Original Articles

Sexual function in women in rural Tamil Nadu: Disease, dysfunction, distress and norms

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ABSTRACT

Background. We examined the nature, prevalence and explanatory models of sexual concerns and dysfunction among women in rural Tamil Nadu.

Methods. Married women between 18 and 65 years of age, from randomly selected villages in Kaniyambadi block, Vellore district, Tamil Nadu, were chosen by stratified sampling technique. Sexual functioning was assessed using the Female Sexual Function Index (FSFI). The modified Short Explanatory Model Interview (SEMI) was used to assess beliefs about sexual concerns and the General Health Questionnaire-12 (GHQ-12) was used to screen for common mental disorders. Sociodemographic variables and other risk factors were also assessed.

Results. Most of the women (277; 98.2%) contacted agreed to participate in the study. The prevalence of sexual dysfunction, based on the cut-off score on the FSFI, was 64.3%. However, only a minority of women considered it a problem (4.7%), expressed dissatisfaction (5.8%) or sought medical help (2.5%). The most common explanatory models offered for sexual problems included an unhappy marriage, stress and physical problems. Factors associated with lower FSFI included older age, illiteracy, as well as medical illness and sexual and marital factors such as menopause, poor quality of marital relationship, history of physical abuse and lack of privacy.

Conclusion. The diagnosis of female sexual dysfunction needs to be nuanced and based on the broader personal and social context. Our findings argue that there is a need to use models that employ personal, local and contextual standards in assessing complex behaviours such as sexual function.

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INTRODUCTION

Female sexual disorders (FSD) are complex, diverse and associated with multiple biological, medical and psychological factors. They are said to be highly prevalent affecting 20%–50% of women;

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however, they are often not recognized, diagnosed and managed.[1] Though there are many studies from the West,[2] epidemiological data on FSD from the Indian subcontinent are limited.[3–7] A major barrier to clinical research and practice has been the absence of a well-defined, broadly accepted diagnostic framework and classification for FSD. A major issue is the need to include local and cultural perceptions about sex in any diagnostic norm. There is a paucity of studies evaluating the explanatory models of women with sexual dysfunction from India, an evaluation of which would help give a greater understanding of the subjective experience.

We attempted to estimate the prevalence and nature of female sexual dysfunction in a rural community of Tamil Nadu and to elicit the explanatory models of illness and risk factors.

METHODS

Setting

The Department of Community Health (CHAD), Christian Medical College, Vellore, has been working in Kaniyambadi block for the past 50 years. This region in Tamil Nadu is a geographically defined area of 127.4 sq. km with a population of about 110 000. The community health programme operates in all villages in the area. A large proportion of the population is from the lower socioeconomic strata. Agriculture and animal husbandry are the major occupations.

The surveillance system

The surveillance system has been described elsewhere in detail.[8] It consists of a four-tier monitoring system. The block is divided into regions with specific personnel in charge of the health of each. The system involves the village health worker, the community health aide, the public health nurse and the doctor. Every week the village health worker reports to the health aide about pregnancies, deliveries, births, deaths, morbidity, marriages, immunization, and couples eligible for contraception in the village. Data obtained by the surveillance system are computerized. The data for the whole block are collated and reviewed monthly by the entire health team consisting of community health workers, health aides, community health nurses, doctors and other development staff.

The sample

Four villages, from a total of 64 villages, in Kaniyambadi block were randomly selected for the study. Currently married women between 18 and 65 years of age, who spoke Tamil, were eligible

to take part. Women from selected villages were chosen by stratified sampling according to age (18–35, 36–50 and 51–65 years) from the computerized database. The number of married women 18–65 years of age in the block and eligible women in the selected villages were 23 877 and 1775, respectively.

Subjects were randomly selected from the database and were contacted for possible recruitment to the study. Women who had moved from the village or were away for long periods and those who refused consent were replaced by the next person from the computerized list. The study was restricted to married women as it was felt that asking details regarding sexual practices and problems to unmarried young women was not culturally appropriate considering the social and cultural ethos of the region. Subjects with severe language, hearing or cognitive impairment were excluded. The health worker of the Community Health and Development (CHAD) programme, who hailed from the village and was familiar with the participants, accompanied the researcher (SV) and introduced her to each of the subjects. Informed consent was obtained from the participants.

Interviews
The following assessments were done:

Female Sexual Function Index (FSFI).[9] The FSFI, a 19-item self-report instrument, was used for assessing six different domains of sexual function—desire, arousal, lubrication, orgasm, satisfaction and pain. The FSFI total score was determined by the sum of the six domains and could vary from 2 to 36, where higher scores are associated with lower degree of sexual dysfunction. Published thresholds recommended by western studies were also used to estimate overall prevalence (threshold <26.55), hypoactive sexual desire (threshold <4.28), arousal (threshold <5.08), lubrication (threshold <5.45), orgasm (threshold <5.05), satisfaction (threshold <5.04) and pain disorders (<5.51).[9–11] Tamil versions of FSFI have been used in the region.[3,6]

The Short Explanatory Model Interview (SEMI).[12] The SEMI explores *emic* perspectives of health and illness. It uses open-ended questions; subjects were encouraged to talk openly about their attitudes and experience of health and illness with the aim of eliciting concepts held and relationship to current situation and culture. Probes were used to confirm the issues mentioned and to explore areas, which the women did not volunteer. The interview covered several areas including the nature of the presenting problem, help-seeking behaviour, interaction with physician/healer, and beliefs related to health and illness. Reason for consulting, name of the problem, perceived causes, consequences, severity and its effects on body, emotion, social network, home life and on work were explored. Help-seeking behaviour, especially contact with alternative non-medical sources (e.g. traditional healers) were also examined. This instrument has been translated into Tamil and used in the area to study diverse clinical concerns.[13–16] It was modified to study perspectives about sexual concerns.

General Health Questionnaire-12 (GHQ-12).[17] The 12-item GHQ-12, a standard instrument to identify people with depression and anxiety in primary care and in the community, was used. The Tamil version has been validated for use in a rural setting in southern India;[18,19] a total score of 4 or more implies a high probability of a common mental disorder.[19]

Other data. Marital, sexual and obstetric data were collected. Basic demographic information was also recorded.

Tamil versions of the instruments were used. They were designed to use language as spoken by the local people, to ensure that it would be appropriate to the study population. Standard techniques of translation, which focused on conceptual, semantic and technical equivalence, were used.

Procedure
The aims and details of the study were explained to the subjects who were then invited to participate in the study. Informed consent was obtained. SV interviewed the subjects and administered the questionnaires. Since a large proportion of subjects were unable to read or write, the questionnaires were read out to all participants to ensure uniformity. The study protocol was approved by the Institutional Review Board.

Statistical analysis
Mean, median and standard deviation were used to describe continuous variables, while frequency distributions were obtained for categorical data. The chi-square test and Student t-test were used to assess the significance of bivariate associations for categorical and continuous variables, respectively. Pearson correlation coefficient was used to assess the correlation of continuous variables. Logistic regression analyses were used to adjust the bivariate analyses for age and literacy. Odds ratios and 95% confidence intervals were calculated.

The sample size for the study was calculated at 232 using the statistical programme Epi Info version 6 with the following assumptions: estimated prevalence of female sexual dysfunction=32%,[6] maximum permissible estimate of error ±6%.

RESULTS
Two hundred and seventy-seven (98.2%) of the 282 women contacted agreed to participate in the study. The mean age of the women was 40.9 years. The majority were housewives, premenopausal, were able to read and write, had financial debts and did not report chronic medical illness. The majority used contraceptives, had a single sexual partner as a method of protection from sexually transmitted infections, were satisfied with their sexual function and with their marriage and felt that the purpose of sex was for recreation (Table I).

Ninety-eight women (35.4%) reported a lack of privacy at home for sexual intercourse, 13 women (4.7%) mentioned sexual concerns and 16 (5.8%) reported dissatisfaction with their sexual life, while 7 women (2.5%) reported that they consulted a doctor or a nurse for such problems. A significant proportion of women mentioned a reduced interest in sex (39.7%) and abstinence for varying periods of time (20.2%). However, a much larger group of 52 (18.8%) reported dissatisfaction in their marriage. The reasons for marital dissatisfaction included alcohol abuse by the spouse, unemployment and financial difficulties, marital discord, spouse's extramarital relationship, physical abuse, spouse's suspicion about subject's fidelity, among others. Verbatim responses (Box I) suggest a variety of beliefs and opinions.

On the other hand, the proportion of FSD diagnosed using FSFI norms was: sexual dysfunction (*n*=178, 64.3%), desire disorder (*n*=153, 55.2%), arousal disorder (*n*=144, 52%), lubrication disorder (*n*=144, 52%), orgasm disorder (*n*=144, 52%), satisfaction disorder (*n*=141, 50.9%) and pain disorder (*n*=143, 51.6%).

The risk factors significantly associated with presence of sexual dysfunction, based on the traditional FSFI total score threshold, were age, menopause, marital discord, history of physical abuse, lack of privacy at home, and presence of medical illness (Table II). Literacy was protective. The associations with other variables including the high probability of psychiatric 'caseness'

TABLE I. Sociodemographic, marital and sexual profile of sample and data from the semi-structured interview

Characteristic	Frequency (%)/Mean (SD)	Characteristic	Frequency (%)/Mean (SD)
Sociodemographic and clinical profile		*Data from Short Explanatory Model Interview (SEMI)*	
Age (in years)	40.9 (13.4)	Sexual concerns	13 (4.7)
Monthly family income (₹)	2585.3 (3031.29)	Satisfaction with sexual functioning	261 (94.2)
Debt: present	199 (71.8)	More than one sexual partner	0 (0.0)
Amount of debt (₹)	64 088.8 (117 951)	Reduced interest in sex reported	110 (39.7)
Schooling (in years)	5.1 (4.2)	Abstinence from sex reported for >1 month	56 (20.2)
Literate	180 (65.0)	*Protection against sexually transmitted diseases*	
Occupation: Housewife	172 (62.1)	Single partner	272 (98.2)
Housing: Own	252 (91.0)	Abstinence	2 (0.8)
Residence, rural	277 (100)	Local hygiene	1 (0.4)
Meals per day, 3	259 (93.5)	No specific precaution	2 (0.8)
Able to buy food in the past 1 month	13 (4.7)	Physical abuse present	59 (21.3)
Living with family	277 (100)	Sexual abuse present	0 (0)
Diabetes	11 (4.0)	Spouse's contact with sex worker	25 (9.0)
Hypertension	12 (4.3)	Spouse's long-term extramarital relationship	19 (6.9)
Medication use	29 (10.5)	Symptoms of venereal disease in partner	2 (0.7)
General Health Questionnaire-12 positive case	12 (4.3)	Dissatisfaction with marriage	52 (18.8)
Sexual and marital details		*Reason for dissatisfaction in marriage*	
Pregnancies	3.08 (1.7)	Nil (satisfied with relationship)	225 (81.2)
Abortions	0.31 (0.67)	Alcohol abuse by partner	24 (8.66)
Stillbirths	0.08 (0.29)	Unemployment and financial difficulties	16 (5.77)
Live-births	2.66 (1.58)	Marital discord	11 (3.97)
Living children	2.44 (1.38)	Spouse's extramarital relationship	7 (2.52)
Male children	1.26 (0.94)	Physical abuse	5 (1.8)
Girl child	1.18 (1.21)	Spouse's suspicions about wife's fidelity	2 (0.72)
Menopausal	106 (38.3)	Medical illness in partner	1 (0.36)
Vaginal discharge	34 (12.3)	Large age gap between partners	1 (0.36)
Regular alcohol use by husband	47 (17.0)	No children	1 (0.36)
Contraceptives used	175 (63.2)	*Purpose of sex (multiple responses)*	
Types of contraception		For procreation	102 (36.8)
No contraception	102 (36.8)	For recreation	187 (67.5)
Condom	4 (1.4)	A sin	2 (0.7)
Intrauterine contraceptive device	6 (2.2)	A duty	30 (10.8)
Tubectomy	154 (55.6)	*First information about sex from*	
Abstinence	3 (1.2)	Friends	6 (2.2)
Hysterectomy	5 (2.0)	Relatives	55 (19.9)
Partner sterilized	3 (1.2)	Books	2 (0.7)
		Husband	208 (75.1)
		Sex education programmes	5 (1.8)
		Doctor	1 (0.4)
		Adequate privacy at home present	179 (64.6)

Box I. Some verbatim responses

Some explanations among women without dysfunction
1. (age 52 years) 'I don't have as much interest in sex as before menopause, but it is not a problem.'
2. (age 25 years) 'I don't have interest in sex, but it does not bother me. I have young children and I am tired after doing all the housework.'
3. (age 44 years) 'The only problem is that we don't have children because he has a low sperm count and I have a weak uterus.'
4. (age 32 years) 'I have white discharge per vaginum.'

Some explanations among women with sexual dysfunction
1. (age 40 years) 'Why do we need sex at this age?'
2. (age 41 years) 'I don't have much interest in sex; once in 2–3 months is enough. After all, we have children.'
3. (age 43 years) 'I have no interest in sex. That is normal in our culture. Only males want it.'
4. (age 26 years) 'I don't like sex because of the pain during penetration.'
5. (age 53 years) 'Where is the time to think of these things?'

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on GHQ (score of >4) and presence of financial debt were not statistically significant.

DISCUSSION
We examined sexual function and its relationship to explanations, sociodemographic and clinical variables. We used a relatively large sample size, had a low refusal rate and used standard instruments to elicit data. The sample was chosen using a standard technique to select a representative population. The interviews were conducted in the subject's home, after ensuring privacy, by

TABLE II. Factors associated with sexual dysfunction, defined by traditional Female Sexual Function Index (FSFI) threshold

Characteristic	Odds ratio (95% CI)	p value	Adjusted odds ratio (95% CI)	p value
Age (in years)	1.15 (1.12–1.19)	<0.001	1.14 (1.10–1.18) [1]	<0.001
Literacy	0.16 (0.09–0.23)	<0.001	0.41 (0.26–0.86) [2]	0.018
Menopausal	37.11 (15.31–89.93)	<0.001	5.68 (1.85–17.44) [3]	0.002
Debt present	1.67 (0.98–2.82)	<0.058	2.07 (0.98–4.36) [3]	0.056
Husband's extramarital relationships	3.26 (1.05–10.09)	<0.040	2.37 (0.60–9.33) [3]	ns
History of physical abuse	7.25 (2.23–16.00)	<0.001	4.84 (1.86–12.56) [3]	0.001
Marital discord	13.71 (4.78–39.31)	<0.001	11.87 (3.72–37.92) [3]	<0.001
Lack of privacy at home	4.22 (2.43–7.34)	<0.001	2.32 (1.14–4.73) [3]	0.020
Pregnancies ≥3	5.50 (3.27–9.25)	<0.001	1.05 (0.51–2.16) [3]	ns
Medical illness	15.77 (4.76–52.27)	<0.001	6.91 (1.85–27.80) [3]	0.004

Logistic regression used to adjust for following variables: 1 for literacy, 2 for age, 3 for age and literacy   ns non-significant

a woman psychiatrist. Its limitations include that it was a cross-sectional study and hence precluded evaluation of the direction of causal associations.

Risk factors for women with scores suggestive of sexual dysfunction were compared with scores among those without. Common confounders such as age and literacy were adjusted for using logistic regression. Such comparison provides for control women from within the study population. While the use of an urban sample would have added to the bigger picture, they would not be good controls in the sense that the effects of education, employment and income would necessarily have confounded the data.

Prevalence
There is a dearth of information about FSD in India.[3–7] Studies which have used instruments standardized in the West have reported very high rates (e.g. 73%)[3–5] than investigations which have taken into account the woman's context and culture and also examined individual and partner distress (32%).[6] The investigations with very high rates used screening instruments (e.g. FSFI) to diagnose FSDs without using confirmatory strategies. The findings of this study also show the discrepancy between blindly using screening instruments without contextualizing issues and assessing distress and priorities of the women. A lack of a contextual diagnosis of FSD in the Indian population has resulted in grossly exaggerated reports of sexual dysfunction among women.[3–5] There is a need for a contextual diagnosis of dysfunction focusing on distress, priorities and the broader personal and social context. The mechanical use of screening instruments is bound to increase the false-positive rates.

Factors associated
We documented a variety of personal, social and cultural factors associated with sexual function. Increasing age, menopause, marital discord, a history of physical abuse, lack of privacy at home and medical illness were risk factors for dysfunction while literacy offered protection. These relationships have been found in other studies.[3,6,20–24]

The belief that sex was only for procreation was common and suggests the role of social and cultural influence on sexual behaviour. A majority of the participants reported that their first information about sex was from their husband; this is in keeping with a culture where discussion about sex is considered taboo and is rarely discussed openly with adolescent children in India.

While only a few mentioned sexual concerns, a much larger group reported dissatisfaction in their marital lives, suggesting that sexual issues are not a primary concern for many women, as compared to the emotional issues in their marital relationship.

A significant proportion of respondents felt that their sexual problems/reduced desire were due to stress and unhappiness in their marital lives suggesting that women felt that it is necessary to have emotional well-being to be sexually fulfilled. A large proportion of respondents reported that sex was not a priority in their lives. Many also felt that as age increased it was only natural to have reduced interest in sex, and that it was also inappropriate to be concerned about sex with grown up children at home. Factors often associated with marital discord (e.g. dissatisfaction with the relationship, spouse's extramarital sexual relationships, physical abuse, etc.) also argue that sexual function should be viewed within the larger personal and social context rather than in isolation.

Disease, dysfunction, norm
Our data indicate that sexual dysfunction cannot be considered a single problem nor equated with disease. Many women did not regard lack of sexual desire as a serious difficulty; many felt it was a normal process of ageing. This finding is in concordance with the experience in hospital settings where many men but very few women seek help for sexual problems. The findings argue for a contextual understanding of FSD.[6,7]

The use of screening instruments to diagnose sexual dysfunction in women is fraught with difficulties. FSFI, a screening instrument, when used to diagnose sexual dysfunction results in very high prevalence rates.[7] Sexual satisfaction and dysfunction are complex and need to be evaluated within the context of the individual, the sexual and marital relationships and culture. Dysfunctions *per se* without significant personal and interpersonal distress cannot be assumed to be disorders and diseases. FSFI fails to elicit these dimensions and hence cannot be used to recognize FSD. In addition, sexual dysfunctions can be discrete and isolated involving one or few domains. This makes it difficult to use a single total score to screen for several and diverse sexual disorders. The clinical interview should also assess a history of not just the specific problem but also its impact on personal and interpersonal functioning and also assess personal, marital, interpersonal, social and cultural issues and context.[7]

The success of Viagra for erectile dysfunction has increased the interest in FSD. Many compounds are currently undergoing clinical trials or are used 'off-label'. Mechanistic application of screening/diagnostic instruments, which exclude personal and social contexts, results in the commodification of sexual function and the manufacturing of disease resulting in profit for the pharmaceutical industry and for academic researchers who promote and market their own expertise and legitimacy.[25] Moral evaluations of sex, sexuality and sexual activity are determined by value judgements; viewed as positive or negative. The current simplistic

approach to FSD using symptom counts, sans context, misconstrues the issues through its narrow focus on the medico-pharmaceutical discourse. Examining the wider context reveals a more complex ontology that problematizes the accounts of both medicine and psychiatry.[26] Psychiatric thought, throughout the 20th century, from psychoanalysis to the DSM classification associated FSD with mental illness with its associated fear of blaming or disbelieving its sufferers. FSD despite being a generic and descriptive term has now acquired diagnostic implications. The prevalent discourse of medical FSD, despite its pretense at neutrality, understands sexual problems as reductionistically biological, ignoring the contextual (personal, interpersonal, social, and cultural) factors shaping sexuality and its difficulties.

Sexuality finds a prominent place in India's cultural heritage and its ancient discourse. However, viewing Indian culture as homogeneous essentially supports elitist concepts and dismisses subaltern cultures as unimportant. The many diverse cultural and social influences in modern India and their impact on sexuality and practice mandate the need to individualize understanding and issues.

Clinical and educational issues

A small minority of the women sought help for FSD in this study. The rarity of help-seeking for FSD is also supported by clinical experience in hospital settings. Nevertheless, there are specific clinical situations where exploring for FSD is useful: women who present with medically unexplained symptoms, infertility, and pelvic pain; among those who report marital discord, physical, sexual and emotional abuse and in people with endocrine disorders (including thyroid) and those on medications known to cause FSD (e.g. antidepressants, antipsychotics, antihypertensives, antihistamines, etc.). Direct questioning, within a culturally sensitive approach, usually results in a clinically useful discussion of the issues.

Despite the apparent simplicity and supposedly atheoretical nature of the current definition and criteria for FSD, their use in clinical practice requires caution. Routine screening to identify FSD in clinical practice is fraught with the danger of identification of false-positives. However, a culturally sensitive enquiry about the possibility of sexual difficulties in women who present with complaints will be useful. An understanding of the personal, social and cultural context of women who complain of sexual problems is mandatory for an understanding of the issues. There is a need to establish the impact of FSD on personal and interpersonal functioning. FSD mandates the need for considerable resultant personal and interpersonal distress and for the exclusion of other medical and psychiatric causes before highlighting it as a clinical issue. In addition, there is a need to address the personal issues, marital discord, social context and cultural conflicts before highlighting the issues as abnormal. Educational and supportive approaches, which examine the personal, social and cultural risk factors, will be crucial. Medication-based strategies should be used as a last resort in women with dysfunction and with distress in whom other personal, social and cultural issues have been managed.

The findings also argue for the need for health and sex education programmes in high schools to empower young people with information about sex. The lack of such education often results in the spreading of myths and falsehoods, increases anxiety and suffering among the vulnerable, and exploitation by unscrupulous healthcare practitioners.

There is a need to replicate a similar study in other populations and communities. Our findings argue that the task of eliciting and understanding FSD will require time, clinical skill and cultural sensitivity. They also demand a nuanced understanding of the complex issues.

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