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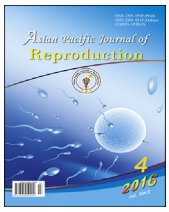

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The quest for an increased genital size drives sex stimulant abuse among male subjects in Calabar, Cross River State, Nigeria

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ABSTRACT

Objective: To determine the prevalence of erectile dysfunction (ED), the use of sex stimulants, the motivation behind the use of sex stimulants and sexual satisfaction with or without the use of sex stimulants among male subjects in Calabar, Nigeria.

Methods: Male subjects aged 15–74 years were recruited for this study. Exclusion criteria was employed to eliminate responses of subjects who have had no prior engagement in any sexual activity, and were currently having sex less than 4 times a month. After applying the exclusion criteria, 2010 respondents were obtained.

Results: Out of the 2010 subjects, 11 were illiterates (0.5%), 605 (30.1%) had primary education, 1317 (65.5%) had secondary education, 50 (2.5%) were undergraduates and 27 (1.3%) had post graduate education. Out of the 2010 respondents, 45 (2.2%) had knowledge of the causes of ED while 1965 (97.8%) were ignorant of the causes of ED. Fifty one respondents (2.5%) were currently suffering ED, while 1959 (97.5%) had no history of ED. A significant ($P < 0.001$) positive correlation (0.531) between age and incidence of ED was observed. Forty one (2%) respondents had never and were currently not using sex stimulants, while 1969 (98%) were currently using sex stimulants. Out of the 2010 respondents, 1745 (86.8%) used sex stimulants to increase their genital size, of which 1622 (92.9%) were aged 15–34 years.

Conclusion: The incidence of ED in Calabar, Nigeria, increases with increasing age. Although the respondents between the ages of 15–34 years had the least incidence of ED, this age group used sex stimulants the most following their perceived beneficial effect in increasing genital size.

1. Introduction

The National Institute of Health (NIH) Consensus Development Conference on Impotence defined male erectile dysfunction (ED) as the inability to achieve or sustain erection suitable for satisfactory sexual performance [1]. ED is a multifactorial problem with psychological, biological and social implications. A penile erection which is often initiated by sexual arousal, is the hydrolic effect of blood entering and being retained in the spongy bodies within the penis [2]. Among the leading causes of ED are; advancement in age, hypertension, high cholesterol, kidney failure and diabetes [2]. ED can also occur as a side effect of some medications like, antihypertensives, antidepressants, *etc*, and usually reverses on withdrawal of such medications [3,4].

Sex stimulants are medications or preparations used for increasing pleasure during sexual intercourse [5]. The use of sex stimulants has a long history. Maintaining sexual potency is always a concern for the male folk, not just merely to augment their sex drives, but to reproduce convincingly the forces that make them feel young, vital and alive. Drugs which are used to treat ED are potent and selective inhibitors of the cyclic guanosine monophosphate (cGMP) – specific phosphodiesterase type 5 (PDE-5) enzyme and thus enhances the activity of nitric oxide – cGMP pathway that promotes penile erection. Several drugs including sildenafil, tadalafil and

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recently tramadol have been employed in the treatment of ED and premature ejaculation (PE) [6–10].

In most societies today, the use of sex stimulants even in the absence of ED has become a norm. This study therefore seeks to ascertain the prevalence of ED, the use of sex stimulants, the motivation behind the use of sex stimulants, sexual satisfaction without the use of sex stimulants, as well as sexual satisfaction with the use of sex stimulants among male subjects in Calabar, Nigeria.

2. Methodology

2.1. Place and duration of the study

This study was conducted in Calabar, Cross River State, Nigeria, from April–September, 2014.

2.2. Subjects

Male subjects aged 15–74 years were employed for this study. A total of 2500 questionnaires were administered to 2500 participants. Out of the 2500 subjects, 2301 respondents returned the questionnaires. Exclusion criteria were employed to eliminate responses of subjects who have had no prior engagement in any sexual activity. Also, responses of subjects who engaged in sexual activity less than 4 times a month for 2 months prior to this study were excluded. This was to ensure that we employed sexually active respondents. After applying the exclusion criteria, 2010 respondents were obtained. The subjects were evaluated on their level of education, knowledge of the causes of ED, their knowledge of sex stimulants, their usage of sex stimulants, as well as frequency of usage of sex stimulants. Other questions were; the reasons for using sex stimulants, rating of sexual performance without the use of a sex stimulant, as well as rating of sexual performance with the use of sex stimulants. Ethical approval was obtained from the College of Medical Sciences, University of Calabar, Cross River State, Nigeria.

2.3. Statistical analysis

Statistical analysis was done using the chi-square (λ^2) test. Pearson's test was used to ascertain the correlation between parameters. Computer software SPSS and Microsoft Excel analyser were used for the data analysis. $P < 0.05$ was considered significant.

3. Results

3.1. Age distribution of respondents and their levels of education

Table 1 shows the ages of the different respondents and their levels of education. Of the 2010 respondents, 11 were illiterates (0.5%), 605 (30.1%) had primary education, 1317 (65.5%) respondents had secondary education, 50 (2.5%) were undergraduates and 27 (1.3%) had post graduate education. This shows that a greater percentage (65.5%) of the total respondents enrolled for this study had at least secondary school education.

3.2. Knowledge of the causes of ED

Table 2 shows the level of ignorance of the study population about the causes of ED. A total of 45 (2.2%) respondents knew the causes of ED, while 1965 (97.8%) had no knowledge about the causes of ED. All the respondents who enrolled as illiterates and those who had primary school education had no knowledge about the causes of ED. A total of 1309 (99.4%), 32 (64.0%) and 8 (29.6%) respondents, representing subjects with secondary, undergraduate and postgraduate education respectively had no knowledge of the causes of ED.

3.3. Incidence of ED among respondents

From Table 3, out of the 2010 respondents, 51 (2.5%) were currently having ED, while 1959 (97.5%) were not suffering ED at the time of this study. All 8 (100.0%) respondents aged 65–74

Table 1
Age distribution of respondents and their levels of education [*n*(%)].

Level of education	Age (Years)						Total
	15–24	25–34	35–44	45–54	55–64	65–74	
Illiterate	10 (1.0)	0 (0.0)	0 (0.0)	1 (1.8)	0 (0.0)	0 (0.0)	11 (0.5)
Primary	326 (31.3)	235 (30.2)	28 (29.2)	12 (21.8)	2 (6.7)	2 (25.0)	605 (30.1)
Secondary	682 (65.4)	513 (65.9)	57 (59.4)	37 (67.3)	23 (76.7)	5 (62.5)	1317 (65.5)
Undergraduate	22 (2.1)	20 (2.6)	4 (4.2)	1 (1.8)	2 (6.7)	1 (12.5)	50 (2.5)
Postgraduate	3 (0.3)	10 (1.3)	7 (7.3)	4 (7.3)	3 (10.0)	0 (0.0)	27 (1.3)
Total	1043 (51.9)	778 (38.7)	96 (4.8)	55 (2.7)	30 (1.5)	8 (0.4)	2010 (100)

Chi-Square: Calculated value = 90.651, $df = 20$, $P < 0.05$.

Table 2
Knowledge of the causes of erectile dysfunction [*n*(%)].

Knowledge of the causes of ED	Level of education					
	Illiterate	Primary	Secondary	Undergraduate	Postgraduate	Total
Yes	0 (0.0)	0 (0.0)	8 (0.6)	18 (36.0)	19 (70.4)	45 (2.2)
No	11 (100.0)	605 (100.0)	1309 (99.4)	32 (64.0)	8 (29.6)	1965 (97.8)
Total	11 (100.0)	605 (100.0)	1317 (100.0)	50 (100.0)	30 (100.0)	2010 (100)

Chi-Square: Calculated value = 53.921, $df = 5$, $P < 0.05$.

Table 3
Incidence of erectile dysfunction (ED) among respondents [*n*(%)].

ED	Age (Years)						Total out of 2010 respondents
	15–24	25–34	35–44	45–54	55–64	65–74	
Having ED	1 (0.1)	1 (0.1)	5 (5.2)	13 (23.6)	21 (70.0)	8 (100.0)	51 (2.5)
Not having ED	1042 (99.9)	777 (99.9)	91 (94.8)	42 (76.4)	9 (30.0)	0 (0.0)	1959 (97.5)
Total	1043 (100.0)	778 (100.0)	96 (100.0)	55 (100.0)	30 (100.0)	8 (100.0)	2010 (100.0)

Chi-Square: Calculated value = 1044.44, $df = 5$, $P < 0.05$.

years old were currently suffering ED, while 1 (0.1%) out of the 1043 respondents between the ages of 15 and 24 years old was currently suffering ED, as shown in Table 3.

3.4. Use of sex stimulants among respondents

Table 4 shows that 1026 respondents out of 1043 (98.4%) aged 15–24 years were using sex stimulants. Also, 765 respondents (98.3%) aged 25–34 years were using sex stimulants. Furthermore, 93.7% of respondents aged 35–44 years, 92.7% of those aged 45–54 years, 96.7% of those aged 55–64 years and 100% of those aged 65–74 years were using sex stimulants.

Table 5 shows that out of 1959 respondents without ED, 1920 (98.0%) of them were using sex stimulants, while only 39 (2.0%) were not using sex stimulants. Also, 49 (96.1%) respondents out of 51 suffering ED were using sex stimulants, while 2 (3.9%) were not using sex stimulants.

3.5. Reasons for the use of sex stimulants

The various reasons for using sex stimulants are outlined in Table 6. All respondents had more than one reason for using sex stimulants. Out of the 2010 respondents, 1952 (97.1%) used sex stimulants to sustain erection and to increase penile rigidity. Also, 1745 (86.8%) respondents used sex stimulants because of their urge for an increased genital size, 1936 (96.3%) respondents used sex stimulants to delay or postpone ejaculation, while 11 (0.55%) used sex stimulants because of the urge to please their sexual partners. The percentage of respondents who used sex stimulants in their quest for an increased genital size reduced from 90.0% for age group 15–24 years to 12.5% for age group 65–74 years.

Table 4
Use of sex stimulants (ST) among respondents [*n*(%)].

ST	Age (Years)						Total out of 2010 respondents
	15–24	25–34	35–44	45–54	55–64	65–74	
Using ST	1026 (98.4)	765 (98.3)	90 (93.7)	51 (92.7)	29 (96.7)	8 (100.0)	1969 (98.0)
Not using ST	17 (1.6)	13 (1.7)	6 (6.3)	4 (7.3)	1 (3.3)	0 (0.0)	41 (2.0)
Total	1043 (100.0)	778 (100.0)	96 (100.0)	55 (100.0)	30 (100.0)	8 (100.0)	2010 (100.0)

Chi-Square: Calculated value = 17.878, $df = 5$, $P < 0.05$.

Table 5
Incidence of sex stimulant use among respondents without ED [*n*(%)].

Suffered ED	Using ST		Total
	Yes	No	
Yes	49 (96.1)	2 (3.9)	51 (100.0)
No	1920 (98.0)	39 (2.0)	1959 (100.0)
Total	1969	41	2010 (100)

Chi-Square: Calculated value = 1.210, $df = 1$, $P = 0.271$ (Not significant).

3.6. Rating of sexual performance without using sex stimulants

From Table 7, it was observed that 131 (12.6%) and 848 (81.3%) respondents aged 15–24 years, rated sexual performance without the use of sex stimulants as fair and very good respectively. The sexual performance rating for respondents

Table 6
Reasons for the use of sex stimulants (ST) [*n*(%)].

Reasons for the use of ST	Age (Years)						Total (out of 2010 respondents)
	15–24	25–34	35–44	45–54	55–64	65–74	
Not using ST	17 (1.6)	13 (1.67)	6 (6.3)	4 (7.3)	1 (3.3)	0 (0.0)	41 (2.0)
Sustain erection/rigidity	1011 (96.9)	766 (98.5)	86 (89.6)	51 (92.7)	30 (96.7)	8 (100)	1952 (97.1)
Increase genital size	939 (90.0)	683 (87.8)	74 (77.1)	38 (69.1)	10 (33.3)	1 (12.5)	1745 (86.8)
Delay ejaculation	1011 (96.9)	752 (96.7)	85 (88.5)	51 (92.7)	29 (96.7)	8 (100)	1936 (96.3)
Others	10 (0.96)	0 (0.0)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)	11 (0.55)

Chi-Square: Calculated value = 280.824, $df = 40$, $P < 0.05$.

Table 7
Rating of sexual performance without using sex stimulant [*n*(%)].

Rating	Age (Years)						Total
	15–24	25–34	35–44	45–54	55–64	65–74	
Poor	1 (0.1)	2 (0.3)	0 (0.0)	11 (20.0)	16 (53.3)	5 (62.5)	35 (1.7)
Fair	131 (12.6)	123 (15.8)	17 (17.7)	6 (10.9)	5 (16.7)	3 (37.5)	285 (14.2)
Good	57 (5.5)	51 (6.6)	7 (7.3)	1 (1.8)	4 (13.3)	0 (0.0)	120 (6.0)
Very good	848 (81.3)	599 (77.0)	66 (68.8)	37 (67.3)	4 (13.3)	0 (0.0)	1554 (77.3)
Excellent	6 (0.6)	3 (0.4)	6 (6.3)	0 (0.0)	1 (3.3)	0 (0.0)	16 (0.8)
Total	1043 (100.0)	778 (100.0)	96 (100.0)	55 (100.0)	30 (100.0)	8 (100.0)	2010 (100.0)

Chi-Square: Calculated value = 841.96, $df = 20$, $P < 0.05$.

aged 25–34 years was 0.3%, 15.8%, 6.6%, 77.0% and 0.4% representing poor, fair, good, very good and excellent, respectively. The trend for respondents aged 55–64 years was 53.3%, 16.7%, 13.3%, 13.3% and 3.3% representing fair, poor, good, very good and excellent, respectively, while respondents aged 65–74 years showed 62.5%, 37.5%, 0.0%, 0.0% and 0.0% representing poor, fair, good, very good and excellent, respectively.

3.7. Rating of sexual performance when using sex stimulants

Respondents aged 15–24 years rated sexual performance following the use of sex stimulants thus; 0.0%, 0.0%, 0.1%, 0.9% and 97.4%, representing poor, fair, good, very good and excellent, respectively. The sexual performance rating for respondents aged 25–34 years with sex stimulants was 0.0%, 0.0%, 0.26%, 1.26% and 96.8%, representing poor, fair, good, very good and excellent, respectively. A similar trend was observed for respondents aged 35–64 years. The sexual performance rating for respondents aged 65–74 years with sex stimulants was 0.0%, 0.0%, 25.0%, 50.0% and 25.0% representing poor, fair, good, very good and excellent, respectively (Table 8).

3.8. Correlation between the different parameters measured

Table 9 shows a significant ($P < 0.001$) positive correlation between age and educational level of respondents. Thus, the higher the age of respondent, the higher the level of education attained. There was a significant ($P < 0.001$) positive correlation between educational level of respondent and the knowledge of ED. Thus, the higher the respondents' level of education, the better their knowledge of the causes of ED. Table 9 also shows a significant ($P < 0.001$) positive correlation between age and incidence of ED. Thus, the incidence of ED increases with age. There was a significant ($P < 0.01$) negative correlation between age and the use of sex stimulants. The younger population tends to use sex stimulants most.

Table 9
Correlation between the different parameters measured.

Parameters		Correlation (*r*)	*P* value
Age	Education	0.125	<0.001
Education	Knowledge of ED	0.380	<0.001
Age	Erectile dysfunction	0.531	<0.001
Age	Use of sexual stimulants	−0.059	<0.01

4. Discussion

ED is one of the most depressing diseases causing significant distress among the male population. The knowledge and understanding of factors responsible for the development of ED are necessary for prevention of the disease, as well as adequate treatment. Our findings showed that the level of education played a major role in respondent's knowledge of the causes of ED. Respondents with low levels of education demonstrated ignorance of the possible causes of ED, compared with their counterparts who had attained educational heights. A progressive increase in knowledge of the causes of ED with increase in level of education was also found.

Out of the 2010 respondents employed in this study, 51 (2.5%) had ED, while 1959 (97.5%) were not suffering ED. All 8 (100.0%) respondents between the ages of 65 and 74 years old were currently suffering ED, while 1 (0.1%) out of the 1043 respondents between the ages of 15 and 24 years old was currently suffering ED. Before now, the causes of ED were mainly assumed to be due to psychogenic factors. Recently, some researchers have showed that the causes of ED may be

Table 8
Rating of sexual performance when using sex stimulant [*n*(%)].

Rating	Age (Years)						Total
	15–24	25–34	35–44	45–54	55–64	65–74	
Not using ST	17 (1.6)	13 (1.67)	6 (6.3)	4 (7.3)	1 (3.3)	0 (0.0)	41 (2.0)
Poor	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Fair	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Good	1 (0.1)	2 (0.26)	0 (0.0)	4 (7.3)	1 (3.3)	2 (25.0)	10 (0.5)
Very good	9 (0.9)	10 (1.26)	7 (7.3)	6 (10.9)	12 (40.0)	4 (50.0)	48 (2.4)
Excellent	1016 (97.4)	753 (96.8)	83 (86.4)	41 (74.5)	16 (53.3)	2 (25.0)	1911 (95.1)
Total	1043 (100.0)	778 (100.0)	96 (100.0)	55 (100.0)	30 (100.0)	8 (100.0)	2010 (100.0)

Chi-Square: Calculated value = 459.89, $df = 20$, $P < 0.05$.

multifactorial [11–13]. Other risk factors, especially chronic medical conditions like diabetes mellitus (DM), hypertension, as well as undesired effects of medications used to manage some health conditions are known to increase the likelihood of suffering ED [14–16]. Reports had earlier suggested that there is a strong relationship between age and incidence of ED [17,18]. Age negatively influences cardiovascular risk factors, and since penile erection is a vascular event, it may be impaired in conditions in which degenerative changes result in endothelial dysfunction [19]. The role of anxiety associated with sexual activity has also been implicated as one of the likely causes of PE and ED [20,21].

In recent years, the use of PDE-5 inhibitors has become popular among young men without ED. The recreational use of viagra (a PDE-5 inhibitor) among men was previously reported [22]. In a population-based study conducted in Calabar, Nigeria, side effects like; headache, stomach pain, exhaustion among others, following chronic use of sex stimulants were reported [23]. Studies in our laboratory revealed that prolonged administration of either sildenafil, tramadol or sildenafil + tramadol to albino Wistar rats in high doses caused hepatotoxicity, haematological alterations, abnormal lipid profile and negatively affected basal metabolic rate (BMR), with poor recovery following withdrawal of the different medications [24–27]. This further shows the possibility of developing varying degrees of toxic effects following recreational use of sex stimulants. In this present study, the older population (55–74 years old) showed a high prevalence of sex stimulant use, justified by their high incidence of ED. On the other hand, the younger population (15–34 years old) demonstrated a high prevalence of sex stimulant use, despite the high rating of sexual performance without the use of sex stimulants. This shows that their recreational use of sex stimulants was unrelated to presence of ED. The prevalence of sex stimulant use among the younger age group may be as a result of peer pressure. The reasons for using sex stimulants as obtained from the respondents were; to sustain erection, increase penile rigidity, delay or postpone ejaculation and surprisingly, to increase genital size. One thousand seven hundred and forty five respondents (86.8%) out of 2 010 respondents recruited used sex stimulants because of their quest for an increased genital size. Of this number, 1622 (92.9%) were aged 15–34 years. This reason was most common among the younger population, and prevalence for use for this purpose was found to reduce with increasing age. Thus, the percentage of respondents who used sex stimulants in their quest for an increased genital size reduced from 90.0% for age group 15–24 years to 12.5% for age group 65–74 years, showing possible substance abuse among respondents in the younger population.

We therefore conclude that the incidence of ED in Calabar, Nigeria, increases with increasing age. Although the respondents between the ages of 15–34 years had the least incidence of ED, this age group use sex stimulants the most following their perceived beneficial effect in increasing genital size. It is therefore important to educate the younger population on the likelihood of developing various degrees of health hazards secondary to ED medication abuse should they continue in their escapade.

Conflict of interest statement

We declare that we have no conflict of interest.

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