Original Article

Factors Associated with Sexual Dysfunction; A Population Based Study in Iranian Reproductive Age Women

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Abstract

Background: Sexual function results from complex interactions of neurovascular and endocrine factors. The prevalence of sexual dysfunction varies in different countries. This study aimed to determine the prevalence of sexual dysfunction and the related factors among reproductive age women in Iran.

Methods: A community-based cross-sectional descriptive study was carried out on 784 married women living in urban areas of 4 provinces of Iran. Participants were recruited using a stratified, multistage probability cluster sampling method. Female sexual function was assessed using the Female sexual function index questionnaire. Data was analyzed using Spearman and logistic regression tests.

Results: The results demonstrated 27.3% prevalence of sexual dysfunction including 0.8% severe, 20.3% moderate, and 6.3% mild sexual dysfunction. Among women with sexual dysfunction, the frequency of desire, arousal, lubrication, and orgasmic disorders were 35.6%, 39.9%, 18.9%, and 27.3%, respectively. Dyspareunia was reported by 56.1% of women. Among the participants, 15.2% were unsatisfied with their sexual life. There was a statistically significant relationship between sexual dysfunction and duration of married life, perceived attraction of spouse, overall satisfaction with routine life and the women's ability to express their sexual desires.

Conclusion: Sexual dysfunction is prevalent among Iranian women. A comprehensive service including counseling programs for sexual dysfunction at primary health care is highly recommended.

Keywords: Sexual dysfunction, sexual and gender disorders

Introduction

Sexual function, a complex interaction of neurovascular and endocrine factors, is influenced by biological characteristics, interpersonal relationships, and also the cultural and traditional factors of the societies.[1] Sexual dysfunction is the "disturbances in sexual desire and in the psychophysiological changes that characterize the sexual response cycle and cause marked distress and interpersonal difficulty".[2] This definition emphasizes the model of human sexual response cycle which involves a temporal sequencing and coordination of several phases, including sexual desire (libido), arousal (excitement), orgasm and satisfaction.[3]

It is estimated that 25%–63% of women suffer from these sexual dysfunctions,[4-6] which are common in the general population.[7,8] Sexual dysfunction is more prevalent in women (43%) than men (31%). Epidemiologic data show that a third of women lack sexual interest and nearly a fourth do not experience orgasm.[9]

Approximately 20% of women report lubrication difficulties and 20% find sex not pleasurable.[3] But, socio-cultural barriers, taboos and misconceptions make the estimation of the prevalence difficult and it seems that the prevalence is usually underestimated.[10]

In Iran, there are limited studies on the prevalence of sexual dysfunction among women. In a community based study, Safarinejad (2006) reported a prevalence of 31.5% among 2626 Iranian women, aged 20–60 years. However, the prevalence rate was reported to be 8.5% in the Kohgiluoeh-Bouierahmad province[11] and 19.2% in Babol City of Iran.[12] It has been shown that women of different racial groups demonstrate different patterns of sexual dysfunction which is attributed to the different racial, ethical, cultural factors and customs in different communities[9] as well as the different designs of studies, sampling methods and tools used for data collection.

Sexual dysfunction is also associated with various demographic characteristics, including age and educational level. Common risk factors associated with sexual dysfunction include individual general health status, some chronic diseases, psychiatric/psychological disorders, and socio-demographic conditions.[8,13] Experience of sexual dysfunction is more likely among women and men with poor physical and emotional health.[9] Associations between sexual dysfunctions and anxiety and depression have also been reported.[14] Female sexual dysfunction has a major impact on quality of life and interpersonal relationships.

For many women, it is physically disconcerting, emotionally distressing and socially disruptive,[13] and may have significant negative effects on their self confidence, emotions, spousal relationship and social activities.[15,16]

Estimation of the prevalence of sexual dysfunction and the as-

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sociations has potentially important consequences for planning preventive and treatment programs. Effective therapy for sexual problems could have a broad impact on sexual health and hence the coordination between physical, mental, emotional and social aspects of individuals leads to improvement in their personality, relationships and marital behavior.[17]

Most current data describing these associations are a result of work carried out in limited sections of the population, notably clinic based samples, while this community based study aims to estimate the prevalence of sexual dysfunction and disorders, and also to assess the effective factors among non-menopausal, 18–45 year old Iranian women.

Materials and Methods

This community-based cross-sectional descriptive study was performed to determine the prevalence of sexual dysfunction among 784 non-menopausal, reproductive age (18–45 year old) Iranian women in 2010.

Participants were selected from 4 randomly selected provinces of Iran. In order to select these provinces, the country was first divided to 4 geographic subgroups, following which one province was randomly selected from each subgroup. The provinces selected were Ghazvin, Kermanshah, Golestan, and Hormozgan, located in the Central, West, North and South of Iran, respectively. Subjects of the study were recruited using a stratified, multistage probability cluster sampling method, with a probability in proportion to size procedure. The choice of seven households for the cluster size was based on one-day performance capacity of the data collection group. The frame for the selection of the sampling units was based on the Iranian household lists available in the Health Department and selecting the cluster was made systematically. The proportion of required samples in each province was calculated based on the total number of women aged 18–45 who live in urban area of each of these provinces. The number of clusters in each province was calculated by dividing the total number of required samples in each province by 7. Tools for data collection included three questionnaires: 1) A demographic questionnaire with 7 questions; 2) A researcher designed questionnaire with 16 questions to assess factors affecting sexual function; and 3) A reliable validated Persian version of a standard questionnaire "The Female Sexual Function Index (FSFI)". Considering the sensitivity of the subject,[18,19] questionnaires were coded, but participants names were not given.

The content and face validity of the questionnaire was assessed by 10 experts, including 4 obstetricians, four clinical psychologists, a medical sociologist and an epidemiologist; to assess its reliability, 50 women completed the form and the internal reliability of the questionnaire was confirmed by Cronbach's coefficient of r = 0.76. Test-retest reliability was also assessed and confirmed by r = 0.8 (Pearson correlation).

FSFI is a 19 item multi-dimensional, self report questionnaire for assessment of female sexual function. Its reliability was demonstrated by overall test retest reliability coefficient for each of the individual domains (r = 0.79 to 0.86) and a high degree of internal consistency (Cronbach's alpha values of 0.82 and higher). Construct validity was also assessed and confirmed[18]; this questionnaire was translated to Persian by Mohamadi (2008) and its reliability was confirmed by Cronbach's alpha values of 0.7.[19]

The FSFI questionnaire evaluates six domains of female sexual functioning during the last 4 weeks: desire, arousal, lubrication, orgasm, satisfaction and pain during sexual intercourse.

The scoring algorithm was based on a device to assess each domain and a composite score thus generated. Score ranges were 0–5 for items 3–14 and 17–19, and 1–5 for items 1, 2, 15, and 16.

By adding the scores of the individual items that comprise the domain and multiplying the sum by the domain factor, individual domain scores were obtained. Factors scores were 0.6 for desire, 0.3 for arousal and lubrication, and 0.4 for orgasm, satisfaction and pain. Total score was obtained by adding the six domain scores. The full-scale score ranged between 2.0 to 36.0, with higher scores associated with a lesser degree of sexual dysfunction. Scores of 65% of maximum achievable score in each domain were considered as sexual dysfunction in that domain.[4]

Therefore, a score of less than 3.9 in all six domains was considered as sexual dysfunction Female sexual function was further categorized into four groups, including normal female sexual function (total score more than 23), mild FSD (total score 18–23), moderate FSD (total score 11–17), and severe FSD (total score ≤10). Patients were asked to choose the response option that best suited their experiences during the past one month.

A team of midwives from the provinces were selected and trained in a two-day workshop for recruiting samples and completion of forms. These trained personnel visited the households, introduced themselves and invited one eligible woman from each household for participation in the study. After a detailed explanation about the aims and procedure of the study, a written consent to participate was obtained from each participant, the questionnaires were completed by the women themselves.

Data was analyzed by SPSS version 15, using descriptive and analytical methods of statistics such as Spearman and logistic regression.

Approval of the ethical committee of the Iranian ministry of health was obtained for the study.

Results

Participants were 784 married women, aged 33.5 years; 17.5% of them were employed and 53.5% of the employed women were satisfied with their job condition. Their demographic characteristics are presented in Table 1.

The results demonstrated 27.3% prevalence of sexual dysfunction, including 0.8% severe, 20.3% moderate and 6.3% mild sexual dysfunction. Among women with sexual dysfunction, frequency of desire, arousal, lubrication, and orgasmic disorders were 35.6%, 39.9% and 18.9%, 27.3%, respectively. Dyspareunia was reported by 56.1% of women and 15.2% of participants were dissatisfied with their sexual life.

The results showed that 85.6% of participants described a friendly and kind relationship between their own parents; 5.1% of participants reported a history of sexual abuse; 91.6% of participants mentioned having friendly-pleasant relationships with their husbands; 72.9% of participants were happy with their married life and 65% of women said they were able to express their sexual desires to their husbands. The sources of information about sexual issues were husbands, relatives, neighbors and parents, in 66.9%, 14.2%, 10.5%, and 8.4% of participants, respectively.

The women's opinions on factors affecting their sexual function are presented in Table 2. Results demonstrated that among those women with sexual dysfunction, lack of necessary knowledge

Table 1. Demographic characteristics and fertility history of participants Characteristics.

Characteristics	Mean	SD (Range)
Age (Years)	33.5	6.94 (21–45)
Education (Years)	8.3	4.4
First marriage age (Years)	19.9	7.6 (15-20)
First Pregnancy age (Years)	20.7	3.4
No. Childbirth	2.5	1.5
Duration of married life	13.4	7.6 (1–30)

Table 2. Distribution of factors affecting sexual function (as stated by women).

Factors	Women without sexual dysfunction		Women with sexual dysfunction	
	Frequency	Percentage	Frequency	Percentage
Fatigue/not enough time	147	25.8	45	21
Lack of feeling of love/friendship with husband life	103	18.1	60	28
Lack of necessary knowledge and skills for sexual satisfaction	88	15.5	67	31.3
Lack of appropriate and private settings for intercourse	101	17.7	30	14
Low flirtation and preparation before intercourse	81	14.2	37	17.3
Lack of her husband's necessary knowledge and skills for sexual satisfaction	79	13.9	39	18.2
Disagreement between partners about ways of lovemaking and intercourse	50	8.8	21	9.8
Headache after intercourse	53	9.3	17	7.9
Inappropriate personality of husband	48	8.4	16	7.5
Abnormal expectations of husbands for intercourse	46	8.1	13	6.1
Alcohol- and drug-abuse by husband	24	4.2	3	1.4
Participants could chose more than one statement				

Table 3. Estimations of odds ratio for possible risk factors of sexual dysfunctions using Logistic regression model.

	Variable	OR (95% CI)	P-value
Age*		0.99(0.96–1.95)	0.3
Duration of marriage*		1.01(0.98–1.04)	0.5
Status of married life*	Happy	1(ref.)	
	Sad	2.3(1.5–3.4)	<0.001
Perceived ability to express sexual desires to husband*	Yes	1(ref.)	
	No	2(1.5–3.4)	<0.001
Feeling of love toward husband*	Yes	1(ref.)	
	Neutral	1.19(0.5–1.5)	0.5
	No	1.33(0.4–1. 8)	0.1
Perceived attraction for husband*	Always	1(ref.)	
	Sometimes	1.7 (1.3–6.4)	0.007
	Not at all	1.9(0.9–2.8)	0.8
Parents relationship*	Friendliness	1(ref.)	
	Not friendliness	1.2(0.96–3.4)	0.2
Duration of married life**		1.4(1.01–1.8)	0.03
Status of married life**	Happy	1(ref.)	
	Sad	2.3(1.5–3.5)	<0.001
Perceived ability to express sexual desires to husband**	Yes	1(ref.)	
	No	2.0(1.3–2.9)	0.01
Feeling of love toward husband**	Yes	1(ref.)	
	Neutral	1.3(0.7–1.7)	0.5
	No	1.4(0.8–1.7)	0.1
Perceived attraction for husband**	Always	1(ref.)	
	Sometimes	1.8(1.2–2.9)	0.008
	Not at all	1.9(1.01–3.2)	0.05
*: After adjusted for the necessary occasion for sexual activity of the women. **: After adjusted for the necessary occasion for sexual activity of the women and age			

and skills for sexual satisfaction and among those women without sexual dysfunction, fatigue or not having enough time were the most important factors that influenced sexual function.

Figure 1 shows views of the participants about suitable occasions desired for sexual intercourse.

The Spearman test demonstrated a positive significant correlation between women's and their husbands' views on desirable occasion for sexual intercourse ($P < 0.001$) and spearman correla-
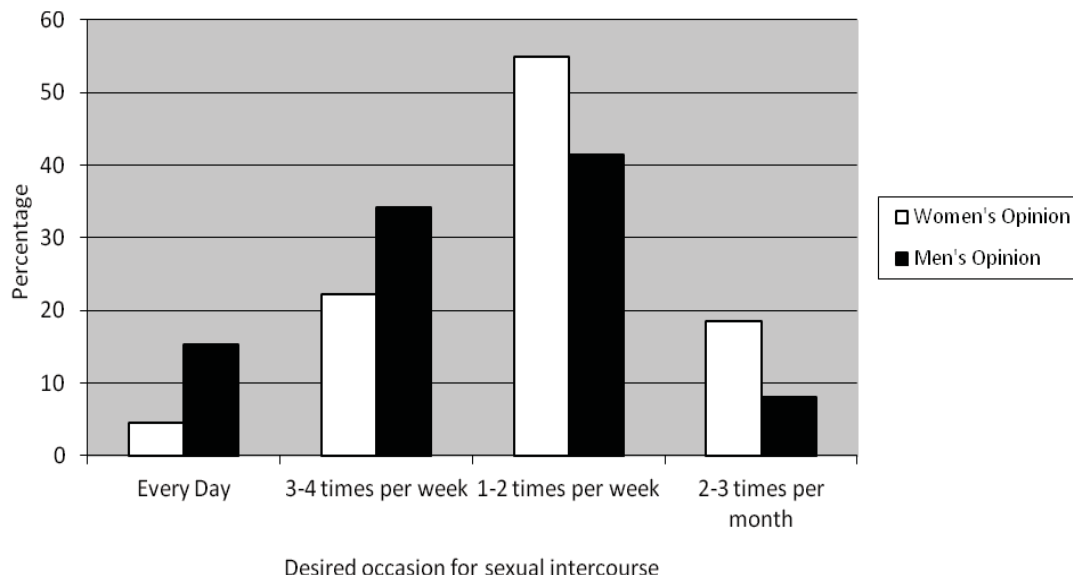
Figure 1. Women's and men's desired occasions for sexual intercourse (as stated by participants).

tion coefficient was 0.4.

There is a statistically significant relationship between sexual dysfunction and duration of the marriage, the husband's perceived attractiveness for his wife, overall satisfaction with routine life and the ability for sexual expression.

Regression logistic showed that happiness with married life ($P < 0.001$), perceived love/friendly relations with husband ($P = 0.001$), wife's ability to express her sexual desires, and the husband's perceived attraction of his wife ($P < 0.001$) can predict sexual dysfunction. This model demonstrated that sexual disorders are 2.3 times more common among women who were unhappy with their married life. Sexual dysfunction was also 1.9 times more common among women with low perceived attractiveness for husbands. Women with low ability for expressing their sexual desires to husband had a 2-fold chance of sexual dysfunction. Following concurrent control of two confounding variables of "age" and "the necessary occasion for sexual intercourse", duration of married life had negative correlation with frequency of sexual dysfunction (Table 3).

Discussion

This is the first report on the prevalence rate of sexual dysfunction among reproductive-aged Iranian women. Results of the present study demonstrated prevalence of 27.3% sexual dysfunctions among non-menopausal reproductive-age women.

Safarinejad (2006) showed 31.5% prevalence rate of sexual dysfunction among Iranian women. The difference between results of these two studies can be attributed to differences in age ranges of participants. The participants in our study were reproductive-age women (18–45 years old), whereas the participants in Safarinejad's study (2006) were aged 20–60 years and included menopausal women. In their study, biological and life span changes of women during perimenopausal period and/or postmenopausal period may have caused higher prevalence rates of sexual dysfunction among Iranian women. A cross sectional study by Moghssemi[20] on 149 perimenopausal Iranian women, aged 43–64 years, showed 69.8% to be affected by sexual dysfunction, and reported

no significant difference between the two groups (with and without dysfunction) in terms of hormone level and SHBG; they concluded that in Iranian postmenopausal women, sexual dysfunction is much more related to many socio-cultural factors than to just hormonal problems.

Besides, consistent, uniform and universally acceptable definitions for sexual dysfunction (which also include the degree of dysfunction in sexual interest/desire, arousal, orgasmic dysfunctions) are necessary to compare epidemiological studies worldwide. One way of classification of sexual functions is the use of well validated indices such as FSFI[13] used for the present study as well. Our results also showed that sexual dysfunctions are more common among women who have inappropriate relationships with their husbands and among those who are unable to express their sexual desires to their husbands. Our findings showed women whose husbands perceived them as unattractive faced a twice higher risk of sexual dysfunction than others. Sexual dysfunction may decrease women's quality of life as well as their general satisfaction with their married life. It is suggested that there are strong positive associations between arousal, orgasmic, and enjoyment problems and women's marital difficulties.[14]

Dyspareunia was the most common sexual disorder among the participants in our study. Other common disorders were arousal, desire, orgasmic and lubrication disorders, in decreasing order of frequency. In the Safarinejad study (2006), the frequency of sexual disorder was overall 31.5%. The frequency of orgasmic, desire, arousal disorders were 37%, 35%, respectively and then 26.7% dyspareunia. The higher rate of dyspareunia and lower rate of lubrication disorders in our study, compared to Safarinejad's (2006), may be related to the younger age range of participants in our study. It is reported that vaginal dryness increases with age, whereas dyspareunia decreases.[21]

The difference between the prevalence rates of sexual disorders in different studies in Iran[4,11,12] may also be due to different age groups, sampling methods and sites of studies.

The prevalence of sexual dysfunction is estimated to range from 19% to 50% in women.[22,23] Among Malaysian women, the prevalence rate of sexual dysfunction was 29.68% and the most

common disorders were dyspareunia, arousal, orgasmic, and lubrication disorders, in that order. General sexual dysfunction was reported at 52% among Malaysian women.[24] The most prevalent sexual disorders among 20–80 year old Australian women were orgasmic, arousal, desire, and lubrication disorders, in decreasing order of frequency,[25] whereas the prevalence of sexual dysfunction including desire, orgasmic, arousal disorders and dyspareunia, in decreasing order of frequency[17] among Moroccan women was reported at 27%. It seems that socio-cultural and economic characteristics of women in different countries can explain to some extent the differences in prevalence rates.[26,27] Sexual dysfunction is more common among women than men.[27,28] Besides, cultural taboos and misconceptions surrounding female sexual functions may lead to underestimation of the prevalence rate of sexual dysfunction in different communities.[26] In Machismo/patriarchal societies, the female's sexual satisfaction is not considered as a right for women, who are not expected to meet their own needs for sexual satisfaction.[29] Women's social status plays an important role in their sexual function and their cultural and religious beliefs make social norms for their sexual relations and satisfaction. Therefore, it could also be suggested that the different tools used for measuring sexual dysfunction yield different estimations of prevalence of sexual dysfunction; standard tools should be developed or modified based on the different socio-cultural conditions of different communities.

Current data reports that frequency of sexual dysfunction is negatively correlated with the duration of married life. It seems that as women become more experienced about their sexual function and satisfaction, they develop stronger emotional relationships with their spouses.[13] Female sexual dysfunctions are most strongly associated with psychosocial problems, particularly marital difficulties. Long term relationships with partners and difficulties with marriage are the areas of people's social life thought to have the greatest relevance to sexual problems.[9] It is reported that sexual function is affected by emotional relationship between couples. Satisfaction with the general conditions of life and the husband's positively perceived attraction for his wife can prevent sexual dysfunction in women and a happy and cheerful relationship between couples can decrease the risk of sexual dysfunction. It seems that good sexual function of women needs deep feelings of love towards their husbands.[30] Strong emotional relationships between couples make it easy for women to express sexual desires to their husbands. In a recent study on American women aged 20–65 years, emotional relationship with partners during sexual activity and their general emotional well-being were the two most strong predictors of proper sexual lives.[31] Psychological disorders such as depression and anxiety are reported to increase the rate of sexual dysfunction.[32,33] Therefore, sexual dysfunction and psychological disorders have a mutual relationship, which makes it necessary to consider the psychological, emotional and relationship context of females in FSD evaluations. FSD evaluation and treatment should include a psychosexual evaluation and, if needed, patients should be referred to a psychotherapist.[34] The limitation of the study was the limited number of questionnaires completed during interviews with illiterate women. We tried to decrease the effects of this limitation by only reading the questions for illiterate women and emphasizing on the confidentiality of their responses.

In addition, despite the minor difference between the prevalence rates of our study and those of other Iranian studies, all studies show approximately one third of Iranian women suffer from sexual dysfunction, indicating the magnitude of the problem and suggesting that sexual counseling is a basic need for Iranian women affected by this problem which may decrease their quality of life and their physical and mental health as well. This problem may be also hidden by socio-cultural taboos and cause many divorces.[35] The above mentioned consequences could be prevented with simple counseling by a primary health care provider. Considering the high incidence of sexual dysfunction, we recommend data collection on female sexual health concerns on routine gynecologic visits.

In conclusion, sexual dysfunction is common among Iranian women.[36] Screening of women with sexual dysfunction and planning and providing special counseling and care programs in primary health care system can prevent many consequences of this problem. Qualitative researches are recommended to explain the model of sexual function and dysfunctions among Iranian women. More analytical and cause and effect studies are also strongly recommended for assessment of sexual dysfunction among Iranian women.

Declaration

The authors declare that they have no competing interests.

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