety is not regarded as a sexual dysfunction in DSM-IV TR (American Psychiatric Association, 2000). It is often included in measures of sexual dysfunction, for example: the GRISS (Rust & Golombok, 1985), the SSS-W (Meston & Trapnell, 2005).	Anxiety included mainly on strength of qualitative evidence.
Frequency: Actual and	Frequency of sex viewed as an indicator of the health of the relationship	Lack of frequency is not classified as a dysfunction but is	There is some evidence to support

Relative to desired level	Regular sex viewed as important in maintaining emotional connection and keeping passion alive (M55-59) Sex less than once a month viewed as problematic; an indication that a relationship was going humdrum very fast (F30-34). Particularly problematic was an unexplained decrease in frequency. Some participants were concerned about the level of frequency relative to what was usual and desired within a particular relationship. Others were concerned about actual frequency per se.	important to satisfaction (Smith et al., 2011). Frequency can be affected by factors such as duration of the relationship, fertility intentions and contraception (Schneidewind-Skibbe, Hayes, Koochaki, Meyer, & Dennerstein, 2008). Items on frequency of intercourse are often included in measures of sexual dysfunction, e.g.: the BSFQ (Reynolds et al., 1988).	inclusion of frequency but logically, it is more appropriately conceptualised as an outcome or correlate of a functional sex life	

The Relational Aspect

Unlike most health behaviours, sex is essentially dyadic in nature. Relationship factors – contingent on the sexual partner as well as the interaction between partners – are therefore seen by many as fundamental to the aetiology and experience of sexual difficulties (Dennerstein, Lehert, Burger, & Dudley, 1999; King, Holt, & Nazareth, 2007; among others). The current classification systems (DSM-IV TR (American Psychiatric Association, 2000) and ICD-10 (WHO, 1992) do not adequately address the relationship dimension [reference omitted for blinding]. Our qualitative data, supported by the literature, provided strong evidence for the inclusion of a relational dimension. Table three summarises the evidence and decision for each criterion identified in our qualitative study.

Criteria	Findings from qualitative data	Evidence from literature	Decision
Compatibility: In motive In roles In preferences	Three dimensions of compatibility were identified. Compatibility in motive implied wanting sex for the same reasons. Participants perceived a gender disparity with women more often motivated by intimacy and men more often motivated by physical pleasure. Compatibility in roles/identities particularly concerned gay	Among women, partner incompatibility is associated with distress and most of the sexual dysfunctions (Witting et al., 2008) Compatibility in preferences or libido types is often the focus of self-help guides (see Pertot, 2007,	Compatibility in sexual preferences included based mainly on qualitative evidence. Compatibility in motive for sex, and compatibility in sexual roles/identities both excluded.

	participants because roles within their partnerships were often more fluid and required negotiation. Incompatibility might arise if one partner was openly gay and the other was not. Compatibility in sexual preferences implied that suggestions from a sexual partner would not come as a profound shock (M60-64)(. Participants talked of disparities occurring where one partner desired activities that the other found repellent, leading the latter to feel under pressure and the former to feel frustrated. Incompatibility in preferences arose where one partner had a sexual difficulty or condition such as HIV and felt they could no longer give their partner what he/she wanted. It could also arise through simple inability to communicate preferences.	among others) Compatibility is included in several measures: the GRISS((Rust & Golombok, 1985); the SSS-W (Meston & Trapnell, 2005)).	Logically speaking, they predispose or precipitate difficulties within a couple (i.e., they are associated factors). There is also some overlap between compatibility in roles/identities and compatibility in sexual preferences to the extent that agreement about what to do sexually requires prior agreement about individual roles and identities.
Emotional connection and chemistry	An emotional connection was implied in a range of descriptions of a good sex life: an emotional identification (M75-79); mentally in tune (F35-39). An emotional connection was about feeling a real sort of bond or love for that person…[enabling you to] almost let yourself go with the way you express yourself physically (F35-39). Lack of connection viewed as detrimental to sexual satisfaction. One woman described feeling empty and used when her partner failed to make eye contact during sex or had his own agenda (F30-35). Within a relationship a loss of connection implied	Among women in particular, relationship criteria such as emotional connection are linked to sexual satisfaction (Bancroft, Loftus & Long, 2003). Loss of ‘spark’ within a relationship is a common reason for seeing a relationship counsellor (see Perel, 2007 among others) Several existing measures include items on connection and closeness between partners:	Based primarily on our qualitative data, an item on emotional connection was included. The term ‘chemistry’ was excluded because, in our qualitative data, it was generally viewed as desirable rather than necessary. The notion of chemistry might also overlap with the concept of arousal.

	a partner closing down and being withdrawn (F50-54), a loss of rapport, or a relationship that is not going to go anywhere (F20-24). Participants frequently used the term ‘chemistry’. It was described as an animal spark (M50-54) that often occurred suddenly and inexplicably.	the FSFI (Rosen et al, 2000); the SFQ (Quirk et al., 2002).	
Balance in levels of desire, reciprocity	Equivalence in level of sexual desire between partners commonly viewed as key to a good sexual relationship but difficult to achieve: one always wants it more than the other (F45-49). Imbalance recognised as a source of arguments or difficulties in the relationship (F25-29). Participants who wanted sex less than their partner described feeling pressure to have sex, and/or guilt: I sometimes feel […], a bit guilty afterwards[…] I think that he thinks I’m still pushing him away (M50-54). There was also a fear that a partner would decide to go outside [the relationship] (M55-59). Participants who wanted sex more than their partner found it difficult not to interpret a partner’s low desire as rejection: I would find it hard to feel the confidence that they were sexually interested in me (F30-34). Reciprocity – willingness to give and receive (pleasure) in roughly equal measure – was important for a good enough sexual encounter. In the longer term, reciprocity – each partner working at the sexual relationship, taking turns to initiate – was considered important.	Balance in levels of desire considered important (Davies, Katz, & Jackson, 1999; Levine, 2003). It has even been suggested that sexual desire ought to be re-conceptualised primarily as a relational problem (Zilbergeld & Ellison, 1980; Clement 2002). Despite this, discrepancy in desire is rarely included in measures (exceptions include the GRISS (Rust & Golombok, 1985).	Item on equal desire included based on strong evidence from qualitative data as well as the literature. Reciprocity excluded. Conceptually, reciprocity and equal desire overlap but there is stronger evidence for equal desire both from our data and from the literature

Difficulties experienced by a partner	Nine participants described relationships in which they perceived that their partner had the primary difficulty. Common themes in these accounts included feelings of rejection, loss of confidence, frustration and a gradual erosion of desire. In particular, two women described having partners who, due to sexual difficulties, had declined to have sex for many years. Both women described the detrimental impact on their self-esteem, sexual identity, their relationship and beyond.	Co-morbidity between partners is common; in up to a third of patients with sexual problems the partner also has a sexual dysfunction (Gregoire, 1999). Clinical interviews usually ask about difficulties experienced by a partner This is rarely included in measures (exceptions include the SFQ (Quirk et al., 2002).	Item included, based on qualitative data and evidence from clinical literature.
Trust Warmth Feeling wanted	A group of criteria were identified related to psychological security (a comfort zone) within a relationship: Trust; warmth; feeling wanted. These criteria were particularly important to those within long-term relationships and those prioritizing the interpersonal.	Relationship adjustment – an absence of relationship difficulties - is an important contributor to sexual function (King et al, 2007; Bancroft et al, 2003)	All three items excluded on the basis that they are associated with sexual function rather than part of the construct (i.e. they contribute to function and may also develop from a functional sexual relationship). In addition there is overlap between feeling wanted and balance in desire between partners (mutually desiring each other).

The self-rating and severity aspect

Given that standard diagnoses correlate only moderately with individual assessment of their situation, particularly for women (King, Holt, & Nazareth, 2007), and given the need to differentiate transitory difficulties from longer term dysfunction (Mitchell & Graham, 2008), we

wanted to ensure that a degree of self-assessment was included in the measure.

From the literature and from our qualitative data, we identified eight potential indicators of severity: duration since onset of symptoms; the frequency with which symptoms occur; level of distress caused by the symptoms; the extent to which an individual perceives that a problem exists; the overall level of distress; whether or not the person has sought professional help; the overall level of satisfaction; and avoidance of sexual activity. The final two were discussed above as potential criteria of the psycho-physiological aspect but we opted to include them here (see table two). We have previously investigated the relative merits and limitations of these indicators [ref omitted for blinding], concluding that there is sufficient evidence to warrant the inclusion of these eight. Later psychometric testing may lead to the exclusion of some from the final measure.

The Functional Sexual-self Aspect

From our qualitative data, we identified a number of criteria that could be grouped under the dimension, 'functional sexual self'. These criteria related to an individual's sexuality and capacity to enjoy positive sexual experiences. A majority view of sex emerged as an act carrying potential risk of rejection and thus creating feelings of vulnerability. Confidence and comfort therefore emerged as important to good-enough sex. We identified five characteristics of an ideal sexual self related to confidence and comfort: positive body image; ability to give and receive pleasure; positive sexual identity; confidence to communicate needs; and positive motivations to have sex (motivations that are not damaging to the individual or their partner). These can be construed as attributes, attitudes and abilities brought to the sexual encounter, although they might also develop as an outcome of positive sexual experiences.

A second group of criteria relating to 'functional sexual self' clustered around the concept of context, both physical and personal. Key aspects of the personal context were tiredness and stress. Physical context included privacy; a criteria particularly pertinent to those with children living at home.

These criteria are well established in the literature, but are usually examined in terms of their association with sexual dysfunction (see for instance, Sanchez & Kiefer, 2007; Nazareth, Boynton, & King, 2003; Rosen & Althof, 2008; Laumann, Paik, & Rosen, 1999).

In keeping with the established literature, we excluded all these criteria, assigning them as associated factors (or correlates) rather than part of the construct itself.

The conceptual framework

The selection process gave rise to a conceptual framework as depicted in table four.

Conceptual Framework of Sexual Function	
Psycho-physiological Aspect	Relational Aspect
P1 Desire for sex	R1 Compatibility in sexual preferences
P2 Lubrication (F) / Erectile function (M)	R2 Emotional connection
	R3 Balance in levels of desire

P3 Sexual arousal/excitement	R4 Partner does not have sexual
P4 Orgasm-ability to reach	difficulties
P5 Orgasm-not too early	
P6 Absence of discomfort/pain	
P7 Enjoyment	Overall Self-rating aspect
P8 Lack of anxiety	
	SR4 Overall satisfaction
Severity IF difficulty present:	SR5 Not avoiding sex
	SR6 Perception that no problem
SR1 Duration since onset of	exists
difficulty	SR7 Overall lack of
SR2 Frequency with which symptoms	distress/worry
occur	SR8 Not seeking professional help
SR3 Distress caused by	
symptoms	
Criteria excluded from the Framework
Where:
AF – criterion is associated with sexual function, rather than
belonging to the construct
OV – criterion overlaps with another criterion
PH – criterion does not represent public health burden (respondents
viewed it as desirable rather than essential)
Functional sexual self	Relational
Happy Body feeling	Trust
AF	AF
Able to give and receive pleasure	warmth
AF	AF
Positive sexual identity	feeling wanted
AF	AF/OV
Confidence to communicate needs	Compatibility in motive
AF	AF/OV
Positive motives to have sex	for sex
AF	Compatibility in sexual
	AF/OV
Psycho-physiological	roles/identities
Novelty	Reciprocity
PH	OV
Quality of orgasmic experience	Chemistry
OV/PH	PH/OV
Actual frequency relative to	
desired AF	Contextual
Actual frequency	Stress and tiredness
AF	AF
	Privacy
	AF

The measure derived from this conceptual framework will be computer-based and will route participants to sections relevant to their experience. Those who have not been in a relationship for the whole of the past year, for example, will be routed past the relationship questions. This means that the measure can be completed by anyone, regardless of their recent sexual experience.

Methodological limitations

The methodological limitations of our study relate to qualitative approaches more broadly. Qualitative methods are suited to exploring phenomena from the perspectives of others. Semi-structured interviews provide rich and detailed descriptions but because the data generated are cumbersome, the sample size is generally small. Sampling is often theoretical rather than probabilistic and so the aim is to generate ideas and concepts that are transferable to other contexts, rather than results that are statistically generalisable to a wider population.

Conclusion

Our framework is novel in that it is grounded in participant perceptions; provides opportunity for individuals to state the degree to which they see their sex life as problematic; and incorporates relational, psychological and physiological aspects.

The framework provides a solid conceptual basis for a brief and acceptable measure of sexual function, specifically designed for use in community surveys. Just as we identified shortcomings in existing measures, so practitioners with different objectives will see drawbacks to ours. For example, sex therapists might point out that it contains nothing about intimacy in a relationship; experts on premature ejaculation and orgasmic dysfunction (Waldinger & Schweitzer, 2006a & b) could consider the number of items on orgasm/ejaculation inadequate for precise measurement; practitioners who advocate on behalf of rare and specific conditions such as persistent sexual arousal disorder (Leiblum & Nathan, 2001) might point out that these have been omitted; and various individuals (notably The Working Group for a New View of Women's Sexual Problems, 2001) might criticise our attempt to put forward a normative list of difficulties. Whilst some will feel that we have strayed too far from the current classification; others will feel that we have not strayed far enough. In response, we would highlight the fact that most limitations of the measure stem directly from our design imperatives of brevity, user acceptability, relevance to all population sub-groups and public health utility. Furthermore, given the general lack of agreement concerning the conceptualisation and measurement of sexual dysfunction (Balon, 2008; Mitchell & Graham, 2008), it is simply not possible to meet all expectations. In contrast to many existing measures, we based our decisions on empirical evidence collected specifically for the purpose, thus giving our measure a strong claim to validity. Ultimately the quality and utility of this conceptual framework and subsequent measure will be established by future community-based survey research.

References

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders,* (4th ed. DSM-IV-TR). Washington, D.C.: American Psychiatric Association.

Balon, R. (2008). The DSM criteria of sexual dysfunction: Need for a change. *Journal of Sex & Marital Therapy*, 34, 186-197.

Bancroft, J., Loftus, J., & Long, J.S. (2003). Distress about sex: A national survey of women in heterosexual relationships. *Archives of Sexual Behavior*, 32(3), 193-208.

Bancroft, J. (2009) *Human sexuality and its problems*. Europe: Elsevier Limited

Barnes, T., & Eardley, I. (2007). Premature ejaculation: The scope of the problem. *Journal of Sex & Marital Therapy*, 33, 151-170.

Boyle, M. (1993). Sexual dysfunction or heterosexual dysfunction? *Feminism and Psychology*, 3(1), 73-88.

Charmaz, C. (2006). *Constructing Grounded Theory: A practical guide through qualitative analysis.* London: Sage.

Clement, U. (2002). Sex in long-term relationships: A systemic approach to sexual desire problems. *Archives of Sexual Behavior*, 31(3), 241-246.

Conaglen, H.M. (2001). Report of the international consensus development conference on female sexual dysfunction: A view from down under. *Journal of Sex and Marital Therapy*, 27(2), 127-130.

Corona, G., Jannini, E., & Maggi, M. (2006). Inventories for male and female sexual dysfunctions. *International Journal of Impotence Research*, 18, 236-250.

Davies, S., Katz, J., & Jackson, J. (1999). Sexual desire discrepancies: Effects on sexual and relationship satisfaction in heterosexual dating couples. *Archives of Sexual Behavior*, 28(6), 553-567.

Dennerstein, L., Lehert, P., Burger, H. & Dudley, E. (1999). Factors affecting sexual functioning of women in the mid-life years. *Climacteric*, 2, 254–62.

Dennerstein, L. (2010) How changing methods affect our understanding of female sexual function and dysfunction. *Journal of Sexual Medicine*, 7, 2299-2300

Derogatis, L.R. (1997). The Derogatis Interview for Sexual Functioning (DISF/DISF-SR): An Introductory Report. *Journal of Sex & Marital Therapy*, 23(4), 291-304.

Dunn, K.M., Croft, P.R., & Hackett, G. (2000). Satisfaction in the sex life of a general population sample. *Journal of Sex & Marital Therapy*, 26(2), 141-151.

Dunn, K.M., Jordan, K., Croft, P.R., & Assendelft, W.J. (2002). Systematic review of sexual

problems: epidemiology and methodology. *Journal of Sex and Marital Therapy*, 28(5), 399-422.

Green, J., & Thorogood N. (2009) *Qualitative methods for health research*. London: Sage Publications.

Gregoire, A. (1999). Assessing and managing male sexual problems. In Tomlinson J. (Ed.), *ABC of Sexual Health.* London: BMJ Books.

Hayes, R.D., & Dennerstein, L. (2005). The impact of aging on sexual function and sexual dysfunction in women: a review of population-based studies. *Journal of Sexual Medicine*, 2, 317-330.

King, M., Holt, V., & Nazareth, I. (2007). Women's views of their sexual difficulties: Agreement and disagreement with clinical diagnosis. *Archives of Sexual Behavior*, 36, 281-288.

Laumann, E.O., Paik, A., & Rosen, R.C. (1999). Sexual dysfunction in the United States: Prevalence and predictors. *Journal of the American Medical Association (JAMA)*, 281(6), 537-544.

Levine, S.B. (2003). The nature of sexual desire: A clinician's perspective. *Archives of Sexual Behavior*, 32(3), 279-285.

Leiblum, S.R., & Nathan, S.G. (2001). Persistent sexual arousal syndrome in women: A newly discovered pattern of female sexuality. *Journal of Sex & Marital Therapy*, 27, 365-380.

Mcgahuey, C.A., Gelenberg, A.J., Laukes, C.A., Moreno, F.A., Delgado, P.L., Mcknight, K.M., et al. (2000). The Arizona Sexual Experience Scale (ASEX): Reliability and Validity. *Journal of Sex & Marital Therapy*, 26(1), 25-40.

Mercer, C.H., Fenton, K.A., Johnson, A.M., Wellings, K., Macdowall, W., McManus, S., et al.. (2003). sexual function problems and help seeking behaviour in Britain: National probability sample survey. *British Medical Journal*, 327(7412), 426-427.

Meston, C.M., Hull, E., Levin, R., & Sipski, M. (2004). Disorders of orgasm in women. *Journal of Sexual Medicine*, 1, 66-68.

Meston, C.M., & Trapnell, P.D. (2005). Development and validation of a five-factor sexual satisfaction and distress scale for women: The sexual satisfaction scale for women (SSS-W). *Journal of Sexual Medicine*, 2, 66-81.

Loewenthal, K.M. (2001) *An introduction to psychological tests and scales*. Philadelphia: Taylor & Francis Inc.

[ref omitted for blinding]

Mitchell, K., Wellings, K., King, M., Nazareth, I., Mercer, C. & Johnson, A. (*2011*) Scripting sexual function. *Sociology of Health and Illness, 33(4), 540-553*

Mitchell, K., King, M., Nazareth, I., Wellings, K. (2010) Managing sexual difficulties; A qualitative investigation of coping strategies. *Journal of Sex Research, 48(4), 325-333*

Mitchell, K.R., & Graham, C. (2008). Two Challenges for the classification of sexual dysfunction. *Journal of Sexual Medicine*, 5(7), 1552-1558.

Nazareth, I., Boynton, P., & King, M. (2003). Problems with sexual function in people attending London general practitioners: Cross sectional study. *British Medical Journal,* 327(7412), 423-8

Öberg, K., Fugl-Meyer, A.R., & Fugl-Meyer, K.S. (2004). On categorisation and quantification of women's sexual dysfunctions: An epidemiological approach. *International Journal of Impotence Research,* 16, 261-269.

Perel, E. (2007) *Mating in captivity*. Great Britain: HarperCollins Publishers

Pertot, S. (2007). *When your sex drives don't match: Discover your libido types to create a mutually satisfying sex life* New York: Marlowe and Company.

Purdon, C., & Holdaway, L. (2006). Non-erotic thoughts: Content and relation to sexual functioning and sexual satisfaction. *Journal of Sex Research*, 43(2), 154-162.

Quirk, F.H., Heiman, J.R., Rosen, R.C., Laan, E., Smith, M.D., & Boolell, M. (2002). Development of a sexual function questionnaire for clinical trials of female sexual dysfunction. *Journal of Womens Health and Gender Based Medicine*, 11(3), 277-289.

Read, S., King, M., & Watson, J. (1997). Sexual dysfunction in primary medical care: Prevalence, characteristics and detection by the general practitioner. *Journal of Public Health Medicine*, 19(4), 387-391.

Reynolds, C.F., Frank, E., Thase, M.E., Houck, J., Jennings, R., Howell, J.R., et al. (1988). Assessment of sexual function in depressed, impotent and healthy men: Factor analysis of a brief sexual function questionnaire for men. *Psychiatry Research*, 24, 231-250.

Rosen, R.C., Riley, A., Wagner, G., Osterloh, I.H., Kirkpatrick, J., & Mishra, A. (1997). The International Index of Erectile Function (IIEF): A multidimensional scale for assessment of erectile dysfunction. *Urology*, 49(6), 822-830

Rosen, R.C., & Althof, S. (2008). Impact of premature ejaculation: The psychological, quality of life, and sexual relationship consequences. *Journal of Sexual Medicine*, 5(6), 1296-1307.

Rosen, R., Brown, C., Heiman, J., Leiblum, S., Meston, C., Shabsigh, R., et al. (2000). The female sexual function index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*, 26(2), 191-208.

Rust, J., & Golombok, S. (1985). The Golombok Rust inventory of sexual satisfaction (GRISS).

British Journal of Clinical Psychology, 24 (1), 63-64.

Sanchez, D. T., & Kiefer, A. K. (2007). Body concerns in and out of the bedroom: Implications for sexual pleasure and problems. *Archives of Sexual Behavior*, 36(6), 808-820.

Sandfort, T.G.M., & de Keizer, M. (2001). Sexual problems in gay men: An overview of empirical research *Annual Review of Sex Research*, 12, 93-120.

Schneidewind-Skibbe, A., Hayes, R.D., Koochaki, P.E., Meyer, J., & Dennerstein, L. (2008). The frequency of sexual intercourse reported by women: A review of community-based studies and factors limiting their conclusions. *Journal of Sexual Medicine*, 5, 301-335.

Smith, A., Lyons, A., Ferris, J., Richters, J., Pitts, M., Shelley, J., & Simpson, J. M.(2011) Sexual and relationship satisfaction among heterosexual men and women: the importance of desired frequency of sex, *Journal of Sex & Marital Therapy*, 37(2), 104-115

Strauss, A. (1987). *Qualitative analysis for social scientists*. New York: Cambridge University Press.

Sugrue, D., & Whipple, B. (2001). The consensus-based classification of female sexual dysfunction: barriers to universal acceptance. *Journal of Sex & Marital Therapy*, 27(2), 221-6.

Taylor, J.F., Rosen, R.C., & Leiblum, S.R. (1994). Self-Report assessment of female sexual function: Psychometric evaluation of the brief index of sexual function for women. *Archives of Sexual Behaviour*, 23(6), 627-643.

The Working Group for a New View of Women's Sexual Problems. (2001). A new view of women's sexual problems. In: E. Kaschak & L. Tiefer (Eds.) *A new view of women's sexual problems* (pp 1-8). New York: The Haworth Press.

Tiefer, L., Hall, M., & Travis, C. (2002). Beyond dysfunction: A new view of women's sexual problems. *Journal of Sex & Marital Therapy*, 28, 225-232.

Waldinger, M., & Schweitzer, D. (2006a). Changing paradigms from a historical DSM-III and DSM-IV view: Toward an evidence-based definition of premature ejaculation. Part I - validity of DSM-IV-TR. *Journal of Sexual Medicine*, 3, 682-692.

Waldinger, M., & Schweitzer, D. (2006b). Changing paradigms from a historical DSM-III and DSM-IV view: Toward an evidence-based definition of premature ejaculation. Part II - proposals for DCM-V and ICD-10. *Journal of Sexual Medicine*, 3, 693-705.

Warner, P., Bancroft, J., members of the Edinburgh Human Sexuality Group (1987) A regional clinical service for sexual problems: a three year survey. *Sexual and Marital Therapy*, 2, 115-126

Witting, K., Santtila, P., Varjonen, M., Jern, P., Johansson, A., von der Pahlen, B., et al. (2008) Female sexual dysfunction, sexual distress and compatibility with partner. *Archives of Sexual Behaviour, 5, 2587-2599.*

World Health Organization. (1992). *ICD-10: International Statistical Classification of Diseases*

and Related Health Problems, 10th ed. Geneva: WHO.

Zilbergeld, B., & Ellison, C.R. (1980). Desire discrepancies and arousal problems in sex therapy. In: S.R. Leiblum & L.A. Pervin (Eds.) *Principles and Practice of Sex Therapy.* (pp 66-104) New York: Guilford Press; 1980:66-104