

# Systematic Review of Prevalence of Sexual Disorders in Iran

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**Objective:** The aim of the present study is to perform a systematic review of studies that have investigated the prevalence of sexual disorders in Iran.

**Method:** A broad search was conducted in Pubmed Medline, ISI web of Science, PsychINFO, CINAHL, EMBASE, and three Iranian databases, including IranPsych, IranMedex, and Scientific Information Database (SID). To cover those studies that were not published, we did a hand searching of all theses, reports and congresses abstract booklets which were available in IranPsych and universities' libraries. Then we included original studies which reported the prevalence of sexual disorders and data extraction was performed with two researchers for each document.

**Results:** five studies were finally included, one in men and the others in women. There was a great heterogeneity between studies and performing metaanalysis was impossible.

**Conclusion:** Prevalence rates of mental disorders were reported in a wide range in different studies. More high quality studies with standard instruments are necessary in this field.

**Keywords:** *Iran, Prevalence, Review, Sexual and gender disorders*

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**S**exual disorders lie among the most prevalent psychological disorders in general population(1). With the advent of effective non-expensive therapies for different subtypes of sexual disorders including pharmacologic and psychotherapeutic methods and considering their considerable effects on patients' quality of life, this group of disorders are deemed quite important(2). Meanwhile, epidemiologic studies assessing the prevalence of different mental disorders have paid little attention to this group of disorders (3). Overall, studies conducted worldwide have reported the prevalence of sexual disorders in the range of 10-25% among men and 25-64% among women (2). Partly as a consequence of the influence of cultural factors in their development, prevalence rates vary in different communities. Prevention, diagnosis, and treatment of sexual disorders have received much attention in Iran in recent years. Studies performed on different samples have reported different prevalence rates (5-9). Such diversity might be attributed to the existing differences in timing of the studies, the

selected locations, and utilization of either different assessment tools or sampling methods. Thorough judgment of the underlying reasons responsible for the diversity observed requires assessment of the methodologies of these studies. Achieving an accurate knowledge about the exact prevalence of these disorders is considered as the first essential step towards planning for diagnosis and treatment of such disorders. In these circumstances, further to compiling the studies conducted, a systematic review can identify the underlying reasons for the differences in estimation of prevalence. It might also integrate the results of smaller studies through meta- analysis so that a more precise estimation of the prevalence of sexual disorders is provided.

## Materials and Method

### Resources

At the first step, some databases including Pubmed (Medline), web of Science, ISI, PsychLIT, CINAHL, EMBASE, Irandoc, IranPsych, IranMedex, and

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Scientific Information Database were searched. The last three are databases indexing the papers published in Iran. Iran Psych indexes papers in the field of mental health and related sciences specifically.

### Search strategy

An appropriate search strategy was applied for searching any single database so that the sensitivity of the strategy could be assured. In order to achieve this goal, the search strategy for Web of Science, Pubmed(Medline), CINAHL, and EMBASE included three stages as follows: 1) Latin transcript of Iran, cities with a university of Medical Sciences, and names of the universities and special hospitals; 2) phrases related to epidemiology and prevalence estimation; 3) phrases related to sexual disorders. No time limit was considered in this search.

Since all the papers indexed in internal databases are from Iran, transcript of Iran was omitted. On the other hand, in most of these databases advanced search using multiple items was not possible. As a consequence, in Iran Psych, Irandoc, IranMedex, and Scientific Information Database the words “epidemic, prevalence, epidemio, or frequency” were utilized as search strategy. In the next step, the results of the search were reviewed manually and all of the related abstracts were selected. The existing database in Tehran University of Medical Sciences for dissertations which included 13000 dissertations at the time, was searched manually as electronic search was not feasible.

Along with electronic search, all the existing resources were searched manually as much as possible. As the first step, the dissertations’ section in Iran Psych database was searched. This database included approximately 5000 dissertations in the field of psychiatry and psychology but did not provide electronic search option. Consequently, all the dissertations were searched manually.

On the other hand, dissertations in the field of Gynecology, Urology, and Psychiatry in libraries of medical schools in Tehran including Tehran University of medical sciences, Shahid Beheshty University of Medical Sciences, Iran University of Medical Sciences, University of Welfare and Rehabilitation, Shahed University, Azad University, Allame University, Tarbiat- Modarres University, and Alzahra University were included in the search.

In order to search the dissertations of Medical universities of other provinces, the related resources were reviewed with cooperation of mental health officers in all provinces: Ardebil, Orumieh, Ilam, Ahvaz, Babol, Bushehr, Tabriz, Birjand, Chaharmahal va Bakhtiari, Rudhen, Rafsanjan, Zabol, Zahedan, Zanjan, Bojnourd, Semnan, Shahroud, Shiraz, Fassa, Ghazvin, Ghom, Kashan, Kordestan, Kerman, Kermanshah, Kohgiluyeh- Boyer Ahmad, Gorgan, Gonabad, Gilan, Lorestan, Mazandaran, Markazi, Mashad, Hormozgan, Hamedan, and Yazd.

Furthermore, with cooperation of ministry of health and medical education all research centers country-

wide were informed about the systematic review through formal letters and were asked to submit an abstract from any possible related research project or paper.

### Assessment of the studies

Abstracts of the studies assessing prevalence of sexual disorders in general population were all reviewed by two team members and those fulfilling the selection criteria were included. These were the original studies with estimations of overall prevalence of any sexual disorders, or some special disorders among the general population country-wide. Studies focused on special sample populations (e.g, diabetics) were excluded. In case of any disagreement between the two researchers, a third member was consulted. In the event that more than one report from the same study was accessed, the report providing more comprehensive statistics was included. In the next step, full texts of the selected abstracts were provided and each was reviewed by two team members. Here again, any studies containing exclusion criteria were excluded.

The full texts of the studies which were eventually included were reviewed for extraction of data including time frame and location of the study, sample population, sampling methods, prevalence assessment tools, and the reported prevalence of the disorders.

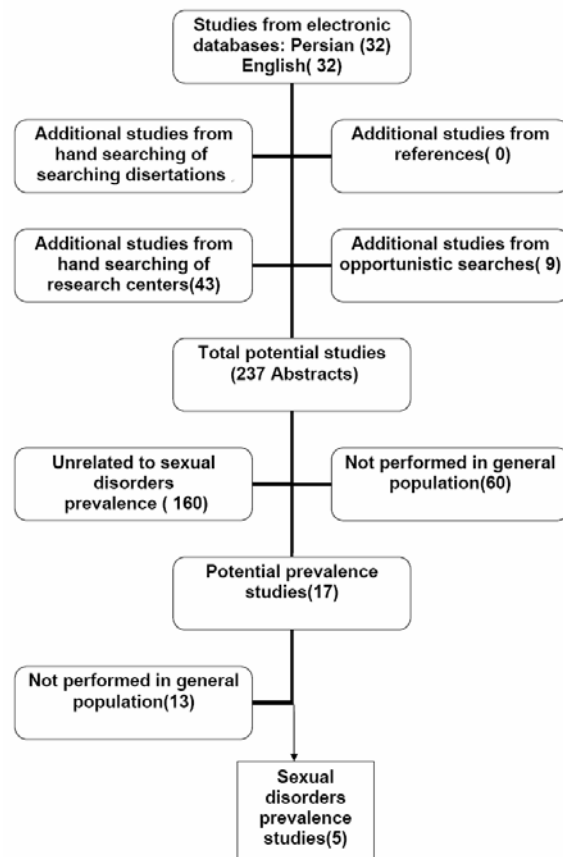


Figure 1. Flow chart of search and selection of the studies related to the systematic review

In case the two researchers disagreed, they first tried to overcome it; in the event any ambiguities were faced, the researcher was contacted.

All the studies were also assessed for their qualitative measures based on the checklist provided in this study. It must be noted that validity and reliability of the presented study is being assessed through another study (unpublished data). The qualitative measures considered included sampling methods and randomization of the sampling, validity and reliability of the assessment tools, the standard methods for data collection, and reporting the prevalence in different age subgroups.

**Results**

Overall, more than 20000 study titles were assessed from which in the first step, 237 were related to prevalence of sexual disorders among general population of the country. After review of these studies, 17 fulfilled the inclusion criteria; they were original studies reporting prevalence of sexual disorders. Through review of the full-texts, five studies were eventually included; all remaining studies were excluded because they were conducted among special sample populations (Fig. 1).

From these five selected studies, four had been published in three international journals (5-8) between 1999 and 2007. In one of the studies which was an unpublished report from a research project (9), the time frame of the study was not clarified. The details of the samples studies have been illustrated in table 3.

One study has been conducted in each of Tabriz and Isfahan cities and three in Tehran. The sample population included women in four of the studies and men in the last. The sample size of the studies conducted among women varies from 295 to 2626. The sample size of the study performed on a sample of men is 2674

Data collection location has not been mentioned in the study assessing the prevalence of sexual disorders among men (5). Among the studies conducted on samples of women, the location has not been noted in Safarinejad’s study (6), either. Sampling has been conducted in referrals to Alzahra and Taleghani clinics in Sobhgol’s (8) and three health centers in the domain of Tehran University of Medical Sciences in Shokrollahie’s (7). Gorji has picked the samples from different locations such as households, governmental offices, universities, hospitals, and schools (9).

**Table 1. Studies included in the review**

Author	resource	Title
Safarinejad	International J of Impotence Research;2006	Women sexual dysfunction in a population-based study in Iran: Prevalence and associated risk factors
Sobhgol	International J of Impotence Research;2007	Rate and related factors of dysparonia in reproductive age women
Shokrollahi	J of sex and marital therapy;1999	Prevalence of sexual dysfunction in women seeking services at family planning centers in Tehran
Gorji	Research project report	Prevalence of sexual dysfunctions among women in Isfahan
Safarinejad	International J of Impotence Research;2003	prevalence and risk factors for erectile dysfunction in a population-based study in Iran

**Table 2. Demographic characteristics of the samples**

Reference	Having an occupation	Education	Married	Age range	Mean of age	Location& Time frame of the study	Sample size
Safarinejad 2006	28%	-	70%	-	-	Tehran	2626
Sobhgol 2007	22.9%	82.2% Primary Or junior High school	100%	15-49	33.8	Tabriz, 2003	319
Shokrollahi 1999	31%	72% with at Least high School diploma	100%	16-52	31.3	Tehran	300
Gorji,	-		100%	20-45	-	Isfahan,2005	295

**Table 3. The prevalence of sexual disorders in women**

Sample size	Time/ locatior	Instrument	Total prevalence	Sexual Desire Disorder	Sexual Aversion Disorder	Sexual Arousal Disorder	Vaginismus	Dysparunia	Anorgasmi	source
2626	Tehran	Female sexual function index	31.5% (759)	35% (843)		30% (723)		26.7% (643)	37% (891)	Safarinejad (6)
319	Tabriz	-					54.5% (173)			Sobhgol (8)
300	Tehran	BISF-W	38% (114)	28% (84)		17% (51)	8% (24)	9% (27)	25% (75)	Shokrollahi (7)
295	Esfahan	Researcher -designed		36.6% (100)	23.9% (65)	25.9% (70)	29.6% (82)	30.9% (85)	26.1% (86)	Gorji (9)

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Safarinejad's which had studied the prevalence of erection disorders was the only study available for prevalence of sexual disorders among men and was included in this study (5). It was a cross-sectional study conducted on a sample of 2674 men ranging from the age of 20 to 70. Randomized cluster sampling had been performed in two stages. 42 general practitioners had assessed the sample for erection function based on the demographic data and researcher-structured questionnaires. The results showed that 460 (18.8%) of the participants had erectile dysfunction. The prevalence of this disorder increased with age; it had a prevalence of 6% among 20-39-year-old men while 47% of the men over 60 suffered from erectile dysfunction.

Studies performed on samples of women have all hired questionnaires as their assessment tools. One of the studies has utilized researcher-designed questionnaire (9) while the other two have used BISF-W 1994 (7) and Female Sexual Function Index (6). The other study has not pointed out which questionnaire has been used (8).

Assessment of the studies for their quality measures showed that participants' response rate, reliability of the questionnaires, and sampling methods had not been clarified in any of the five studies. The only study in which the validity had been discussed was Gorji's. In three studies on women the age group of the participants was mentioned (Table 2) and in the study on men, the age of the participants ranged from 20 to 70.

Results had been categorized based on the disorders including "erectile disorder", "overall prevalence of sexual disorders", "decreased sexual desire", "sexual arousal disorder", "anorgasmia", "dyspareunia", "vaginismus", and "sexual aversion" in women. (Table 3) Overall prevalence of sexual disorders has been assessed in two of the studies; Safarinejad rates it as 31.5% (6) and Shokrollahi has reported a prevalence of 38% (7).

Sexual aversion in women and erectile disorder in men have been each assessed only in one of the studies. Prevalence of erectile disorder has been reported as 18.8% (5). Decreased sexual desire, sexual arousal disorder, and dyspareunia have been each assessed in three of the studies. The prevalence of decreased sexual desire, sexual arousal disorder, and dyspareunia have been reported to range from 28 to 36.6%, 17 to 50%, and 9 to 54.5%, respectively. Each of anorgasmia and vaginismus have been assessed in two studies (Table 3). Since only two statistics were available for overall prevalence of sexual disorders and for each of the disorders three heterogeneous statistics were gained, meta-analysis could not be applied.

## Discussion

This is the first systematic review of studies assessing prevalence of sexual disorders in general population of

Iran which encompasses all studies conducted till 2007. This research has reviewed the studies performed on samples of women and men separately.

Overall, the quality of the studies conducted to assess the prevalence of sexual disorders was not found desirable. Most of the studies had small sample sizes, sampling was not randomized, and reliability and validity of the assessment tool had not been defined.

Safarinejad's study of the prevalence of erectile disorder was the mere study available for prevalence of sexual disorders among men. The results of this study depicted a prevalence of 18.8% for erectile disorder. Prevalence of this disorder increases with age (5).

As compared to other reports, in the study conducted on a sample of 1410 men in the range of 18-59, Laumann et al., reported this disorder to be as prevalent as 7% in 18-29-year-old men, 9% in the age range of 30-39, 11% in the age range of 40-49, and 18% in the range of 50-59. In another study conducted on a sample of 3350 men from different Asian countries (China, Taiwan, South Korea, Japan, Thailand, Singapore, Malaysia, Indonesia, and Philippines) aging from 40 to 80 by Nicolosky et al., overall prevalence of erectile disorder has been reported to be 15%. There has been an increasing trend for erectile disorder with increase of the age.

The higher prevalence of this disorder among Iranian men can be attributed to the existing differences in the methodologies of the studies such as the questionnaires selected for data collection and data collection methods. For instance, in Laumann's study, the research has been performed based on home-to-home referrals but in Safarinejad's, the route for data collection has not been clearly defined although the study has been performed on general population and has a large enough sample size. On the other hand, as previously noted, reliability and validity of the data collection tool has not been addressed. The other reason for the observed difference might originate from the cross-cultural differences between Iran and other countries; for instance patients might refer for treatment in a later stage of the disorder. This might result from paucity of reliable centers for treatment of sexual disorders. On the other hand, no classical education is provided to familiarize the Iranian population with sexual disorders and majority of individuals gain their information regarding sexual issues through non-scientific methods. As a consequence, referral to treatment centers takes place in later stages. In their study conducted to assess the knowledge and attitude of 15-18-year-old boys in Tehran, Mohammadi et al pointed out that paucity of information in this field was a threat to sexual health of adolescents (10).

Four studies were included in assessment of prevalence of sexual disorders among women. Although there were other studies available, they were not included either as a result of lacking inclusion criteria or impossibility of getting access to the full-texts.

Tables 2 and 3 illustrate the specifications of these four studies. Shokrollahi has reported the overall prevalence of 38% while this figure has been reported to be 31.5% by Safarinejad. These are comparable to the international statistics available (even though the prevalence of each of the disorders per se has a bigger difference from international figures). For instance, Nicolosky et al., reported a prevalence of 30% in their study on 3350 Asian women while Laumann et al., found the prevalence of 43% in their study conducted on a sample of 1749 American women (11, 12). In all the three studies, namely, Safarinejad's, Nicolosky's, and Laumann's, the prevalence of sexual disorders increases with age.

For prevalence of sexual disorders among women, the results of the four studies are compared to each other, discretely for each of the disorders. Prevalence of sexual desire disorder has been reported to range from 28 to 36%. It must be noted that Gorji has also studied the prevalence of sexual aversion disorder while Shokrollahi and Safarinejad have not provided any figures for this disorder. Prevalence of this disorder has been rated as 27% by Nicolosky and 27-32% by Laumann. In their systematic review, West et al have reported the prevalence of sexual desire disorder fluctuating in the range of 10 to 50% considering the design of the studies and the different age groups (4). The prevalence rates reported for sexual arousal disorder have been illustrated in table 3 (17-30%). Prevalence of this disorder has been reported to be 24% in Nicolosky's study and 19-27% in Laumann's (considering the age group). The study conducted by West, prevalence of sexual arousal disorder has been reported to range from 20 to 30%.

The statistics of dyspareunia has a wide range in these studies (9-54%). Shokrollahi's study, the one reporting the lowest rate, 72% of women had at least high school diploma. Sobhgol, reporting the highest rate, has noted the level of official education of 82% of the sample to be either primary school or junior high school. Further to dyspareunia, Shokrollahi and Gorji have considered vaginismus separately while the other two have not noted this disorder. The systematic review of West et al has reported dyspareunia to range from 0.9 to 75%.

Among all studies reviewed, only Safarinejad had studied the relationship between prevalence of sexual disorders and age. Based on this study, prevalence of all sexual disorders except pain disorder increases with age. To discuss the underlying reasons for the existing difference in the statistics of the four studies, the following points can be presented:

A) *The questionnaire utilized:* Shokrollahi has used BISF- W 1994 while Safarinejad collected data using FSFI. Although they have both used standard questionnaires, none have clarified whether the questionnaires were standardized for Iranian population (except for deletion of some questions as a result of cultural issues in one of the studies). Sobhgol's study which merely studies prevalence of dyspareunia hires a researcher- designed questionnaire. In Gorji's study

too, the questionnaire is researcher- designed and the responses are in likert format (never, little, mild, much). For instance, when rating the ability to reach orgasm, 3.07% marked "never" and 23.07% chose the answer "little"; overall prevalence of anorgasmia has been calculated to be 26.1%. Laumann and Nicolosy have both used standard questionnaires.

B) *Existing differences among samples:* Gorji has included the sample cases randomly out of the general population in households, governmental offices, universities, etc (apparently convenient method). The participants have been taken from referrals to family planning services unit of three health centers in the domain of Tehran University of Medical Sciences in Shokrollahi's study, and Safarinejad has selected the sample out of general population while the method used to access the general population (location of data collection) has not been clarified. Sampling in Sobhgol's study has been performed from referrals of two clinics in Tabriz. Taking the sampling methods of these studies into consideration, it seems none of the samples can be pointed as a good representative of the general population of the country. Laumann and Nicolosy have selected their samples out of the general population through home- to- home referrals. Further to the fact that such a method requires sufficient time for interviews and data collection, the extent to which the interviewees cooperate to answer sexually- related questions can not be determined. Another point of concern about the population being studied is the inclusion/ exclusion criteria of the different studies.

C) Most of the studies conducted in Iran address women who are already in a marital relationship. Non-inclusion of unmarried women can influence the real statistics of prevalence.

D) Apart from Safarinejad's study, Iranian studies have not addressed the characteristics of non-responder groups. This can definitely influence the results of the studies.

E) One of the main reasons for the difference between Iranian statistics and statistics derived from other studies might be the paucity of classical education regarding sexual issues in Iran. This drives individuals towards gaining sexual information from non- scientific resources; consequently, their frequently invalid knowledge and attitude might increase the probability of incidence of the disorders as well as later referrals to reliable centers to seek treatment. However, the number of sexual disorders treatment centers in Iran is quite limited.

A large number of studies were assessed in this review; eventually only five studies addressing prevalence of sexual disorders among general population of Iran were included. Therefore, it is most obvious that other studies in the field of epidemiology of sexual disorders are required. On the other hand, translation and validation of appropriate questionnaires addressing sexual disorders shall be deemed as an essential requirement in this field. Besides, taking the cultural barriers and the existing sensitivity around questioning

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sexual issues into account into consideration, and consideration of the non-responder group is of paramount importance.

It is recommended that systematic reviews are conducted for prevalence of sexual disorders in special groups. Although this study faced many difficulties such as difficulty accessing the required resources. For sure such studies face similar challenges all over the world; the systematic review conducted by West et al can be taken as a good example. They found none of the studies having the required qualitative standards (4). Dunn et al., have also pointed out in their review that meta- analysis would not be applicable because of the heterogeneity of the studies and lack of identical standards (13).

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