Original Research Article

ASSOCIATION BETWEEN LIFESTYLE AND BIOSOCIAL CONDITIONS WITH ERECTILE DYSFUNCTION AMONG ADULT PATIENTS IN A TERTIARY HOSPITAL IN SOUTHERN NIGERIA

ABSTRACT

Erectile dysfunction is one of the most distressing often not discussed disorder affecting the male gender globally responsible for a lot of psychosocial distress. The objective of this study was to explore the association between lifestyle, biosocial conditions with erectile dysfunction among the adult males presenting at general outpatient clinic of our hospital. This was a study carried out at Federal Medical Center, Umuahia, Southern Nigeria. A well structured questionnaire was administered to 421 respondents. Results showed 219(52%) had erectile dysfunction while 202 (48%) didnot have erectile dysfunction. Factors associated with erectile dysfunction were age, tobacco use, alcohol intake, diabetes mellitus, hypertension, use of anti hypertensive and oral hypoglycaemic medications which were statistically significant. Body mass index, family functionality, use of illicit drugs and polypharmacy were not associated with erectile dysfunction. However, the independent risk factors were age, tobacco use and alcohol intake.Emphasis on health education and life style modificaation are highly recommended to reduce the burden of erectile dysfunction among our patients.

Key words. lifestyle modification, risk factors, tobacco use, alcohol, erectile dysfunction, Southern Nigeria, tertiary hospital

INTRODUCTION

Erectile dysfunction(ED) is one of the most common forms of sexual dysfunction and affects millions of men across the globe.[1]ED can be suggestive and a pointer of severe medical

problems as it could be he first clinical presentation of coronary artery and peripheral vascular disease.[2] Erectile dysfunction (ED) is one of the most prevalent and poorly treated sexual dysfunction.[3]Although erectile dysfunction (ED) is a non-lethal condition, an erect penis has been a symbol of a man's masculinity and sexual prowess, hence interests surrounding ED and its remedies has been relentless throughout the ages.[4]

By definition, ED is the persistent or recurrent inability of a male to achieve and maintain adequate penile erection sufficient for satisfactory sexual function, as part of the overall multifaceted process of male sexual function.[5] Erectile dysfunction is either primary or secondary in origin. Primary erectile dysfunction is rare. It signifies that a man has never been able to attain or sustain erections. Such cases are almost always due to psychological factors and only rarely due to biogenetic factors such as low testosterone levels and disorders of the hypothalamus pituitary gonadal axis. Secondary erectile dysfunction occurs when a man who could previously attain and sustain erections of good quality no longer can. More than 90% of secondary erectile dysfunction is physical in nature. The major cause of secondary erectile dysfunction is vascular. Other pathogenic categories include hormonal disorder, side effects of medications, post-surgical trauma affecting the genito-urinary tract, and other neurological disorders.[6]

Generally speaking,, erectile dysfunction could originate from physiological, psychological or environmental factors. Multiple risk factors for erectile dysfunction have been identified by various authors across the globe. These factors have been grouped as socio-demographic and economic, psychogenic, organic, and lifestyle factors.

On demographic and socioeconomic factors, most literatures reported a significant association between ED and age, marital status, employment status, educational level, income level, and family functioning.[7.8]Current knowledge on erectile function postulates that demographic, health and lifestyle factors could play important roles in causing severe ED in an individual.[9]Besides, the socioeconomic states such as occupation or employment status of an individual and academic qualification has been found to have indirect association with severity of ED.[10]

There has not been any study on the relationship of lifestyle factors and erectile dysfunction in the south eastern part of Nigeria and paucity of studies generally in the country, hence, the need for this study.

METHODOLOGY

This is a cross sectional descriptive study among adult patients aged 18 and above presenting at the General Outpatient Clinic(GOPC) of Federal Medical Center, Umuahia(FMC_U) between March and May 2022.

The sample size was determined using Cochran's statistical formula for estimating minimum sample size in health related studies; Minimum sample size: $N = Z^2Pq/d^2$ [11]

The minimum sample size was 382. To account for non-response and missing data, 10% was added to the sample size. Therefore, 421 adult male patients were recruited for this study.

The purpose and procedure for the study was explained to every respondent, and consent obtained. A well-structured and pre-tested "interviewer administered questionnaire" was used to collect data for the study.

Section A was used to assess the socio-demographic characteristics of respondents, including age, marital status, educational level, employment status, and family functioning. The family functioning was assessed with the family APGAR. Section B of the questionnaire was used to assess the respondents' lifestyle factors which includes number of hours spent sitting down per day, tobacco intake, illicit drug use, and alcohol consumption.Section C was used to assess respondents' health status and prescription drug use.These include diabetes mellitus, hypertension, prostate gland problems/surgeries, obesity, depression, anxiety, other medical conditions, presence of multi-morbidity, use of antihypertensive, oral hypoglycemic, antiulcer drugs, and antidepressants.Focused physical examination (including anthropometric measurements), and laboratory investigationswere carried out.

DATA ANALYSIS

The data was collated, coded and imputed into the Statistical Package for Social Sciences (SPSS) version 25.Chi square test was used to test the association of

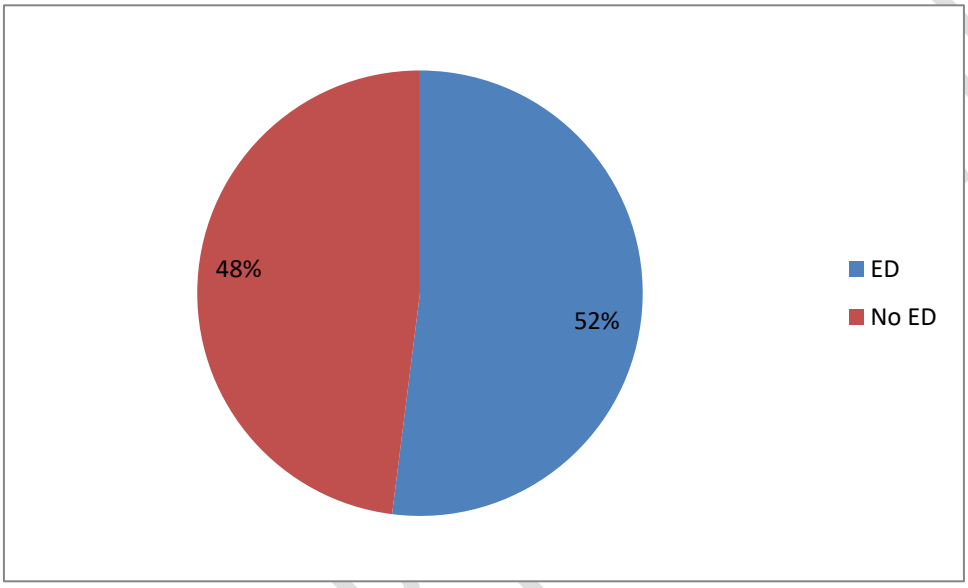
erectile dysfunction with demographic characteristics at 0.05 level of significance.Multivariate analysis was done on significant variables.

RESULTS

A total of 421 male patients attending general outpatient clinic (GOPC) of Federal Medical Center, Umuahia (FMC-U), were recruited for this study.

Figure 1 below shows the proportion of erectile dysfunction (ED) among the respondents using IIEF score. More than half proportion of the respondents 219 (52%) had ED while a little below half proportion of the respondents 202 (48%) didn't have ED. The prevalence of erectile dysfunction in this study was 52%.

Figure 1 below shows the proportion of erectile dysfunction (ED) among the respondents



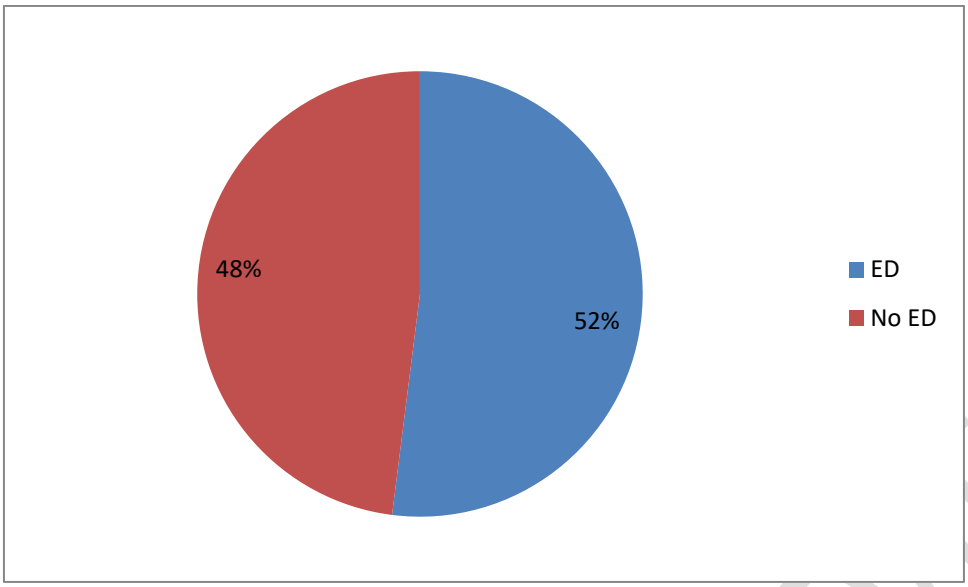


Table 1: Age and drug use association with erectile dysfunction among the respondents.

Variable	No ED (n=202)	ED (n=219)	X^2	p-value
Age				
<40 years	157(58.1)	113(41.9)	31.177	0.000*
≥40 years	45(29.8)	106(70.2)		
Tobacco use				
Yes	22(31.4)	48(68.6)	9.216	0.002*
No	180(51.3)	171(48.7)		
Use of illicit drugs				
Yes	14(53.8)	12(46.2)	0.382	0.537*
No	188(47.6)	207(52.4)		
Alcohol drink				
Yes	127(47.9)	138(52.1)	4.804	0.028*
No	92(59.0)	64(41.0)		
Use of antidepressant				
Yes	6(16.7)	30(83.3)	15.46	0.000
No	196(50.9)	189(49.1)		
Use of oral hypoglycaemic drug				
Yes	3(20.0)	12(80.0)	4.879	0.027
No	199(49.0)	207(51.0)		
Use of antidepressant				
Yes	3(20.0)	0	3.276	0.070
No	199(47.6)	219(52.4)		
Use of anti ulcer drugs				
Yes	31(46.3)	36(53.7)	0.094	0.760
No	171(48.3)	183(51.7)		

Poly Pharmacy				
Yes	3(33.3)	6(66.7)	0.791	0.374
No	199(48.3)	213(51.7)		

The association of age and drug use with erectile dysfunction among respondents.

It can be seen that there are more respondents in the respondents below 40 years of age, 41.9% had ED whereas 58.1% of them did not have ED.

However, among those greater than or equal to 40 years of age, about 70.2% of them had ED compared to 29.8% that did not. This shows that ED increases with age above 40 years. This association between age and ED is statistically significant ($\chi^2 = 31.177$, p-value = 0.000).

It can also be seen that more than two third of ED respondents 68.6% use tobacco compared to 48.7% that did not use tobacco. This shows that ED increases with tobacco use. This association between ED and tobacco use was statistically significant ($\chi^2 = 9.216$, p-value = 0.002).

It can be seen that more than half of ED respondents 52.4% didn't use illicit drugs compared to 46.2% that used illicit drugs. This shows that ED does not increase with use of illicit drugs. This association between ED and use of illicit drug was not statistically significant ($\chi^2 = 0.382$, p-value = 0.537).

However, more than half proportion of ED respondents 52.1% took alcohol compared to 41% of them who did not take alcohol among the study respondents. This shows that ED increases with alcohol intake. This association between ED and alcohol intake was statistically significant ($\chi^2 = 4.804$, p-value = 0.028).

Table 2: Association between clinical conditions and erectile dysfunction among the respondents.

Variable	No ED (n=202)	ED (n=219)	X^2	p-value
Diabetis mellitus				
Yes	3(16.7)	15(83.3)	7.388	0.007*
No	199(49.4)	204(50.6)		
Hypertension				
Yes	9(20.9)	34(79.1)	14.041	0.000*
No	193(49.4)	185(48.9)		
Prostrate problem/surgery				

Yes	6(66.7)	3(33.3)	1.287	0.257
No	196(47.6)	216(52.4)		
Obese				
Yes	9(75.0)	3(25.0)	3.613	0.57
No	193(47.6)	216(52.8)		
Depression				
Yes	7(43.8)	9(56.3)	0.119	0.730
No	195(48.1)	210(51.9)		
Anxiety				
Yes	16(64.0)	9(36.0)	2.733	0.098
No	186(47.0)	210(53.0)		
Presence of multimorbidity				
Yes	6(66.7)	3(33.3)	1.287	0.257
No	196(47.6)	216(52.4)		
Family functioning				
Functional	47(46.1)	55(53.9)	0.195	0,659
Dysfunctional	155(48.6)	164(51.4)		
PLS				
Low stressed	143(70.8)	83(37.9)	45.722	0.000
High stressed	59(29.2)	136(62.1)		

A higher proportion of ED respondents 83.3% had diabetes mellitus compared to 50.6% who didn't have diabetes mellitus. This shows that ED increases in those with diabetes mellitus. This association between ED and diabetes mellitus was statistically significant ($\chi^2 = 7.388$, p-value = 0.007)

It can be seen that more than two third proportion of ED respondents 79.1% had hypertension compared to 48.9% who didn't have hypertension. This shows that ED increases in those with hypertension. This association between ED and hypertension was statistically significant ($\chi^2 = 14.041$, p-value = 0.000).

However, more than half proportion of ED respondents 52.4% had no prostate problem or surgery compared to 33.3% who had prostate problem. This shows that ED does not increase in those with prostate problem/surgery. This association between ED and prostate problem / surgery is not statistically significant ($\chi^2 = 1.287$, p-value = 0.257).

Likewise, more than half proportion of ED respondents 52.8% were not obese compared to 25.0% who were obese. This shows that ED does not increase in those with obesity. This association between ED and obesity is not statistically significant ($\chi^2 = 3.613$, p-value = 0.57).

In this study, more than half proportion of ED respondents 56.3% were depressed compared to 51.9% who were not depressed. This shows that ED increases in those with depression. This association between ED and depression is not statistically significant (χ^2= 0.119 , p-value = 0.730).However, more than half proportion of ED respondents 53.0% were not anxious compared to 36% who were anxious. This shows that ED does not increase in those with anxiety. This association between ED and anxiety is not statistically significant (χ^2= 2.733 , p-value = 0.098).

More than half proportion of ED respondents 52.4% had no multi morbidity compared to 33.3% who had multi morbidity. This shows that ED does not increase in those with multi morbidity. This association between ED and presence of multi morbidity is not statistically significant (χ^2= 1.287 , p-value = 0.257).

It can be seen that more than two third proportion of ED respondents 83.3% used antihypertensive drugs compared to 49.1% who didn't use antihypertensive drugs. This shows that ED increases with use of antihypertensive drugs. This association between ED and use of antihypertensive drugs is statistically significant (χ^2= 15.46 , p-value = 0.000).Equally, it could be seen that more than two third proportion of ED respondents 80.0% used oral hypoglycaemic drugs compared to more than half 51.0% who didn't use oral hypoglycaemic drugs. This shows that ED increases with use of oral hypoglycaemic drugs. This association between ED and use of oral hypoglycaemic drugs is statistically significant (χ^2= 4.879 , p-value = 0.027).

With respect to antidepressants, 52.4% of ED respondents did not use antidepressant compared to 20% who used antidepressant but didn't have ED. This shows that ED does not increase with use of antidepressant. This association between ED and use of antidepressant is not statistically significant (χ^2= 3.276 , p-value = 0.070).

A higher proportion of ED respondents (62.1%) had perceived high stress level compared to 37.9% who had perceived low stress level. This shows that ED increases with perceived high stress level. This association between ED and PSL is statistically significant (x^2 = 45.722 , p-value = 0.000).

Table 3 below shows the logistic regression done to determine the independency of the significant risk factors (on bivariate analysis) of erectile dysfunction among respondents.

It can be deduced from the table that age (OR 1.09 , CI [1.05 - 1.13]), tobacco use(OR 0.37 , CI [0.18 - 0.73]), alcohol intake (OR 1.82, CI [1.11 - 2.97]) and perceived stress level (OR 0.24 , CI [0.14 - 0.41]) were independent risk factors for erectile dysfunction.
Diabetes mellitus, hypertension, antihypertensive use and oral hypoglycaemic use did not show to be independent risk factors.

TABLE 3: Multivariate Logistic regression analysis of factors associated with erectile dysfunction among respondents.

Risk factor	p-value	OR 95% (CI)
Age	0.000	1.09 (1.05 - 1.13)
Tobacco use	0.004	0.37 (0.18 - 0.73)
Alcohol intake	0.017	1.82 (1.11 - 2.97)
Diabetes mellitus	0.999	0.10 (0.00 - 0.03)
Hypertension	0.473	2.02 (0.30 - 13.70)
Antihypertensive use	0.083	0.18 (0.03 - 1.25)
Oral hypoglycaemic use	0.999	4.265 (0.00 - 2.05)
PSL	0.000	0.24 (0.14 - 0.41)

DISCUSSION

The prevalence of erectile dysfunction among respondents in this study was quite high at 52%. Oyelade et al and Idung et al , in their cross sectional study in south western and south south Nigeria reported prevalence of 58.9% and 41.5% respectively among the study population while.[12,13]

A greater proportion 70.2 % of ED respondents were 40 years and above while 41.9% were less than 40 years. This showed that ED increases with age. This finding was similar to findings in other studies which showed erectile dysfunction was associated with age.[6,7]

In this study, more than two third of ED respondents 68.6% use tobacco compared to 48.7% that did not use tobacco. This showed that ED increases with tobacco use. This finding is similar to findings in other studies which showed that tobacco use is associated with erectile dysfunction.[7]

In this study, more than half of the proportion of ED respondents 52.1% took alcohol compared to 41% who did not take alcohol. This showed that ED increases with alcohol intake. This finding is similar to findings in other studies.[14]

In this study, it can be seen that more than two third proportion of ED respondents 79.1% had hypertension compared to 48.9% who did not have hypertension. This showed that ED increases with hypertension. This finding is similar to finding in other studies.[15,16] Ogunfowokon et al in a cross sectional study in Asaba, Nigeria reported prevalence of ED was higher in patients with longer duration of hypertension as well as increasing years of being hypertensive.[16]

It can be seen that more than two third proportion of ED respondents 83.3% had diabetes mellitus compared to 50.6% who didn't have diabetes mellitus. This showed that ED increases in those with diabetes mellitus. Ogunfowokon et al also found there was significant association between ED and DM on bivariate analysis.[16]

This study showed that erectile dysfunction increased with high perceived stress level.

This finding was similar to some studies which showed association of erectile dysfunction with perceived stress.[17] Kalaitzidou et al in a cross sectional study done in Athens, Greece reported statistically significant improvement of erectile function after 8 weeks stress management program.[17]

In this study, factors associated with erectile dysfunction were age, tobacco use, alcohol intake, diabetes mellitus, hypertension, use of anti hypertensive and oral hypoglycaemic medications which were statistically significant. Body mass index, family functionality, use of illicit drugs and polypharmacy were not associated with erectile dysfunction.

However, the independent risk factors were age, tobacco use and alcohol intake.

CONCLUSION.

This study has shown that there is high prevalence of erectile dysfunction among men attending general outpatient clinic with age ,tobacco use and alcohol intake as independent risk factors.

RECOMMENDATIONS

Considering the high burden of erectile dysfunction found among men in this study, it is recommended that health care professionals especially the family physicians need to involve in holistic and patient centred care which incorporates sexual health assessment in men. Men should be encouraged and stimulated on discussions concerning their sexual issues at each clinic visit.

This study also shows that the factors contributing to erectile dysfunction were majorly modifiable risk factors relating to lifestyle and morbidities. In view of this, interventions at individual, family and community levels should be employed to improve the sexual health of men. At the individual level, health care professionals especially the physicians should utilize every opportunity during consultation with patients to educate the men on healthy nutrition and lifestyle changes which include cessation of smoking, reduction in alcohol intake and physical exercise.

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