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Recurrent side effects following chronic recreational use of sexual stimulants among male subjects in Calabar, Cross River State, Nigeria

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ABSTRACT

In Nigeria today, the recreational use of sexual stimulants (SS) and other phosphodiesterase-5 inhibitors (PDE5i) is becoming alarming. It is unclear whether or not individuals have information on the contraindications and possible side effects of these stimulants. This study was therefore directed at assessing the knowledge of contraindications and side effects of SS among male subjects who indulge in its chronic use in Calabar, Nigeria. A total of 2500 questionnaires were administered to male subjects aged 15–75 years. Out of the 2500, 2180 respondents returned the questionnaires. Exclusion criterion was employed to eliminate responses of subjects who were currently having sex less than 4 times a month for the past 4 months, thus, 2010 responses were valid. Out of the 2010 respondents, 1969 (98%) had used SS, while 41 (2%) had never used SS. Each respondent used more than one particular SS. Out of the 2010 respondents, 1935 (96.3%), 1770 (88.1%) and 1516 (75.4%) had used drugs (PDE5i), Cannabis and other herbs, respectively, to sustain erection. Assessment of the drugs used showed that 717 (35.7%) respondents used Viagra, 1839 (91.5%) respondents used tramadol, 16 (0.8%) used Cialis, 680 (33.8%) used Adams desire (a plant-based product), while 1420 (70.7%) respondents used other drugs to sustain erection and postpone ejaculation. Out of the 2010 respondents, 1908 (94.9%) observed some side effects, while 27 (1.3%) had not recorded side effects following SS use. A total of 1849 (92.0%) respondents reported headache, 1848 (91.9%) respondents reported stomach pain, while 98 (4.9%) respondents reported exhaustion, following SS use. One thousand nine hundred and ninety five (99.3%) respondents had no knowledge of the contraindications of PDE5i, and 1978 (98.4%) respondents were not currently monitoring their blood pressure. Sexual stimulant use results in varying degrees of undesired effects, notably stomach pain and headache; therefore, its use should be keenly regulated.

Keywords: Cannabis, Cialis, phosphodiesterase-5 inhibitors, sexual stimulant, sildenafil, tramadol

INTRODUCTION

Male erectile and ejaculatory dysfunction is a common distressing cause of lack of confidence by males during sexual activity. Erectile dysfunction (ED) ranges from partial or delayed onset of erection to complete absence of erection. Ejaculatory dysfunction on the other hand ranges from premature ejaculation (PE), retarded or delayed ejaculation (DE), to complete an ejaculation (AE), along with retrograde ejaculation (RE)[1]. Research earlier suggested the concept that first intercourse experiences that were associated with nervousness at the time of inexperienced sex led to premature ejaculation and loss of confidence[2]. Several definitions of premature ejaculation and erectile dysfunction exist. Erectile dysfunction has been defined as consistent inability to achieve and sustain a penile erection sufficient for satisfactory sexual performance. It results from a wide range of health disorders like diabetes mellitus, neurologic diseases and cardiovascular diseases[3-6]. Erectile dysfunction also occurs as a consequence of habits like smoking, excessive drinking, among others[7,8].

The maintenance of sexual potency is a matter of great concern for the male population. As a result, several sexual stimulants ranging from drugs, herbs and several other materials have been employed to restore the feeling of manhood. In recent years the use of PDE5i have become popular amongst young men without ED. Studies report rates as high as 21.5% of men aged 18 – 30 years ingesting viagra (sildenafil) recreationally with 73.3% of that population admitting to using it more than once [9]. Reasons for this trend are probably as a result of the general sexual health improvement reported by 72.5% men using PDE5i [9]. Also, the desire to achieve a harder and longer lasting erection, the urge for higher coital frequency and willingness to delay or postpone ejaculation are all reported reasons why young men resort to taking sexual stimulants recreationally [9].

In Nigeria today, the recreational use of sexual stimulants (SS) and other PDE5i is becoming alarming. It is unclear whether or not individuals have information on the contraindications and possible side effects of these stimulants. This study therefore seeks to assess the knowledge of contraindications and side effects of SS among male subjects who indulge in its chronic use in Calabar, Cross River State, Nigeria.

MATERIALS AND METHODS

Location and Duration of Study

This study was conducted in Calabar Municipality and Calabar South local government areas of Cross River State, Nigeria, from June – September, 2014.

Subjects

Male subjects aged 15 – 75 years were employed for this study. A total of 2500 questionnaires were administered to 2500 participants. Out of the 2500 questionnaires, 2180 respondents returned the questionnaires. An exclusion criterion was employed to eliminate responses of subjects who were currently having sex less than 4 times per month. After applying the exclusion criterion, 2010 responses were obtained. The subjects were evaluated on their knowledge of PDE5i, their use of PDE5i and other sexual stimulants, and the observed side effects following sexual stimulant use. Other questions were; knowledge of contraindications of PDE5i, frequency of blood pressure monitoring and diagnosis of hypertension.

Statistical Analysis

Statistical analysis was done using the chi – square (χ^2) test. Computer software SPSS and Microsoft Excel analyser were used for the data analysis. $P < 0.05$ was considered significant.

RESULTS

Among the 2010 respondents used in this study, 1684 were aged 15 – 30 years, 235 were aged 31 – 45 years, 71 were aged 46 – 60 years, while 20 were aged 61 – 75 years. It was observed that 1969 (98.0%) respondents used SS, significantly ($p < 0.01$) higher compared with 41 (2.0%) respondents who did not use SS (Table 1). All 20 (100.0%) respondents aged 61 – 75 years used SS, while 98.3%, 98.6% and 93.0% of respondents aged 15 – 30, 31 – 45 and 46 – 60 years respectively, used SS (Table 1).

Table 1: Age distribution of respondents and incidence of sexual stimulant use

Used Sexual Stimulants	Age (years)				Total
	15 – 30	31 – 45	46 – 60	61 – 75	
Yes	1656 (98.3%)	227 (98.6%)	66 (93.0%)	20 (100.0%)	1969 (98.0%)
No	28 (1.7%)	8 (3.4%)	5 (7.0%)	0 (0.0%)	41 (2.0%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $\chi^2 = 12.696$, $df = 3$, $p < 0.01$

Table 2: Sexual stimulants used among the different age groups

Sexual Stimulant Used	Age (years)				Total Out of 2010 Respondents
	15 – 30	31 – 45	46 – 60	61 – 75	
None	28 (1.7%)	8 (3.4%)	5 (7.0%)	0 (0.0%)	41 (2.0%)
Drugs	1633 (97.0%)	217 (92.3%)	65 (91.6%)	20 (100.0%)	1935 (96.3%)
Alomo Bitters	815 (48.4%)	73 (31.1%)	19 (26.8%)	5 (25.0%)	912 (45.4%)
Alcohol	316 (18.8%)	26 (11.1%)	1 (1.4%)	0 (0.0%)	343 (17.1%)
Cannabis	1521 (90.3%)	204 (86.8%)	41 (57.8%)	4 (20.0%)	1770 (88.1%)
Other Herbs	1259 (74.8%)	192 (81.7%)	53 (74.7%)	12 (60.0%)	1516 (75.4%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $\chi^2 = 428.827$, $df = 78$, $p < 0.001$

Table 3: Assessment of knowledge of respondents about PDE5i

Knowledge about PDE5i	Age (years)				Total
	15 – 30	31 – 45	46 – 60	61 - 75	
Yes	1677 (99.6%)	232 (98.7%)	68 (95.8%)	20 (100.0%)	1997 (99.4%)
No	7 (0.4%)	3 (1.3%)	3 (4.2%)	0 (0.0%)	13 (0.6%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $X^2 = 17.130$, $df = 3$, $p = 0.001$

Table 4: Incidence of PDE5i use among respondents

Used PDE5i	Age (years)				Total
	15 – 30	31 – 45	46 – 60	61 - 75	
Yes	1633 (97.0%)	217 (92.3%)	65 (91.5%)	20 (100.0%)	1935 (96.3%)
No	51 (2.1%)	18 (7.7%)	6 (8.5%)	0 (0.0%)	75 (3.7%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $X^2 = 23.324$, $df = 3$, $p < 0.001$

Table 5: Different PDE5i and the incidence of usage among respondents

PDE5i Used	Age (years)				Total Out of 2010 Respondents
	15 – 30	31 – 45	46 – 60	61 - 75	
None	51 (2.1%)	18 (7.7%)	6 (8.5%)	0 (0.0%)	75 (3.7%)
Viagra	626 (37.2%)	44 (18.7%)	30 (42.3%)	17 (85.0%)	717 (35.7%)
Tramadol	1583 (94.0%)	211 (89.8%)	40 (56.3%)	5 (25.0%)	1839 (91.5%)
Cialis	1 (0.1%)	2 (0.9%)	9 (12.7%)	4 (20.0%)	16 (0.8%)
Adams Desire	577 (34.3%)	61 (26.0%)	29 (41.3%)	13 (65.0%)	680 (33.8%)
Others	1189 (70.6%)	179 (76.2%)	44 (62.0%)	8 (40.0%)	1420 (70.7%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $X^2 = 846.865$, $df = 60$, $p < 0.001$

Table 6: Assessment of side effects associated with use of PDE5i among respondents

PDE5i undesired Effects?	Age (years)				Total
	15 – 30	31 – 45	46 – 60	61 - 75	
Not used PDE5i	51 (2.1%)	18 (7.7%)	6 (8.5%)	0 (0.0%)	75 (3.7%)
Yes	1614 (95.8%)	211 (89.8%)	64 (90.1%)	19 (95.0%)	1908 (94.9%)
No	19 (1.1%)	6 (2.6%)	1 (1.4%)	1 (5.0%)	27 (1.3%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $X^2 = 28.769$, $df = 6$, $p < 0.001$

Table 7: Side effects associated with sexual stimulant use as obtained from respondents

Side Effect Reported	Age (years)				Total Out of 2010 Respondents
	15 – 30	31 – 45	46 – 60	61 - 75	
None	70 (4.2%)	24 (10.2%)	7 (9.9%)	1 (5.0%)	102 (5.07%)
Headache	1582 (93.9%)	210 (89.4%)	47 (66.2%)	10 (50.0%)	1849 (92.0%)
Stomach pain	1587 (94.2%)	207 (88.1%)	47 (66.2%)	7 (35.0%)	1848 (92.0%)
Exhaustion	56 (3.3%)	7 (3.0%)	21 (29.6%)	14 (70.0%)	98 (4.9%)
Vomiting	1 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Body ache	26 (1.5%)	1 (0.4%)	2 (2.8%)	2 (10.0%)	31 (1.5%)
Others	0 (0.0%)	0 (0.0%)	3 (4.2%)	0 (0.0%)	3 (0.2%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $X^2 = 804.146$, $df = 39$, $p < 0.001$

Table 8: Knowledge of contraindications of PDE5i

Knowledge of contraindications	Age (years)				Total
	15 – 30	31 – 45	46 – 60	61 - 75	
Yes	8 (0.5%)	3 (1.3%)	1 (1.4%)	3 (15.0%)	15 (0.7%)
No	1676 (99.5%)	232 (98.7%)	70 (98.6%)	17 (85.0%)	1995 (99.3%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $X^2 = 57.844$, $df = 3$, $p < 0.001$

As sexual stimulants abound, so does preference. Each respondent used more than 1 type of SS. Table 2 shows that drugs was the most patronized SS in this study, with 1935 (96.3%) respondents. This was followed by *Cannabis* and other herbs, with 1770 (88.1%) and 1516 (75.4%) respondents, respectively. Alcohol was the least patronized SS, with only 343 (17.1%) respondents. Table 2 also shows the declining use of alcohol and *Cannabis* as SS with increasing age.

Out of the 2010 respondents, 1997 (99.4%) had knowledge of PDE5i, while 13 (0.6%) had no knowledge of PDE5i. All 20 (100%) respondents aged 61 – 75 years had knowledge about PDE5i. For respondents aged 15 – 30 years, 1677 (99.6%) had knowledge of PDE5i, while 232 (98.7%) and 68 (95.8) respondents aged 31 – 45 and 46 – 60 years respectively had knowledge of PDE5i (Table 3).

Out of the 2010 respondents assessed in this study, 1935 (96.3%) used PDE5i. Among the respondents aged 15 – 30 years, 1633 (97.0%) used PDE5i, while 51 (2.1%) had never and were not currently using PDE5i. Among respondents aged 31 – 45 and 46 – 60 years, 217 (92.3%) and 65 (91.5%) respectively, used PDE5i. All respondents aged 61 – 75 years used PDE5i (Table 4).

Table 5 shows the frequency of usage of the different PDE5i among respondents. A total of 717 (35.7%) respondents used Viagra, 1839 (91.5%) used tramadol, 16 (0.8%) used Cialis, 680 (33.8%) used Adam's desire (a plant – based formulation), while 1420 (70.7%) used several other drugs to sustain erection and postpone ejaculation. Tramadol was the most patronized drug (91.5%) while Cialis was the least patronized drug (0.8%). Table 5 also shows that out of the 1684 respondents aged 15 – 30 years, 1583 (94.0%) respondents used tramadol, and 211 (89.8%) out of 235 respondents aged 31 – 45 years also used tramadol. Tramadol usage was lowest (25%) in the group aged 61 – 75 years. Viagra usage was higher in the group aged 61 – 75 years (85.0%) compared with 15 – 30 years (37.2%), 31 – 45 years (18.7%) and 46 – 60 years (42.3%).

Assessment of side effects associated with chronic use of SS showed that 1908 (94.9%) respondents had varying degrees of side effects following ingestion of SS, while 27 (1.3%) had not recorded any side effects following SS ingestion (Table 6). Table 7 shows specific side effects linked to the use of SS. Out of the 2010 respondents, 102 (5.07%) had not recorded side effects. This figure includes respondents who had not used SS before. Furthermore, 1849 (92.0%) respondents reported headache, 1848 (92.0%) reported stomach pain, 98 (4.9%) reported exhaustion, 1 (0.1%) reported vomiting, 31 (1.5%) reported body ache and 3 (0.2%) reported other side effects. Respondents aged 61 – 75 years reported the lowest incidence of stomach pain (35.0%), while respondents aged 15 – 30 years recorded the highest incidence of stomach pain (94.2%). In the same vein, respondents aged 61 – 75 years reported the lowest incidence of headache (50.0%), while respondents aged 15 – 30 years recorded the highest incidence of headache (93.9%).

Assessment of respondents on the knowledge of contraindications of PDE5i showed that 15 (0.7%) respondents had knowledge of contraindications of PDE5i, significantly ($P < 0.001$) lower, compared with 1995 (99.3%) respondents who had no knowledge of the contraindications of PDE5i. Respondents aged 61 – 75 years showed the highest level of awareness on the contraindications of PDE5i (15.0%), compared with respondents aged 46 – 60 years (1.4%), 31 – 45 years (1.3%) and 15 – 30 years (0.5%), whose level of awareness on contraindications of PDE5i was relatively low (Table 8).

In Table 9, the percentage of respondents who monitored their blood pressure was 0.7% (15 – 30 years), 5.5% (31 – 45 years), 7.0% (46 – 60 years) and 15.0% (61 – 75 years). A total of 1978 (98.4%) respondents never monitored their blood pressure, while 32 (1.6%) respondents were monitoring their blood pressure. Respondents aged 61 – 75 years monitored their blood pressure the most (15.0%). All 3 (15%) respondents aged 61 – 75 years who monitor their blood pressure recorded incidence of hypertension. Out of the 2010 respondents, 10 (0.5%) had been diagnosed of hypertension (Table 10).

Table 9: Blood pressure monitoring among respondents

Monitoring Blood Pressure	Age (years)				Total
	15 – 30	31 – 45	46 – 60	61 – 75	
Yes	11 (0.7%)	13 (5.5%)	5 (7.0%)	3 (15.0%)	32 (1.6%)
No	1673 (99.3%)	222 (94.5%)	66 (93.0%)	17 (85.0%)	1978 (98.4%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $X^2 = 69.169$, $df = 3$, $p < 0.001$

Table 10: Incidence of hypertension among respondents

Diagnosed of Hypertension	Age (years)				Total
	15 – 30	31 – 45	46 – 60	61 - 75	
Yes	0 (0.0%)	5 (2.1%)	2 (2.8%)	3 (15.0%)	10 (0.5%)
No	1684 (100.0%)	230 (97.9%)	69 (97.2%)	17 (85.0%)	2000 (99.5%)
Total	1684 (100.0%)	235 (100.0%)	71 (100.0%)	20 (100.0%)	2010 (100.0%)

Chi – square: Calculated $\chi^2 = 113.723$, $df = 3$, $p < 0.001$

DISCUSSION

As men grow older, the levels of testosterone drop and there are certain changes in sexual functions such as need for more stimulation before occurrence of erection, shorter orgasms, less forceful ejaculation, lower production of semen and a longer time required for another erection to occur after first ejaculation. This normal physiological decline in male sexual function justifies the use of SS among the male population.

However, it has been observed that most men (especially the younger population) do not necessarily take SS to manage an erectile disease. Reasons for the use of SS in the absence of erectile disease so far obtained include; the urge to augment sex drives and reproduce convincingly the forces that make one feel young, and the desire to achieve a harder and longer lasting erection. The urge for higher coital frequency and willingness to delay ejaculation are also reported reasons why young men resort to taking SS recreationally [9]. Rather devastating is the fact that the confidence boost provided by SS leads to repeated use of the stimulants, thus developing psychological dependence. As seen with most stimulants, tolerance is easily developed leading to the individual needing to take in more for effect to be felt. If a heavy frequent use is followed by non-use, tolerance drops, yet when taken too frequently, no matter how much, no effect is experienced, leading to extreme dependence and substance abuse as with the group aged 15 – 30 and 31 – 45 years in our study (Table 1). High prevalence of SS use among respondents aged 46 – 60 and 61 – 75 years may be attributed to presence of ED since sexual performance is reduced with increasing age [10,11].

Among the sexual stimulants used by the respondents in our study were drugs, alomo bitters (a herbal formulation), alcohol, *Cannabis* and other herbs (Table 2). Although alcohol has been in use as a sexual stimulant in the past, studies have demonstrated that alcohol attenuates penile erection [7,8]. This rather conflicting reports may have informed the choices of our respondents who seldom used alcohol as a sexual stimulant (Table 2). Drugs (PDE5i), *Cannabis* and other herbs were reportedly the most preferred SS, evident in Table 2. A total of 1997 (99.4%) respondents in our study had knowledge of PDE5i and 1935 (96.3%) respondents used PDE5i (Table 3 and 4). This shows the high level of awareness of the male folk about these drugs.

Continuous usage of SS resulted in a wide range of side effects as observed in this study, ranging from headache, stomach pain, flushing, exhaustion, muscle pain, among others. The World Health Organization had earlier estimated that the usage of traditional medicine in developing countries is 80% [12]. A research to show the usefulness of herbs in managing male sexual disorders has recently been carried out in Western Uganda and proven globally accepted because of its cultural history of utilization [12]. The medicinal plants used include *Cannabissativa*, *Cleome gynadra* and *Cola acuminata*. However, these herbal drugs are abused by adolescents. Some herbs are very potent and increase heart rate, therefore, studies have shown that if an adolescent uses cannabis – the primary substance in marijuana before the age of 16 and for a long period of time, it can lead to a number of significant problems. Cannabis can have both short and long term effects on health such as increased risk of schizophrenia diagnosis or developing symptoms of psychosis and development of anxiety disorder [13].

Among the drugs used as SS, tramadol was the most patronized. Tramadol hydrochloride was developed in the late 1970s [14]. Until recently, tramadol was known to be an analgesic. Research showed that tramadol inhibits the reuptake of norepinephrine and serotonin (5-HT), and may account for its effect on delaying ejaculation [15]. Several studies have reported the use of tramadol for treatment of premature ejaculation and erectile dysfunction [16-18]. Headache and stomach pain were the most widely reported side effects following SS intake. This may be attributed to the fact that the respondents may not have taken the stimulants according to a doctor's prescription. This further shows the level of abuse of PDE5i among respondents. High prevalence of stomach pain (92.0%) among respondents following repeated use of SS is suggestive of a possible gastric ulcerative effect. Despite the wide abuse of PDE5i, respondents demonstrated a great deal of ignorance about the contraindications associated with PDE5i medications. The incidence of hypertension was found to increase with increasing age (Table 9 and 10). All respondents aged 61 – 75 years who checked their blood pressure were diagnosed of hypertension, thus showing the influence of age on cardiovascular health. Tables 9 and 10 also show that the low incidence of hypertension

among respondents in this study may partly be due to the fact that the respondents were not monitoring their blood pressure, thus leaving the likely disease unnoticed.

CONCLUSION

The frequent recreational use of SS has huge implications on public health. Our study has demonstrated a high prevalence of stomach pain and headache consequent upon prolong ingestion of SS. Alongside educational programmes which would serve to educate and create awareness on the use of PDE5i, health care professionals and the government as a whole should create avenues to adequately inform patients on the appropriate use and misuse of these drugs, and enforce laws which protect against over the counter selling of these drugs without appropriate prescription.

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