



International Journal of Medical Research & Health Sciences

www.ijmrhs.com Volume 2 Issue 3 July - Sep Coden: IJMRHS Copyright @2013 ISSN: 2319-5886

Received: 1st Jun 2013

Revised: 29th Jun 2013

Accepted: 3rd Jul 2013

Research article

PHENOMENOLOGY OF INHALANT ABUSE AMONG ADOLESCENT IN URBAN INDIA.

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ABSTRACT

Introduction: The deliberate inhalation of volatile substance can cause serious harm to psychological, emotional and neurobiological development. Inhalants are considered to be harmful substance used as it is linked with high rate of morbidity. Lack of knowledge, expertise in the field of inhalant dependence, resulted in little research about the subject. Current research is focused on evaluation of the symptomatology of inhalant intoxication and withdrawal. **Methods:** This is a prospective cross-sectional study of inhalant users in 32 cases meeting criteria for inhalant abuse according to DSM-IV-TR in a tertiary-level multi-specialty hospital. **Results and conclusion:** The most common inhalant used was whitener and most common method was sniffing. Among all intoxication symptoms, euphoria was most common (97%) followed by hallucinations (88%), burning in oropharynx (69%), light headedness (47%), drowsiness (38%) etc. Common withdrawal features reported were: craving (97%), irritability (94%), restlessness (88%), insomnia (78%) etc.

Keywords: Inhalants, Intoxication, Withdrawal, Phenomenology

INTRODUCTION

Inhalant abuse is defined as the intentional use of fumes from different chemicals to produce altered state of mind. In sniffing user may inhale fumes directly from a can while in huffing they would soak the cloth with a chemical substance and inhale fumes by placing it over the face. Bagging is another method of inhalant use in which user inhale fumes directly from a plastic bag containing chemical¹. Inhalants are a group of substances which include paints, thinners, typewriter correction fluid, gasoline, deodorants, adhesives, dry cleaning fluids etc.². Compared to

other substance's effect of inhalant last for a short duration and user has to inhale it repeatedly to gain desired effect^{3, 4}. The inhalation of a volatile substance is linked with both central nervous system and different physical side effects. Death can result from respiratory depression or cardiac failure. It has long lasting emotional and psychological adverse effects⁵. Inhalants are among the most harmful forms of substance as they are linked with high rate of morbidity and mortality^{6, 7}.

The scientific literature is lagging as evident in the brief description of inhalant dependence in the Diagnostic and Statistical Manual, 4th edition (DSM-IV) ¹. It has included little information regarding sociodemographic features, epidemiology, prevalence, subtypes, withdrawal, co morbid medical and mental health conditions. The literature from India is limited to few case reports, case series and very few case studies. This paucity of literature can be attributed to the fact that there is a lack of awareness among the general public as well as health care professionals. Over the last few years our understanding of the clinical epidemiology of inhalant abuse has progressed but the larger phenomenological study may avail us with a better understanding of underlying mechanisms and treatment response.

MATERIALS AND METHODS

We conducted a cross-sectional study of inhalant users in 32 patients fulfilling Diagnostic and Statistical Manual of Mental Disorders–IV TR criteria for inhalant abuse. The study was conducted in the department of psychiatry of a hospital attached with a teaching institute. The subjects were recruited from both indoor and outdoor unit of the department. Detailed work up has included a detailed history taking, physical examination, investigations etc. Patients were thoroughly assessed using criteria for inhalant abuse according to DSM-IV¹. For operational purpose DMS-IV definition was used which define inhalant dependence as maladaptive inhalant use which leads to significant impairment or distress. Patients should meet three out of seven criteria for a period of at least 12 months. The first three subjects were self referred and the rest were identified due to referrals via the initial subjects. Further friends of the admitted patients when motivated, they also agreed to participate in the study as well as treatment.

Inclusion criteria: The patients diagnosed with inhalant abuse according to DSM-IV TR criteria

were included in the study. For study purpose definition of adolescence was adopted from the World Health Organization guidelines which define adolescence as the period between the age of 10 and 19 years and patients in the same age group were included in the study.

Exclusion criteria: Too young i.e. less than 10 years and more than 18 years of age were excluded from the study. Patients unwilling to participate and those with poor general medical condition were excluded from the study.

Consent: The study purpose and procedures were explained in detail to all the participants. Considering the non-invasive nature of the study, patients as well as their relatives consent was easily obtained. The study was conducted in accordance with ethical principles, including the provisions of a World Medical Association Declaration of Helsinki.

Assessment: Semistructured questionnaires were used for collection of the data .It had details of sociodemographic profile, relevant history, drug exposure, co morbid conditions, family history and findings of the laboratory investigations done. The intoxication and withdrawal symptoms were assessed on separate sheet. Observation of the nursing staff and house officers were noted to supplement rating of symptoms.

Data Analyses: The Statistical Package for the Social Sciences, Windows version 17.0 was used for data analysis.

RESULTS

A total of 32 patients meeting DSM – IV TR criteria for inhalant abuse were included in the study of which 31 were males and one was female. Mean age was 16.4 years (range, 11 to 19years); all of them were adolescents (as per WHO, in between the age group of 10 to 19 years) and all were unmarried. While 37% participant were studying, 63% participants were engaged in some kind of semiskilled and unskilled employment activities. Considering the educational level, nine percent were illiterate, 63% studied till high school, 19% studied till

higher secondary and another nine percent of participants persuaded graduation. All were of urban background while 13% were migrants. Among study group 82% belonged to a nuclear family while three percent were living alone. Though most of the respondents were of lower socioeconomic strata, 16% belonged to middle class families. History of alcohol dependence was found in close family member of 63% of patients.

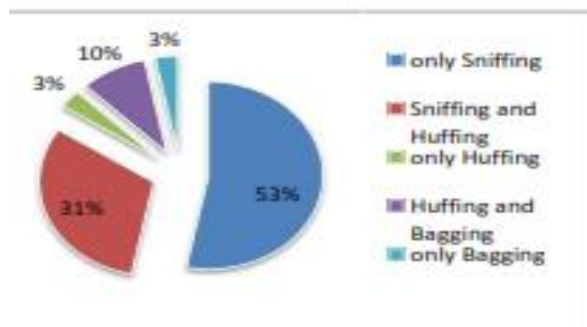


Figure.1: Different routes of inhalant use.

They began inhalant use at the average age of 14 years and average amount of inhalant used was 4 bottles per day. Curiosity was the commonest reason for first use (90%) about which they learn from their colleagues and friends (94%). Of the 32 subjects, 82% met the DSM-IV criteria for inhalant dependence. Inhalant was the first psychoactive substance used in case of 43% of subjects. Only 40% reported it to be the only substance abused whereas the rest of others used

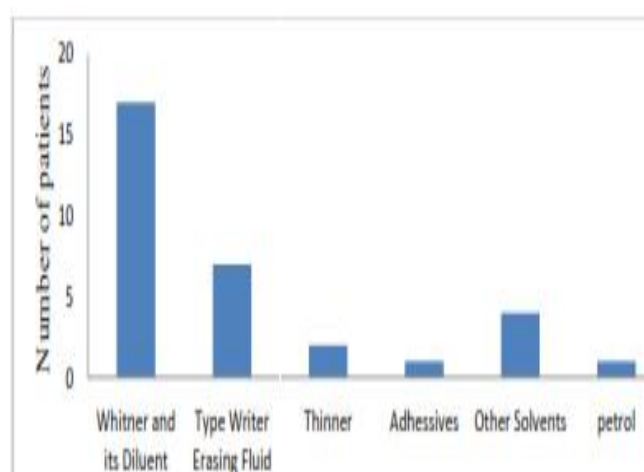


Fig.2: Type of Inhalent used

it along with two or more other substances. In 65% subjects, inhalants are most preferred psychoactive substance; in 28% subjects it was second most preferred substance and in others it was third or fourth preferred substance.

The most common route used for inhaling was sniffing which was reported by 53% of the subjects. Other routes included both sniffing and huffing (31%), only huffing (3%), and huffing and bagging (10%). One subject was using a substance by only bagging (Fig. 1). The most common inhalant reported was whitener (53%), whereas 21% reported using typewriter erasing fluid. For 68% patients reported it to be a most preferred psychoactive substance while 22% reported it to be second most preferred substance. Other variants included adhesives, thinners, petrol etc (Fig. 2).

Intoxication features:

Among all intoxication symptoms, Euphoria was most common (97%) followed by hallucinations (88%), burning in the oropharynx (69%), lightheadedness (47%), Drowsiness (38%) etc. All intoxication features are described in detail in figure - 3.

Withdrawal features:

Common withdrawal features reported were: Craving (97%), irritability (94%), restlessness (88%), insomnia (78%) etc (Fig. 4).

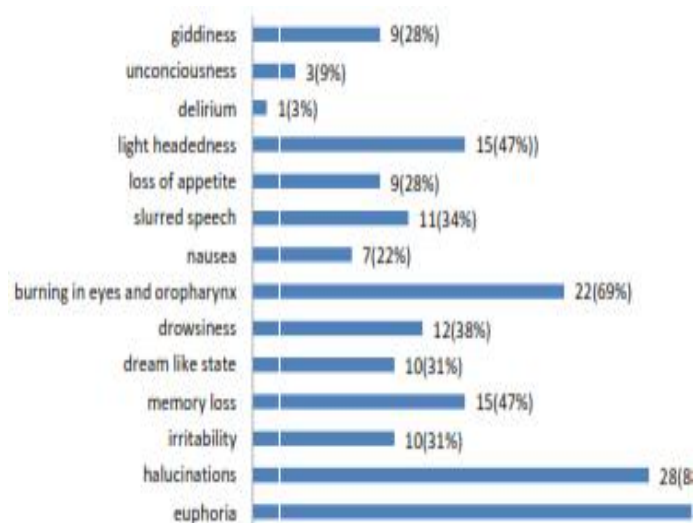


Fig.3: Inhalant intoxication features.

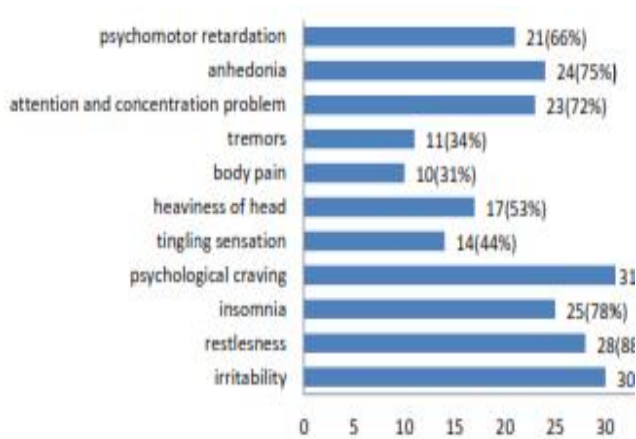


Fig 4: Inhalant withdrawal features

DISCUSSION

As in earlier studies most of our cases being male indicates that inhalant abuse is more prevalent among males. In our study less involvement of females may not mean absence of inhalant abuse but it may be because of lack of awareness and greater stigmas for female gender^{8,9}.

All the cases were from an urban locality which may indicate that inhalant abuse is an adversity of urbanization, poor health care awareness and facilities, easy availability of substance and lack of regulations¹⁰. Initially it was thought that inhalant abuse is a problem of self employed unskilled, adolescents of low socioeconomic strata. But in our study we have found that few of our patients were from middle class, educated families with no history of any substance dependence among family members. This might suggest the changing pattern of inhalant abuse among adolescents. Similar to earlier studies most of our patients were either school dropouts or irregular to the school^{8,9}. It may denote the possibility of cognitive dysfunctions and lower scholastic performance, especially if the substance abuse starts early.

As in ethnographic reports, our study displayed that urban youth consume inhalant to produce euphoric state and intoxication^{11,12}. The psychological experiment like conditioning and laboratory studies has confirm the abuse potential of inhalants^{13, 14}. Our patients also

reported intoxication that is similar to previously reported intoxication symptoms^{15, 16}. Euphoria was most common intoxication symptom, which might have act as a reinforcer for subsequent use. Despite adverse events of intoxication like burning in eyes and oropharynx, nausea, memory loss, giddiness etc, most of the users used inhalants continuously.

Craving reported by most of our cases indicate that inhalants has great potential of misuse^{17, 18}. Other common withdrawal features were irritability, restlessness, anhedonia, etc. The withdrawal symptoms in our patients were nearly similar to the ones found by other study^{19,20}.

During course of clinical practice, practitioners should be watchful for cases of inhalant abuse. They should routinely enquire and screen for inhalant use and intervene early. This can be effectively done by health education as well as approaches used for other substance dependence. Other important action could be supply-side interventions which have not been widely practiced in the India. But in countries like Australia they have included adding “bittering” agents to frequently abused inhalant products, selling substitutes that are not readily abused, and altering the products so that they are no longer be used for inhalation²². Similar legislations are needed in India to curtail the use of inhalants among adolescents.

CONCLUSION

Inhalant use can cause serious harm to psychological, emotional and neurobiological development of adolescents. Our study has shown that it has distinct intoxication and withdrawal features. It would help in formulating an appropriate treatment strategy like substitution therapy, aversion therapy, anti-craving therapy etc. It is also important to introduce supply-side interventions and legislations in India to curtail the use of inhalants among adolescents.

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