Nephro-Urol Mon. 2023 February; 15(1):e127442. https://doi.org/10.5812/numonthly-127442.

Published online 2023 January 7. **Research Article**

The Prevalence of Erectile Dysfunction Among Adult Men: The Results of a National Survey on Male Morbidities

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Received 2022 May 03; **Revised** 2022 November 01; **Accepted** 2022 November 09.

Abstract

Background: Men's sexual health is one of the main aspects of their lives. Male sexual dysfunction (SD) includes a wide range of sexual impairments and is not limited to premature ejaculation (PE) and erectile dysfunction (ED). ED can be a life-changing issue that might be mixed up with male sexual impotence characterized by PE and ED.
Objectives: The objectives of this study were to estimate the prevalence of sexual dysfunction and its associated factors among the Iranian male population.
Methods: This is a cross-sectional study for which data was collected from a nationwide reproductive morbidities project among males in Iran. To do so, 2296 men aged 25 - 60 years were selected from four provinces by cluster sampling. Statistical analysis was done in SPSS (18.0.0).
Results: The prevalence of severe/medium SD and severe SD were 66.9% and 18.1%, respectively. The prevalence of low sexual satisfaction, low sexual desire, and dissatisfaction with the length of intercourse before orgasm were 9.5%, 9%, and 12%.
Conclusions: Sexual dysfunction is highly likely prevalent among less educated, unemployed men with a history of chronic diseases. Various educational programs to raise awareness are thoroughly recommended.

Keywords: Sexual Health, Erectile Dysfunction, Health, Erectile Dysfunction; Health; Iran

1. Background

Male sexual dysfunction (SD) includes a wide range of sexual impairments and is not limited to premature ejaculation (PE) and erectile dysfunction (ED). ED can be a life-changing issue that might be mixed up with male sexual impotence characterized by PE and ED (1).

ED cannot be life-threatening, but it might cause a ripple effect on patients' mental and physical health plus sexual and social relationships (2). It is alleged that there is a high prevalence and incidence of ED worldwide (3). According to a previous study in the US, 52% of men aged 40 to 70 years were identified with ED in the National Health and Social Life Survey (NHSLS) (4). Besides, ED has something to do with cardiovascular diseases, physical inactivity, obesity, tobacco smoking, increased blood cholesterol, and metabolic syndrome (5, 6).

2. Objectives

It is of the utmost essence that sexual health in quality of life is reviewed by relevant specialists; nonetheless, proper literature reviews related to this theme are not completely available. The present paper used part of nationwide comprehensive research data to estimate the prevalence of sexual dysfunction and to reveal important related factors for this problem in Iran.

3. Methods

3.1. Sampling

A cross-sectional study conducted by the Men's Health & Reproductive Health research center in Iran using data from a nationwide project entitled:" National survey on

reproductive morbidities among males in Iran in 2007". The target population consisted of all men aged 25 - 60 in four provinces of Iran: Golestan province in the North, Hormozgan province in the South, Kermanshah province in the West, and Isfahan province in the central part of Iran. The selected provinces were randomly chosen from 31 provinces in Iran. After the selection of families within each cluster, one male from each family aged between 25 - 60 years was invited to come to the healthcare center.

3.2. Eligibility Criteria

3.2.1. Inclusion Criteria

(1) age between 25 - 60 years, (2) residence in the mentioned area for at least three months.

3.2.2. Exclusion Criteria

(1) Males who were hospitalized during the study, (2) Those who were unwilling to participate.

Data were collected using structured questionnaires by trained interviewers who were local general practitioners. Height, weight, and blood pressure were recorded and lab studies included semen analysis, urethral smear, FSH, and testosterone level.

3.3. Ethical Approval

Granted by the Review Board of Shahid Beheshti University of Medical Sciences. In addition to this, verbal consent was sought from each respondent before the interviews.

The structured questionnaire consisted of demographic characteristics and 8 questions related to (ED). Eight questions were structured to measure sexual satisfaction, sexual desire, time before orgasm, and delayed referral (more than 6 months). Furthermore, some crucial modifications were applied to format this questionnaire similarly to the IIEF questionnaire.

3.4. Validity and Reliability

Cronbach's alpha (92%) indicated high reliability, and an expert panel of urologists, epidemiologists, and statisticians claimed that it is valid and interviews were performed by trained interviewers.

3.5. Data Analysis

Independent samples *t*-test and chi-squared tests were performed in SPSS (18.0.0).

4. Results

The mean age of the 2,296 men participating in the study was 39.95 ± 10 and more than two-thirds of participants (75.5%) were urban residents.

Approximately 90.8% of the males were married and the mean age of first marriage was 24.2 ± 3.9. 80% of them had a permanent job during the 12 months before the interview and the unemployment rate ranged from 3.6% (Isfahan) to 9.2% (Kermanshah). Mean years of education was 8.1± 4.5 and illiteracy ranged between 6.5% (Isfahan) to 11.7% (Kermanshah). The monthly income average was 230 US$. The highest and lowest level of income was in Isfahan and Kermanshah respectively and there is a significant difference between them (P for difference $<$ 0.0001). Of 210 unmarried respondents, 42 (20%) had an active sexual life whose partners were permanent (54%). Eighty-one married respondents had experienced extra-marital relationships (4%) and had a permanent partner (45%).

The rest of the descriptive analysis and signification of variables are displayed in Tables 1 and 2.

Furthermore, ED was defined as a dichotomous variable, and diagnosed ED cases were 6.4% (n = 148). With the mentioned proper adjustments in the questionnaire according to the social and cultural status of the study settings, the prevalence of severe/medium ED and severe ED were 66.9% (n = 1536) and 18.1% (n = 415), respectively. (Table 3). In Figure 1, the information of the first four questions in Table 3 was illustrated. The rest of the questions were reported in Table 3.

5. Discussion

In this study, 2296 participants aged between 25 - 60 years in 4 provinces were evaluated for sexual status and activity, sexual desire, and sexual satisfaction. Also, 66.8% and 18% of the respondents had severe or severe/medium erectile dysfunction, respectively. The age of patients has something to do with the prevalence of SD and there is an increasing trend for under age 45 and a decrease for above 45. One of the community-based studies on the prevalence of ED in this regard was the Massachusetts Study (MMAS) conducted with 1709 men aged 40 - 70 in 1987 - 1997. The prevalence of ED was 52% divided into mild (17.2%), moderate (25.2%), and severe (9.6%), and similarly, ED, increases with age (7). In the National Health and Social Life Survey (NHSLS), the prevalence of ED was estimated as 7%, 9%, 11%, and 18% in diverse ranges of age groups) 18 - 28, 30 - 39, 40 - 49, and 50 - 59 (8). Also, another study showed that the male sexual disorder, with 44 % of men 60 - 69 years old, is up to 70 % of men $\geq$ 70 years old, and also in men $<$ 40 years old, ~5 % is related to erectile dysfunction.

Table 1. Prevalence of Self-reported Sexual Dysfunction According to General Characteristics of the Respondents, 2007

Variables	No. (%)	Sexual Function		P-Value [a]
		Severe/Medium Dysfunction (n = 1533)	Normal (n = 763)	
Province				Not applicable
Isfahan	1029 (44.9)	758 (73.6)	271 (26.4)	
Kermanshah	576 (25.1)	321 (55.8)	255 (44.2)	
Hormozgan	322 (14)	195 (60.5)	127 (39.5)	
Golestan	363 (15.8)	259 (71.3)	104 (28.7)	
Age group				0.056
25 - 34	821(35.8)	428 (52.1)	393 (49.8)	
35 - 44	686 (29.9)	503 (73.3)	183 (26.5)	
45 - 54	525 (22.9)	391 (74.4)	134 (25.6)	
55 - 65	256 (11.1)	211 (82.4)	45 (17.6)	
Educational level				< 0.001 [a]
Illiterate	195 (8.5)	152 (77.9)	43 (22.1)	
Elementary	587 (25.7)	423 (72)	164 (27.9)	
High-school	1231 (54)	788 (64)	443 (36)	
Academic	265 (11.6)	162 (61.1)	103 (38.9)	
Diabetes				0.003 [a]
No	2018(92.1)	1401 (69.4)	717 (30.6)	
Yes	171 (7.9)	131 (76.6)	40 (23.4)	
Hypertension				0.031 [a]
No	2144 (93.8)	1427 (66.5)	717 (33.5)	
Yes	141(6.2)	105 (74.4)	36 (25.6)	

[a] *t*-test and chi-Square tests with 0.05 significant level.

Table 2. Prevalence of Self-reported Sexual Dysfunction According to High-risk Behaviors of the Respondents, 2007

Behavior	No. (%)	Sexual Function		P-Value [a]
		Severe/Medium Dysfunction	Normal	
Cigarette smoking				0.040 [a]
No	1548 (67.6)	1017 (65.7)	531 (34.3)	
Yes	740 (32.4)	514 (69.4)	226 (30.6)	
Alcohol use				< 0.001 [a]
No	2125 (92.8)	1454 (68.4)	671 (31.6)	
Yes	164 (7.2)	78 (47.5)	86 (52.5)	
Illicit drug use				0.262
No	2038 (89)	1359 (66.6)	679 (33.4)	
Yes	251(11)	173 (68.9)	78 (31.1)	
Use of psychologic medication				0.061
No	2096 (91.5)	1393 (66.4)	703 (33.6)	
Yes	194 (8.5)	140 (72.1)	54 (27.9)	

[a] *t*-test and chi-Square tests with 0.05 significant level.

Table 3. Categories of Severe/Medium or Severe Sexual Dysfunction with a Percentage of Each Answer to Questions

Question	Response Option
Satisfaction with sexual relationships	A) Single or without sexual intercourse
	B) Never or seldom
	C) Low
	D) Medium
	E) High
	F) Extremely high
	G) Unknown or unwilling to answer
Level of sexual desire	A) Single or without sexual intercourse
	B) Never or seldom
	C) Low
	D) Medium
	E) High
	F) Extremely high
	G) Unknown or unwilling to answer
Time before orgasm within the last year	A) Single or without sexual intercourse
	B) Never or seldom
	C) Low
	D) Medium
	E) High
	F) Extremely high
	G) Unknown or unwilling to answer
Level of his sexual partners' satisfaction	A) Single or without sexual intercourse
	B) Never or seldom
	C) Low
	D) Medium
	E) High
	F) Extremely high
	G) Unknown or unwilling to answer
Induced sexual competence during sexual intercourse	A) "No" (2.5)
	B) "Yes" (84.2)
	C) Unknown or unwilling to answer (4)
	D) Single or without sexual intercourse (9.2)
sustaining sexual competence during sexual intercourse	A) "No" (4.2)
	B) "Yes" (82.5)
	C) Unknown or unwilling to answer (4)
	D) Single or without sexual intercourse (9.2)
Referred to a physician	A) "No"
	B) "Yes" (28.7)
	C) Unknown
	D) Single or without sexual intercourse
Referred cases who have been delayed more than 6 months	A) "No"
	B) "Yes" (76)
	C) Unknown
	D) Single or without sexual intercourse
Referred cases who received treatment	A) "No"
	B) "Yes recommended by a physician" (87)
	C) "Yes but self-treatment"
	D) Unknown
With whom did cases share their problem?	A) Friends (7.5)
	B) Family (7.5)
	C) Healthcare staff (19)
	D) No one (56)
	E) Others
	F) Unwilling to answer (11)

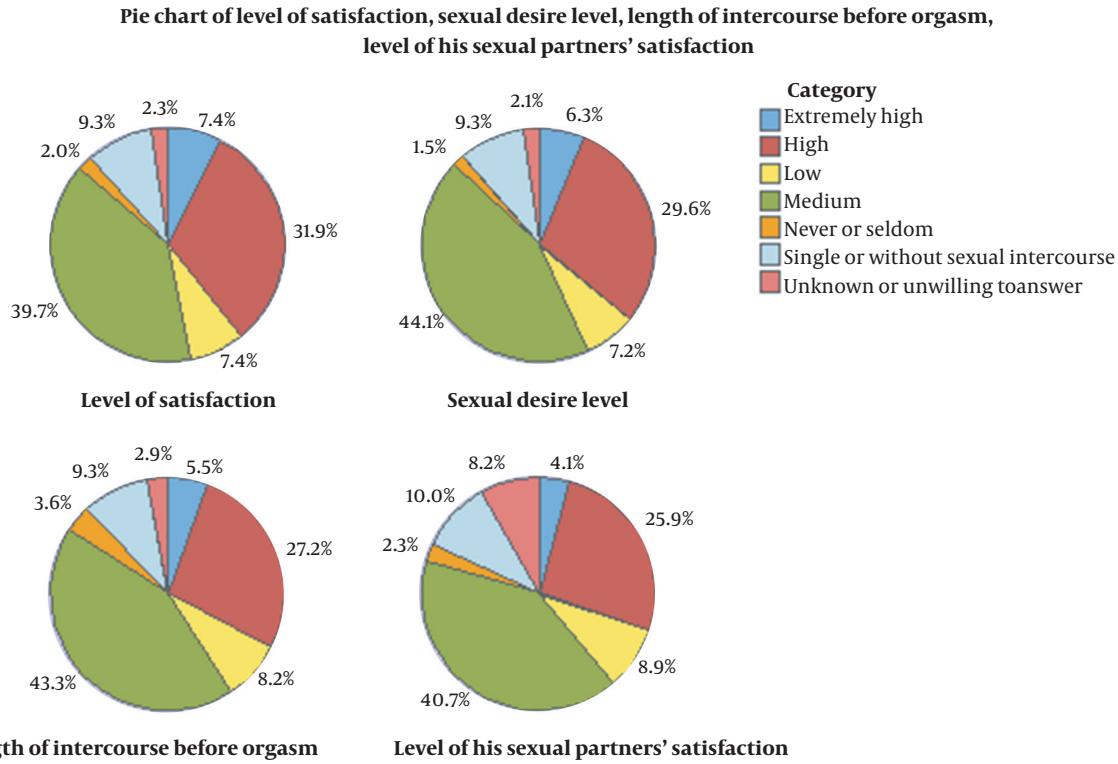

Figure 1. Pie charts of questions related to sexual dysfunction history

In addition, in the Babolhavaeji study in 2005, the prevalence of SD among infertile men aged 20 - 65 years was 55.1%. Furthermore, our study showed that sexual dysfunction correlated with diabetes, literacy, drug use, and smoking. Mofid et al. showed that the prevalence of ED was 35% in diabetic patients aged 20 - 69 in 2007 and this increased significantly by age (9). Another study also showed that patients over 40 years old demonstrated a significant association between ED and diabetes mellitus (DM) and, Yafi et al. in 2017, also found a relationship between smoking and erectile function. The study showed a positive dose-response association between the quantity and duration of smoking and ED. Also, Martins F et al. in 2010 showed that the prevalence of erectile dysfunction in young people was high, and low education was associated with erectile dysfunction confirmed by our study.

According to findings, erectile dysfunction is presumably prevalent in the male population aged above 25 in Iran. Educational programs and raising public awareness might highly likely prevent comorbidities associated with erectile dysfunction in different age groups. Since, in many medical situations, lifestyle changes, evaluated by first-line treatment, can have a beneficial effect on ED management, men should make the necessary changes to benefit their sexual function.

5.1. Conclusions

The substantial prevalence of severe and medium erectile dysfunction in Iran needs considerable attention. Erectile dysfunction has something to do with less educated and unemployed men with a history of chronic diseases, therefore education and awareness programs are crucial.

Acknowledgments

We deeply appreciate the Ministry of Health and Medical Education, UNFPA, and Department of Health of Population, Family, and Schools for their unreserved support.

Footnotes

Authors' Contribution: All authors contributed equally to this article.

Clinical Trial Registration Code: NCT00000161.

Conflict of Interests: The authors have no conflicts of interest.

Data Reproducibility: The data presented in this study are uploaded during submission as a supplementary file and are openly available for readers upon request.

Ethical Approval: Ministry of Health and Medical Education, UNFPA, and the Department of Health of Population, Family and Schools, Ministry of Health and Medical Education who provided.

Funding/Support: Shahid Beheshti University of Medical Sciences funded this study.

Informed Consent: Verbal consent was sought from each respondent before the interviews.

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