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Research Article

Prevalence of Use of Erectile Dysfunction Drugs among Youths in Delta State, Nigeria

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Abstract

The aim of this paper was to determine the proportion of youths that make use of erectile dysfunction drugs and explore the relationship between their use and risky sexual behaviors. A pre tested self –completion questionnaire was administered to a convenience sample of 400 men aged 18 to 40 years. Prevalence of erectile dysfunction drug use was 24.3%. Current users 16.3%. Sildenafil was the most commonly used EDD (92.8%). Among users, 51.5 % had multiple sexual partners and 69.1 % admitted using stimulants. Age, sexual habits, use of stimulants were all significantly associated with use of erectile dysfunction drugs. Headache and priapism were the most common side effects. Use of EDD should be discouraged among youths in view of the potential side effects and associated risks

Keywords: Erectile dysfunction, erectile dysfunction drugs, youths, Nigeria

Introduction

Erectile dysfunction (ED) can be defined as the persistent inability to attain and maintain an erection sufficient to permit satisfactory sexual performance(Burnett *et al.*, 2018). Risk factors include increasing age, diabetes mellitus, dyslipidemia, metabolic syndrome, lack of exercise, smoking, lower urinary tract infection and, benign prostatic hyperplasia (Jackson *et al.*, 2010, Seftel AD *et al.*, 2013, Mobley *et al.*, 2017, Ugwumba *et al.*, 2018). E D is currently one of the most common problems in men worldwide (Shahmoradi and Saadat, 2018). This is more so because of the serious negative impact on quality of life (Farahat *et al.*, 2017) Global prevalence is projected to rise to 322 million cases by the year 2025 (Park *et al.*, 2011, Van Vo *et al.*, 2017, Kessler *et al.*, 2019). It is estimated that up to 600,000 new cases of ED occur annually in the United States (Johannes *et al.*, 2000). The condition is age dependent and prevalence among men aged 65–70 years is more than 50% (Oyelade *et al.*, 2016, Çayan *et al.*, 2017, Birowo *et al.*, 2019). However, there seems to be an increase in recreational use of EDD by men 30 years and below (Harte and Meston, 2011, Ahmed *et al.*, 2017). In one study, the mean age of Sildenafil users was 26 years, range 19-34 (Aldridge and Measham, 1999). Recreational use of EDD exposes users to potential risks, which could be amplified by concurrent use of other drugs of abuse. The objectives of this study were to determine the proportion of youths that use of Erectile Dysfunction Drugs, the reasons for their use, incidence of possible side effects and to explore relationship between the use of Erectile Dysfunction Drugs and risky sexual behavior.

Methods

Study setting

The study was conducted in Delta State. Nigeria. The state is multi-tribal and ethnically diverse and comprises of the Urhobos, Isoko, Igbo, Ijaws and Itsekiri speaking people.

Study Population

The study population consisted of a cross-section of men aged 18 to 40 years old in four randomly selected cities in the state. In an attempt to increase the response rate, an

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in-person delivery strategy was used to distribute the questionnaires.

Sample size/sampling technique

Convenience sampling was used to obtain the number of respondents from the source population.

The sample size was calculated using the Yamane's formula n= N/1+N (e^2) (Yamane, 1967)[18] where n= The sample size, N=Total number of population, e=the level of precision or margin of error (0.05), n= 4098291/1+4098291(0.05) ^{2}

n= 399.96. This was rounded up to 400.

Data Collection

A pretested self-administered questionnaire designed by the authors was used for this study. The questionnaire was divided into two sections. The first section covered demographic characteristics of respondents. The second section addressed issues relating to social and sexual history, use of EDD, the purpose for which they were used, the duration of usage, source of drugs, and side effects experienced during the time of use. A written informed consent was obtained from each participant before administration of the questionnaire.

Data Analysis

Data was collated and analysed using SPSS version 20 statistical package (2008). Categorical data was expressed as frequencies and percentages. The Chi Square test was used to explore association between demographic variables and use of EDD. A P value of 0.05 was considered significant.

Results

Response rate was 100%. The predominant age group was 21 to 25 years, 52.6%. More than one quarter, 27.5% used stimulants, and 16.3% were current recreational users on EDD. More than half, 205(51.3%) were sexually active and more than one quarter, 115(28.8) had multiple sexual partners. The main reason for taking the drugs was to enhance sexual performance. None of the current users took the drugs on doctor's prescription, Demographic characteristics and sexual habits of respondents are presented in tables 1 and 2.

Table1: Socio-demographics of respondents, N=400

Item	Frequency (%)
Age	
16-20	70(17.5)
21-25	180(45.0)
26-30	100 (25.0)
31-35	25(6.3)
36-40	25(6.3)
Occupation	
Student	315(78.8)
Worker	65(16.3)
Unemployed	20(5.0)
Marital status	
Single	340(85.0)
Married	40(10.0)
Divorced	20(5.0)
Take alcohol	
Yes	245(61.3)
No	155(38.8)
Smoke	
Yes	100(25.0)
No	300(75.0)
Take stimulants	
Yes	110(27.5)
No	290(72.5)

Table 2: Sexual habits of respondents N=400

Sexual habit	Frequency (%)
Had sex within past 3 months	
Yes	205(51.3)
No	195(48.7)
Sex habit	
Single sexual partner	215(53.8)
Multiple sexual partner	115(28.8)
Sexually inactive	70(17.4)
Lifetime us of Erectile dysfunction drugs	
Yes	97(24.3)
No	303(75.7)
Currently use erectile dysfunction drugs	
Yes	65(16.3)
No	335(83.7)

Majority 90(92.8%) of those who had ever used EDD had taken sildenafil. More than half, 55(56.7%) had used other PDE 5 inhibitors. More than half, 50(51.6%) had used herbal remedies either alone or in combination with orthodox medications, Table 3

Table 3: Erectile dysfunction drugs ever used N=97

Erectile dysfunction drug (EDD)	**Frequency (%) +**
Vardenafil	30(7.5)
Sildenafil	90(22.5)
Tadalafil	25(6.3)
Burantashit*	20(5.0)
Be-fit*	10(2.5)
Manix*	15(3.8)
Anafranil	5(1.3)

*. Herbal based drugs with multiple constituents

+. Percentages do not add up to 100 because of multiple response

The Major source of information about EDD were from peers (24.0%). More than half. of current users 35 (53.9% obtained erectile dysfunction drugs from the pharmacy while 30 (46.1) %) obtained drugs from unregistered drug stores. Age, sexual habits, use of stimulants were all significantly associated with use of erectile dysfunction drugs, Table 4.

Table 4: Association between socio-demographics and erectile dysfunction drugs use. N=97

Item	**Erectile dysfunction drugs (EDDs) use**				
	Yes (%)	No (%)	X2	Df	p-value
Sex habit					
Single sexual partner	45(46.4)	170(56.1)			
Multiple sexual partner	50(51.5)	65 (21.5)	63.917	2	0.001
Sexually inactive	2 (2.0)	68 (22.4)			
Marital status					
Single	70(73.7)	266(88.4)			
Married	10(10.5)	30(10.0)	30.398	2	0.001
Divorced	15(15.8)	5(1.7)			
Occupation					
Student	55(57.9)	256(85.0)			
Worker	35(36.8)	30(10.0)	38.566	2	0.001
Unemployed	5(5.3)	15(5.0)			
Stimulants use					
Use stimulants	67(69.1)	43(14.2)			
Do not use stimulants	30(30.9)	260(85.8)	110.61	2	0.001
Age					
16-20	15(15.5)	55(18.2)			
21-25	52(53.6)	128(42.2)			
26-30	10(10.3)	90(29.7)	30.866	4	0.001
31-35	5(5.1)	20(6.6)			
36-40	15(15.5)	10(3.3)			

The major side effect encountered was headache (13.5%), followed by priapism (10%), Table 5.

Table 5: Side effects experienced by respondents

Side effect	**Frequency (%)***
Headache	55(13.8)
Flushing	10(2.5)
Indigestion	15(3.8)
Stuffy/runny nose	5(1.3)
Back pain	25(6.3)
Blurred vision	20(5.0)
Dizziness	20(5.0)
Hearing loss	10(2.5)
Priapism	40(10.0)

*. Percentages do not add up to 100 because of multiple response

Discussion

Prevalence of use of EDD

EDD are usually prescribed for elderly men with properly diagnosed erectile

dysfunction. They are supposed to be used under the direct medical supervision. There have been concerns over the increasing use of these drugs by young persons who probably do not need them. These concerns relate to illegal access and concurrent use with potentially hazardous substances (2017, Campbell *et al.*, 2013). Studies carried out in developing countries seem to justify these concerns. Only a few studies have assessed the use of EDD among young persons in developing countries of the world (Alshahrani *et al.*, 2016). This study seems to confirm that use of EDD is also common among youths in developing countries with nearly one quarter of youths reporting that they had ever used EDD and 16.3% reporting current use. Prevalence observed in this study is similar to 9-15% reported among South America undergraduates (De Freitas *et al.*, 2008) and school leavers (Korkes *et al.*, 2008). Other studies reported lower rates. For instance, studies conducted among US undergraduates reported a prevalence rate of between 4 – 6%, with 1.4% reporting current use (Musacchio *et al.*, 2006). A more recent study also reported a prevalence rate of 1.4% among US undergraduates (Harte and Meston, 2011). Also, a population-based sample in Finland reported a prevalence rate of 3% (Santtila *et al.*, 2007) while a study carried out in Ethiopia reported a prevalence rate of 5.5% (Gebreyohannes *et al.*, 2016). The high prevalence rate observed in this study may be due to the ready availability and easy access to all kinds of drugs without prescription in Nigeria.

In this study, sildenafil is the most commonly used EDD followed by Tadalafil, Other studies have noted similar findings. In one population based study, 38% of EDD users were on Sildenafil followed by non-regulated PDE-5 Inhibitors (Duarte *et al.*, 2017). In another study, almost half, 46.1% of respondents used Tadalafil (Alshahrani *et al.*, 2016).

These findings suggest that restricting access to PDE5 inhibitor drugs, might be a viable intervention strategy to curtail EDD misuse among young persons,

Correlates and risk factors

Significant association has been established between use of EDD by youths and other correlates for example alcohol use, number of cigarettes smoked per day, number of sexual partners, substance use (Aldridge and Measham, 1999, Gebreyohannes *et al.*, 2016, Ahmed *et al.*, 2017). Our study also found a statistically significant association between use of EDD and various demographic variables including age, multiple sex partners, use of stimulants, occupation and marital status. This finding might be useful in designing intervention strategies to reduce use of EDD among youths. The use of EDD is also associated with high risk sexual behaviors and concomitant use with other substances like alcohol, cigarettes and other club drugs (Campbell *et al.*, 2013, Colson *et al.*, 2018). This may expose young persons to increased risk of sexually transmitted diseases, unwanted pregnancy and drug interactions and adverse effects resulting from drug interactions (James, 1998, Olcina *et al.*, 2019).

Adverse Effects of EDD

Prescribing EDD for young people under the age of 40 might be justifiable if done under strict medical supervision as studies have shown that younger persons also suffer from various degrees of erectile dysfunction. A global survey put the prevalence at an

alarming 48% (Mulhall *et al.*, 2008). Another multinational study put the prevalence at 30% (Nguyen *et al.*, 2017). Other workers have found estimated prevalence of EDD to be in the range of 1-10% (Corona *et al.*, 2018). However, non-medical or recreational use of EDD for sexual enhancement exposes young persons to potential dangers associated with use of EDD. Although EDDs are well tolerated, they should be used with caution in patients with marked exercise intolerance, active myocardial ischemia, congestive heart failure associated with low blood pressure and in patients who must use drugs such as erythromycin, diflucan, amiodarone, diltiazem, losartan, nefidipine, all statin drugs, alprazolam, Zoloft, and acetaminophen concomitantly (Alpert, 2005). Although a causative link is yet to be definitely established and risk is small, EDDS can potentially cause an increase in the risk of non-arteritic ischemic optic neuropathy, melanoma and prostate cancer recurrence (Yafi *et al.*, 2018). Serious complications, although rare are possible and include myocardial infarction, aortic dissection, stroke, ocular and auditory morbidities (Tiryakioglu *et al.*, 2009). It has also been suggested that non-medical use of EDD might have adverse effects on erectile function (Harte and Meston, 2012). In addition, young men who use EDD recreationally may be vulnerable to becoming psychologically dependent on erections that are pharmacologically induced and may not be able to initiate and hold erections for long on their own (Delate *et al.*, 2004).

The Side effect reported by youths in this study included Headache, priapism, back pain, blurred vision and dizziness. Although mild, this side effects profile gives reason for concern and emphasizes the need to discourage the use of EDD among youths. Also of concern is exposure of young persons to counterfeit or contaminated erectile dysfunction drugs obtained from on line sources which might pose serious risk to health (2017).

Limitations of this study include the use of convenience sampling and the fact that EDD use and its adverse effects were determined by self- report. Therefore, generalization of results from this study should be done with caution as self- reported claims by respondents may not be verifiable.

Conclusion

The prevalence rate of EDD among young persons was 16.3%. Majority of youths use these drugs to enhance sexual performance. Recreational use of erectile dysfunction drugs was associated with some side effects especially headache (13.8%) and priapism (10.0%). Use of erectile dysfunction drugs was also significantly associated with sexual habit, marital status, occupation, and stimulant use.

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