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Erectile Dysfunction in Qatar: Prevalence and Risk Factors in 1,052 Participants—A Pilot Study

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ABSTRACT

Aim. The aim of this study is to investigate the prevalence of erectile dysfunction (ED) in Qatar and to determine the risk factors associated with it.

Materials and Methods. This is a cross-sectional survey study of men attending the outpatient department at Hamad Medical Corporation in Qatar between February 2012 and February 2013. The International Index of Erectile Function (IIEF)-5 questionnaire was used for data collection. In addition to the IIEF-5 score, each participant's medical history was taken, with special emphasis on risk factors for ED, including diabetes mellitus (DM), hypertension (HTN), dyslipidemia, coronary artery disease (CAD), and smoking habits, and on their body mass index.

Results. One thousand fifty-two participants were randomly selected to fill out the IIEF-5 questionnaire. The participants' mean age (±SD) was 41.87 ± 13.24 years. Analysis of replies to the IIEF-5 showed that ED was present in 573 out of 1,052 participants (54.5%). Fifty-six (5%) participants had severe ED, 61 (6%) had moderate ED, 173 (16%) had mild to moderate ED, and 283 (27%) had mild ED. Risk factors for ED that held statistical significance were age (odds ratio [OR] = 2.9, 95% confidence interval [CI] 2.1–4.1, $P < 0.001$), DM (OR = 2.6, 95% CI 1.7–3.9, $P < 0.001$), HTN (OR = 1.6, 95% CI 1.1–2.5, $P = 0.012$), dyslipidemia (OR = 1.5, 95% CI 1.1–2.4, $P = 0.024$), and CAD (OR = 3.2, 95% CI 1.3–7.5, $P = 0.009$).

Conclusion. We found that the prevalence rate of ED in Qatar is quite similar to the regional reported rates. Overall, we demonstrated that nearly more than half of our participants suffered from ED. Besides age, DM, HTN, CAD, and dyslipidemia were found to be the most important risk factors for ED. **Al Naimi A, Majzoub AA, Talib RA, Canguven O, and Al Ansari A. Erectile dysfunction in Qatar: Prevalence and risk factors in 1,052 participants—A pilot study. Sex Med 2014;2:91–95.**

Key Words. Erectile Dysfunction; Prevalence; Risk Factors

Introduction

Erectile dysfunction (ED) is a frequent problem in aging men [1,2]. Several studies have been carried out worldwide to establish the prevalence of ED [1–9]. In 1995, it was estimated that ED affected around 152 million men worldwide, with projections that this number could increase to 322 million by 2025 [2]. ED prevalence has been reported as 52% in the USA [1], 34% in Australia [3], 26% in Japan [4], 19.2% in Germany [5], and 12% in China [6]. Reports from Middle Eastern countries showed a prevalence rate of 63.6% in Egypt [7], 54% in Morocco [8], and 49.9% in Jordan [9]. This reported variation in the prevalence of ED might be attributed to regional and cultural differences of ED perception, the age of the population, and/or the extent of comorbid conditions.

The etiology of ED has been studied comprehensively and found to be multifactorial. Chronic diseases including hypertension (HT), diabetes mellitus (DM), and coronary artery disease (CAD), as well as adverse effects of treatments used for these conditions, are known to constitute major causes of ED [10]. Previous studies have verified that greater age is strongly associated with ED [7,10]. This issue is mainly attributed to the occurrence of degenerative changes resulting in endothelial dysfunction [8]. Furthermore, physiological alterations related to hormonal changes and sedentary lifestyle have also been implicated among the causes of ED [10,11]. It has also been reported that psychological problems, such as depression, performance anxiety, and relationship problems, may be both complications and risk factors of ED [12].

ED is still underestimated in many developing countries [8,13], probably because it is not a life-threatening condition and those who have it likely tend not to disclose it. The majority of patients with ED suffer from low self-esteem and feel isolated because they are unable to discuss this sensitive issue with their physician for fear of embarrassment [14]. ED has been reported to have a detrimental effect on all levels of intimacy—emotional, social, sexual, recreational and intellectual [15,16]. Furthermore, ED patients have a decreased quality of life [12]. Therefore, there is need to address this social health problem.

The aim of this study was to explore the prevalence of ED in Qatar utilizing the International Index of Erectile Function (IIEF)-5 questionnaire. Investigating the prevalence of ED in our population is motivating. Qatar is a small country in the Middle East with lifestyle and cultural distinctions that could influence the study results. A diet rich in proteins and fat, together with a prevailing sedentary lifestyle, have resulted in a high incidence of obesity and DM in the country. We hypothesized that the prevalence of ED in Qatar would be higher than what has been reported in Western nations. On the other hand, discussing sexual function is not easy, as the cultural upbringing of men in Qatari society makes it uncomfortable for them to raise such a sensitive issue.

Materials and Methods

This study was carried out in a tertiary teaching hospital located in Doha, Qatar. The hospital is the only referral health center in the country, serving a population of around 2 million people. A non-probability purposive sampling technique was utilized during selection of participants. These subjects were patients or their companions presenting to the outpatient department of the hospital. Men aged 20–70 years were included. During recruitment the participants were asked if they could contribute to a study of erectile function in Qatar. All the participants in the study were married and living with spouses. Moreover, participants were asked five questions about their past and present illnesses, followed by filling out of the IIEF-5 questionnaire in a confidential designated area.

The IIEF-5 is a brief, reliable, and valid self-administered questionnaire containing five questions that has been widely used in many countries to detect the presence and severity of ED [17]. Erectile function was classified according to IIEF-5 score: severe ED (0–7), moderate ED (8–11), mild to moderate ED (12–16), mild ED (17–21), and no ED (22–25). In addition to the IIEF-5 score, each participant's medical history was taken, with special emphasis on risk factors for ED, including DM, HT, dyslipidemia, CAD, and smoking habits, and on body weight and height.

This study was conducted in accordance with the principles laid down by the 18th World Medical Assembly (Helsinki, 1964) and all applicable amendments laid down by the World Medical Assemblies and the International Conference on Harmonization guidelines for good clinical practice. In addition, the institutional review board approved the study. All participants provided consent and were informed to the fullest extent possible about the study in language and terms they were able to understand.

The prevalence of ED was calculated by dividing the number of patients with ED by the total number of patients. The risk factors for ED were studied by calculation of the odds ratio (OR). Univariate analysis was conducted using ANOVA for continuous variables and the χ^2-test for categorical variables. Variables that showed significance in univariate analysis were studied by multivariate logistic regression to determine independent variables affecting ED. All men reporting ED with the IIEF-5 (regardless of severity) were included in the univariate and multivariate analysis. The statistical analysis of the collected data was performed using SPSS version 19.0 (IBM, Armonk, NY, USA).

Results

Between February 2012 and February 2013, 1,052 participants were included in this study. IIEF-5

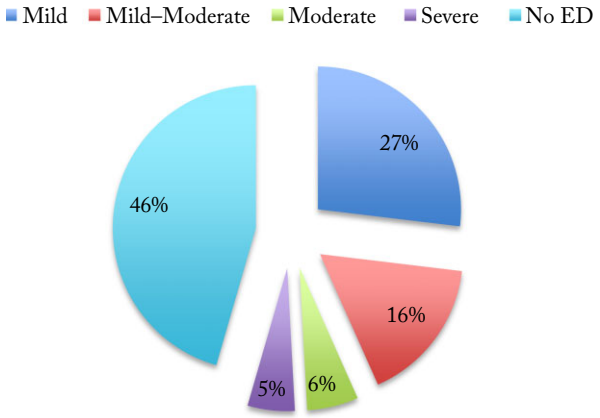

Figure 1 International Index of Erectile Function (IIEF)-5 questionnaire results. Severe ED = 0–7; moderate ED = 8–11; mild to moderate ED = 12–16; mild ED = 17–21; no ED = 22–25.

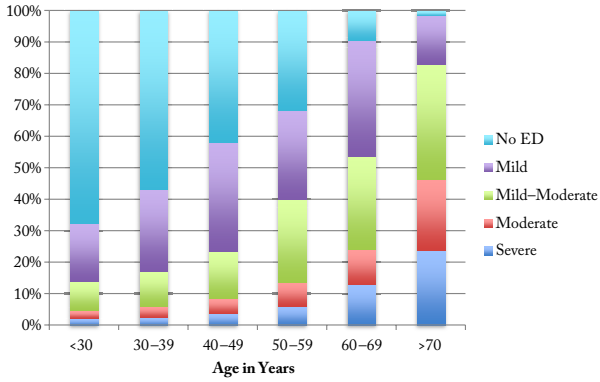

Figure 2 Erectile dysfunction (ED) severity among various age groups based on results of the International Index of Erectile Function (IIEF)-5 questionnaire. Severe ED = 0–7; moderate ED = 8–11; mild to moderate ED = 12–16; mild ED = 17–21; no ED = 22–25.

responses revealed that 56 participants had severe ED (5%), 61 had moderate ED (6%), 173 had mild to moderate ED (16%), and 283 had mild ED (27%) (Figure 1). The participants' demographic data and the distribution and severity of ED among different age groups are presented in Table 1 and Figure 2, respectively.

The results of the univariate analysis of risk factors of ED are shown in Table 2. One hundred seventy-two participants (30%) had DM ($P < 0.001$); 143 (24.9%) had HT ($P < 0.001$); 111 (19.3%) had dyslipidemia ($P < 0.001$); 50 (8.7%) had CAD ($P < 0.001$); and 124 (21.6%) were smokers ($P < 0.001$).

Multivariate logistic regression analysis was performed and showed the risk factors that held statistical significance to be age (OR = 2.9, 95% CI 2.1–4.1), DM (OR = 2.6, 95% CI 1.7–3.9), HT (OR = 1.6, 95% CI 1.1–2.5), dyslipidemia (OR = 1.5, 95% CI 1.05–2.4), and CAD (OR = 3.2, 95% CI 1.3–7.5). Smoking (OR = 0.6, 95% CI 0.4–0.8) and body mass index (OR = 0.7, 95% CI 0.5–0.9) were not proven to be statistically significant risk factors for ED. Among the variables associated with ED, age was the most important and the only factor that had an impact on the severity of ED (Table 3).

Discussion

This study shows that ED is common in our population, with a prevalence rate of 54.5%. Our reports are consistent with the results of other ED prevalence studies held in our region [7–9].

ED and its risk factors have been studied in several Middle Eastern countries. In a study by

Table 1 Demographic data of the study participants

Age (years), mean ± SD	41.87 ± 13.24
Diabetes mellitus, n (%)	209 (19.9)
Hypertension, n (%)	187 (17.8)
Dyslipidemia, n (%)	157 (14.9)
Coronary artery disease, n (%)	57 (5.4)
Smoking, n (%)	277 (26.3)
Body mass index (kg/m^2), mean ± SD	29.1 ± 13.11

Table 2 Univariate analysis of risk factors of erectile dysfunction

Risk factor	ED	No ED	*P* value
Age (years), mean ± SD	46.6 ± 14.4	36.2 ± 8.7	<0.001
Diabetes mellitus, n (%)	172 (30)	37 (7.7)	<0.001
Hypertension, n (%)	143 (25)	44 (9.2)	<0.001
Dyslipidemia (%)	111 (19.4)	46 (9.6)	<0.001
Coronary artery disease, n (%)	50 (8.7)	7 (1.5)	<0.001
Smoking (%)	124 (21.6)	153 (31.9)	<0.001
Body mass index (kg/m^2), mean ± SD	29.8 ± 16.9	28.15 ± 5.57	0.07

Table 3 Multivariate analysis of risk factors of erectile dysfunction

	Adjusted odds ratio	95% confidence interval	*P* value
Age	2.9	2.1–4.1	<0.001
Diabetes mellitus	2.6	1.7–3.9	<0.001
Hypertension	1.6	1.1–2.5	0.012
Dyslipidemia	1.5	1.05–2.4	0.027
Coronary artery disease	3.2	1.3–7.5	0.009
Smoking	0.6	0.4–0.8	0.006
Body mass index	0.7	0.5–0.9	0.08

Shaeer et al., a global online sexuality survey was utilized to assess ED among Arabic-speaking Internet users in the Middle East [10]. Of the 804 male respondents, there was a collective ED prevalence rate of 47%, with a higher prevalence among those who were positive for risk factors such as HT and DM. In another study from Jordan [9], a total of 905 men aged 18 years old and above responded to the IIEF-5 questionnaire, in addition to questions about their medical history, lifestyle habits, and sexual behavior. According to the latter study, the prevalence of all degrees of ED was 49.9%, with age being the single most significant risk factor [9].

Increasing age is correlated with both increasing prevalence of ED overall and increasing severity. The Massachusetts Male Aging Study found that age was the variable most strongly associated with ED [1]. At age 40, approximately 40% of men are affected, and this rate increases to nearly 70% in men aged 70 years [1]. Proposed reasons for this association have included an age-related decline in sex hormones in addition to degenerative changes resulting in endothelial dysfunction [11,12].

Our study also analyzed known ED risk factors in our community. ED has been shown to be more prevalent among diabetic individuals, with prevalence ranging from 35% to 75% [18,19]. Qatar is ranked fifth in percentage of people between 20 and 79 years old with DM. Currently, 16% of the population suffers from DM [20]. In our study, 172 out of 209 (82.2%) diabetic men reported ED. Cardiovascular disease has also been linked to ED. A study of middle-aged men showed that smoking, obesity, and high serum lipids, being risk factors for heart disease, were also linked with ED 25 years later [21]. On the other hand, in another study it was reported that men with severe ED had a risk ratio of 2 for development of cardiovascular events [22]. This association is due to the fact that ED is predominantly related to underlying vascular causes, particularly atherosclerosis [23]. Endothelial dysfunction is considered a key pathophysiological cause of ED and cardiovascular disease [23]. Therefore, early preventive intervention should always be encouraged when ED appears.

Our data showed that HT, dyslipidemia, and CAD carried increased risk for developing ED, with the highest risk being for CAD. In a systemic review by Cao et al., smoking was found to increase the risk of ED [24]. However, other studies reported it to be less significant [25]. In our study population, smoking was not found to be a statistically significant risk factor for ED. According to the International Association for the Study of Obesity, Qatar has the sixth highest rate of obesity among boys in the Middle East and North Africa. There is also controversy over the influence of obesity on erectile function. Although a negative influence of obesity on testosterone synthesis, and hence libido and sexual function, is expected, some studies have found no association between obesity and ED [25,26]. In the present study, obesity was not found to be a statistically significant risk factor for ED.

Understanding the prevalence of ED in any community is a useful tool for estimation of the magnitude of this problem and its related health issues. ED might have major implications not only for men's relationships with their partners but also with regard to their social/work environment; it is a condition that may affect their productivity in society. Our data support the null hypothesis that there is no difference in ED prevalence between Qatar and the rest of the world.

Although our study revealed important results related to the prevalence and risk factors of ED, it had some limitations. The main limitation of our study was due to its design: Data collection was carried out solely via a self-completed questionnaire rather than objective assessment. A convenience sample was utilized that may not be representative of all men in Qatar. Another limitation of the research is that participants were invited to participate in a study of erectile function; this may have skewed the population toward men with erection issues, producing what might be an overestimate of ED prevalence. Additionally, because the majority of the population in Qatar is composed of foreigners, this study may not be a true reflection of the prevalence of ED among Qatari nationals. Lastly, as we performed this study in a hospital, we likely examined participants who had comorbidities and needed medical treatment more than the average population.

Conclusion

ED is a common condition in Qatar, with a high prevalence and severity that increases with age. The correlates of ED identified in our population are consistent with other previous studies on the epidemiology of this sexual dysfunction. The current findings confirm previous observations about age, which was found to be the most important factor that had an impact on the severity of ED.

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Conflict of Interest: The authors report no conflicts of interest.

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