

Abuse of Non-Medical Inhalants by Students in an Institution of Higher Learning in Benin City, Nigeria

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ABSTRACT

The abuse of inhalants is generally not regarded as a challenge in our environment despite their ready availability, accessibility and deleterious effect on multiple organs and even on the unborn baby. The objective of this study was to determine the prevalence rates of inhalants use, types of inhalants used and age at first use of inhalants and to find out whether there was any association between year of study, age, sex and abuse of inhalants. A total of 400 questionnaires were administered across the five schools of College of Education; 80 in each school. Second year students were selected purposively from each school except the School of Language where first year students were selected. This was to enable comparison between fresh students and students who are mid way in their educational experience in the school. Departments were selected via convenience sampling method. Twenty seven point zero four percent of the respondents were males, while 72.96% were females; 89.29% and 10.71% were 18-28 years and 29-39 years respectively, while 97.96%, 1.02% and 1.02% were Christians, Muslims and African traditional religion practitioners respectively. Nineteen point six four percent were in 1st year while 80.36% were in 2nd year. Lifetime prevalence of inhalants use was 2.6%, prevalence for past year was 1.3% while that of current use was 0.8%. Forty percent of those who have ever used inhalants used premium motor spirit; 30% inhaled fumes of heated oil and the remaining 30% inhaled spray. Fifty percent of the participants who have ever use inhalants first did so within 13 to 14 years, 30% first did so at 10 year old or less while 20% first abused inhalants within 17 to 19 years. Being a female was significantly associated with lifetime use of inhalant while age or year of study was not. Seventy percent of abusers combined inhalants with other substances while 30% used inhalants alone. The abuse of inhalants deserves attention. It should be integrated into efforts aimed at preventing and controlling the use of psychoactive substances.

Keywords: Non-Medical, Abuse, Inhalants

INTRODUCTION

The National Institute of Drug Abuse¹ defines inhalants as volatile substances that produce chemical vapours that can be inhaled to induce a psycho-active or mind altering effect. It added that although other abused drugs can be inhaled, the term inhalant is reserved for the wide variety of substances which include solvents, aerosols, gases etc. Similarly Edward² defines inhalants as volatile substances producing vapours that can be taken intentionally via the pulmonary route to produce a mind altering “buzz” or high. He went further to state that inhalants are dangerous and their use represents a vast abuse problem. He asserted that more than 3,000 abuse-able products containing volatile chemicals are legal and readily obtainable. It is necessary to state that many of the inhalants which were listed in the study, which was carried in the United States of America are also available

here in Nigeria; examples are solvents, adhesives, fuels, dry cleaning agents, cigarette lighters, permanent markers, correction fluid and aerosols with propellants used in deodorants, whipped cream, paints, electronic cleaning sprays and cooking sprays.

Matthew and Brian³ reported a 52% abuse profile for inhalant use in their study. These met with the 4th edition of the diagnostic and statistical manual (DSM 4) of mental disorders criteria for abuse. Other articles have equally painted a gloomy picture of this overlooked issue in Nigeria. Wu, Pilowsky and Schlenger⁴ revealed that adolescents with inhalant abuse diagnosis were more likely than others to have serious co-existing problems such as a history of delinquent acts. It has also been reported that there are slang terms⁵ for some inhalants, e.g. “Air Blast”; Isobutyl Nitrite specifically is called the “Aroma of Men” and the inhalant of it is referred to as “Bullet”.

Carrie and Glenn⁶ in their article, Recognition and Prevention of Inhalant abuse opined that inhalant abuse is a prevalent and often overlooked form of substance abuse. Furthermore, they asserted that survey results consistently show that nearly 20% of children and

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adolescents in middle school and high school have experimented with inhaled substances. It added that should inhalants be abused during pregnancy there is the risk of foetal anomalies. Tracy, Kimberly and Richard⁷ reported that users are often unaware of the health hazards posed by the inhalation of solvents. Inhalation can result in serious organ dysfunction and even sudden death.

Robert⁸ in his article, Neural basis for Inhalant abuse says very little is known about the cellular basis of the effects of volatile chemicals and gases that lead to their abuse by inhalation. In Nigeria, like in other countries, the options of inhalants available to abuse are almost limitless. Despite all these there is near absence of research on this subject. Consequently the objectives of this study were to determine the prevalence rates of inhalants use, types of inhalants used, and age at first use of inhalants and to find out whether there was any association between year of study, age, sex and abuse of inhalants.

MATERIALS AND METHOD

The location of the study was the College of Education Ekiadolor, in Ovia North East Local Government Area, Edo State, Nigeria. It was established in 1979. The students' population of the institution is over 6000. There are 5 schools in the College; namely Social Sciences, Vocation and Technology, Arts, Sciences and Language with departments under each school⁹.

A total of 400 questionnaires were administered across the five schools; 80 in each school. Multistage sampling technique was used to recruit the participants. In stage one, purposive sampling technique was used to select all five schools in the College. At stage two a department was selected from each of the five schools by convenience sampling technique; at stage three, second year (also known as Two hundred level, 200 Level) students were selected purposively from each school except the School of Language where hundred level students were selected. This was to enable comparison between fresh students and students who are midway in their educational experience in the school. At stage four or final stage, participants were recruited by balloting.

The World Health Organization Questionnaire for Student Drug Use Surveys, designed by Smart, Anumonye, Navaratnam *et al.* in 1980¹⁰ was used for the study. It has 3 parts. The first part, made up of 6 questions, concerns social-demographic data of the respondent. The second

part consists of 14 groups of questions containing information on drug use and 2 items for validity check. The third part has a list of optional items, some ethical and moral issues relating to drug use. The psychoactive substances inquire about are tobacco, alcohol, cocaine, cannabis, amphetamine and other stimulants, hallucinogens, organic solvents and sniffing substances, tranquilizers, opium and opiates, sedatives and heroin. Respondents are required to indicate whether they have ever used each of the substances or not, and whether they have used them in the past 1 year, or in the past 30 days, age at first use and frequency of use are also inquired after. Thus, it is possible to determine 30-day (current), 1-year and life-time prevalence rates. The instrument has been used in different cultures and countries, including Nigeria. Adayonfo and Akhigbe,¹¹ Akanni and Adayonfo¹² have used this instrument in the state where the current study was carried out. This instrument was validated in Nigeria by Adelekan and Odejide¹³ and found to have a high validity and a mean test-retest reliability of 86.7 percent for all items of the questionnaire.

Before commencement of administration of the instrument, two research assistants who are first degree holders were adequately trained on the instrument and its administration. The respective class captains of the selected classes were approached and class timetables were gotten from them after due explanation of the study to them. Thereafter the respective lecturers were identified and contacted and they agreed to spare sometime of their lecture period for instrument administration on their students. On the day of the lectures, the entire class was given explanation about the study and informed that participation was voluntary. Refusal or inability to take part would not count against them in any way. There was counting of the students who were willing to take part by asking them to take numbers. Simple random sampling method (balloting) was used to select each participant.

Other ethical considerations included obtaining permission to carry out the study from the authorities of the College of Education Ekiadolor, obtaining informed consent from the respondents and observance of confidentiality and anonymity (respondents did not have to write their names on the questionnaire). Any student of the College who was selected by the sampling method and agreed to participate in the study was

included while exclusion criteria was any student that chose not to participate or who was less than 18 years.

The data collected was analyzed using the Statistical Package for Social Sciences (SPSS). The statistics used included univariate analysis and chi-square test. Level of significance was set at $p < 0.05$. Even though non-randomization techniques were used in stages 1 through 3 of the sampling, the sample was still largely representative of the population since students were recruited from all five schools of the college and randomization was used at stage 4.

RESULTS

A total of 400 instruments were administered but 397 questionnaires were returned. Five were discarded because of missing data. Therefore 392 questionnaires were analyzed. The results are presented in tables 1 through 6. Nearly three quarters of the respondents were females; almost all of them were 18 to 28 years old. Similarly almost all were Christians. Lifetime, past year and current use prevalence rates of inhalant use were 2.6%, 1.3% and 0.8% respectively. Nearly half of the respondents who had used inhalants inhaled petrol and nearly all the lifetime inhalant users first did so at less than 15 years. Female sex was the only variable associated with lifetime inhalant use and more than two thirds of inhalant users combined it with use of other substances.

Table 1: Socio-Demographic Characteristic of the Respondents

Sex	Frequency	Percentage
Male	106	27.04
Female	286	72.96
Age (years)		
18-28	350	89.29
29-39	42	10.71
Religion		
Christianity	384	97.96
Islam	4	1.02
African traditional religion	4	1.02
Year of study		
One	77	19.64
Two	315	80.36

Table 2: Prevalence of Inhalant Substances use (N = 392)

Prevalence rates	Frequency	Percentage
Lifetime	10	2.6
Past year	5	1.3
Current	3	0.8

Table 3: Type of Inhalant Substances ever used (N = 10)

Substances	Frequency	Percentage
Fumes from heated oil	3	30.0
Petrol	4	40.0
Spray	3	30.0

Table 4: Age at First use of Inhalant Substances (N = 10)

Age	Frequency	Percentage
10 year old or less	3	30.0
13-14 years	5	50.0
17-19 years	2	20.0

Table 5: Association between Socio-Demographic Variables and use of Inhalant Substances

	Lifetime use of inhalants		Total	Significance test
	No	Yes		
Age (yr)				
18-28	340	10	350	$\chi^2 = 2.17, df = 1, p = 0.26$
29-39	42	0	42	
Sex				
Female	280	6	286	$\chi^2 = 1.32, df = 1, p = 0.01^*$
Male	102	4	106	
Year of study				
One	76	1	77	$\chi^2 = 1.59, df = 1, p = 0.55$
Two	306	9	315	

* = Statistically significant

Table 6: Combined use of Inhalant Substances and other Psychoactive Substances (N=10)

Nature of use	Frequency	Percentage
Use of inhalants alone	3	30.0
Use of inhalant and other substances	7	70.0

DISCUSSION

The lifetime, past year and current prevalence rates of inhalants use among the respondents (2.6, 1.3 and 0.8% respectively) is similar to the findings by Adelekan¹⁴, who reported life time, past year and current prevalence rates for inhalants use to be 1.1%, 0.8% and 0.3% respectively but it is in sharp contrast to the findings among secondary school students in Enugu, Nigeria, where the current prevalence rate of inhalants use was found to be 9.0%¹⁵. Their study sample was drawn from 29 secondary schools unlike the present study that drew its sample from a single school. Secondly, their sample size was more than twice the sample size of the current study. Thus these may explain the difference in prevalence rate. Another study carried out among clients at a drug treatment centre in Jos, Nigeria found prevalence for inhalant use that is similar to what was found in the current study at 3.2%¹⁶. When one considers the harmful effects of inhalants it only becomes imperative to take seriously the findings of this study. Inhalant abuse constitutes major health risks. The risks are kidney and liver dysfunctions, brain and nerve damage, cardiac arrhythmia, sudden death etc¹⁷.

The inhalant substances used by the respondents were fumes from heated oil, petrol and spray. Thirty percent used heated oil, 40% used petrol while another 30% used spray. Obviously, these are very readily available items. The ubiquity of these items will pose a challenge to the prevention, control and regulation of these substances. Therefore health education on the harmful effects of these substances when used as an inhalant may be one of the most preponderant ways to prevent their abuse. This education must not only be carried out in schools but more importantly by parents and guardians. Since the use of inhalants usually begins in childhood and adolescence there is need to monitor individuals in this age group. To further buttress this, the current study showed that 30% of the respondents

who had ever used inhalant first did so at the age of 10 years or less, while 50% of them were 13-14 years and the remaining 20% were 17-19 years when they first used inhalants. This is akin to the report from Enugu where all the respondents who had used inhalants first did so from 11-19 years, that is, while they were adolescents.¹⁵

There was statistically significant association between being a female and lifetime use of inhalants; however, year of study and age were not significantly associated with lifetime use of inhalant. It is curious to note that females were more likely to be lifetime users of inhalants. Future studies may seek to explain this association. Contrary to what is known from existing literatures, age was not significantly associated with use of inhalants. The fact that this study considered life time use as against current use may explain this. Secondly, the Age range of the participants was relatively narrow. It is understandable that year of study was not significantly associated with lifetime use of inhalants. The use of inhalants usually begins in early adolescence, before attending higher institution. That is socialisation or circumstances in the higher institution did not contribute to commencement of inhalant use; rather those using inhalants started using it before they got admission to the higher institution. This again underscores the fact that efforts to prevent and control the use of inhalants should begin in primary and secondary schools.

The study also revealed that 70% of those who used inhalants combined it with the use of other substances. This is not new; other workers have continuously reported that substance users frequently engage in combining substances. For example, Audu and colleagues¹⁶ reported that 81.4% of their respondents engage in combination of substances. Indeed as far back as 1982, Pela and Ebie¹⁸ reported a trend towards poly-drug use and Nevamdosky¹⁹ reported 39.5% of his Sapele sample to be multiple drug abusers. The implication of this finding of combining psychoactive substances by abusers is that when one finds a client or an individual who uses a substance one should have a high index of suspicion that such a client is likely to be using other substances. This study is limited, it did not consider current use of inhalants, and it is recommended that future studies consider current use.

CONCLUSION

The abuse of inhalants has been largely overlooked. Various articles have highlighted the abuse potential and documented the profile as already mentioned in the write up. It is however pertinent to note that those seemingly under-rated or under-reported substances which are quite common as household utilities can acquire abuse potential and become just as harmful or even more harmful than the “traditional” substances of abuse. Many will for instance be surprised that fumes from heated oil can be inhaled to create a “high”. This is the time to awaken ourselves to the possible dangers of household utilities being used as sources of inhalant abuse.

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