Original Article

Treatment Seeking Behavior of Inhalant Using Street Children: Are We Prepared to Meet Their Treatment Needs

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ABSTRACT

Context: There is a lack of evidence for help and treatment seeking behavior of street children using inhalants. **Aims:** The present study was planned to provide a comprehensive understanding on the patterns, correlates of inhalant use and treatment seeking behavior of street children from Delhi, India. **Material and Methods:** Participants were a purposive sample of 100 inhalant using street children below 18 years identified with the assistance of five community service organizations/nongovernmental organization working with street children in the city of Delhi. Information on a semi-structured questionnaire with items pertaining to the demographic and drug use parameters was collected by trained research staff in a one-to-one in field setting. **Statistical Analysis:** All data were entered into SPSS 12.0, data quality checks performed and examined. **Results:** The sample had an average age of 12.8 ± 2.4 years (range 4-17 years), 96.5% reported regular past month and 87.0% past 24 h use of inhalants. The mean age of onset of inhalant use was 9.3 ± 2.8 years The substances most commonly reported were toluene from eraser fluid (by 83.0%), glues (34.0%) and petroleum products (3.0%); mean frequency of use was 9.8 times in a day. Of the sample, 18% used inhalants when they were alone, and the rest reported using with drug using network friends; 76% reported tolerance and mild withdrawal symptoms such as restlessness, anxiety, craving, irritability and lethargy. A variety of problems and perceived benefits due to inhalant use were reported; 46% inhalant users had never abstained from its use, and 77% reported never having sought any medical help. **Conclusions:** Study findings provide a better contemporary understanding of inhalant abuse among Delhi street children. This information can assist in the formulation of a needs-based intervention for the inhalant using street children.

Key words: *India, inhalant use, interventions, street children, treatment seeking*

INTRODUCTION

Abuse of volatile substances is a popular practice among children and adolescents from around the world. A recent review of epidemiological studies of inhalant use among population of Brazil, Mexico, Paraguay, Chile, Columbia, Nicaragua, Spain, Canada, New Zealand, and Australia[1] concluded that inhalant use is widespread. In India, ink eraser fluid is the most commonly used inhalant[2,3] and its abuse among children/adolescents has increased more so among the homeless/street children. A study[4] reports that 47.22 million homeless/runaways adolescents roaming the streets of India are a vulnerable group exposed to many risks, which includes drug abuse.[5] Street children as compared to nonstreet children have been reported as 36.7 times more likely to use inhalants.[6] The common use of inhalants among this population is a cause for concern.[7,8]

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A small corpus exists that provide a profile of inhalant users from specialist setting;[2,9] clinical samples in the form of case reports;[10] case series;[11] chart reviews[12,13] and clinical investigations.[14] Adequate epidemiological information from India is lacking as most literature is on small samples except for a study of street children from Bengaluru.[15] The only national household survey for India among males 12-60-year-old[16] did not report inhalant use.

Impediments to the development of intervention programs and strategies to address inhalant abuse exist due to lack of substantial research in the area. Epidemiologic and ethnographic research[17] on the nature and extent are obvious prerequisites to targeted treatment and preventive intervention programs. Despite the existence of a high rates of inhalant use among the street children in Delhi[17] information on help or treatment seeking behavior among them is lacking. The present communication reports on the results of a quantitative assessment of inhalant using street children focusing on pattern, trends, perceived benefits, and problems faced due to inhalant use and their treatment seeking behavior.

MATERIALS AND METHODS

In year 2009, a 2-year study funded by the World Health Organization (India Office)[18] was initiated to examine substance use especially inhalant use by street children of Delhi and the feasibility of developing and implementing an intervention program that addressed the use of inhalants. As a prequel, an assessment of the drug use situation was carried out to capture data on their substance use patterns. A total of 100 drugs using working street children were recruited with assistance of five community service organizations/ nongovernmental organization (NGO) already working with street children, operating in various parts of Delhi and who consented to collaborate. The services being provided by these NGOs were food and medical support, educational (nonformal and formal education), psychological support, some offered skills training for self-employment; had a drop-in center; offered life skills education program. None of them were equipped to offer drug education or counseling programs though unmet treatment needs for substance use had been identified by them.

The NGO staff helped in the recruitment of the sample from the following settings viz., near railway stations, religious sites such as temples, Gurudwaras, which the street children frequented. The field staff from the NGOs initially introduced some street children to the field researchers and through snowballing technique children were further contacted and recruited following inclusion criteria. They were included if below age of 18 years, out of school or dropped out of school >1 year back or never attended school, were In contact with an NGO, currently using inhalants for >20 days in a month. An informed consent was taken from the child and parent or NGO staff/counselor (as a surrogate guardian) in case the parents were not available. None of the respondents received any remuneration for the interruption in their work time while being a part of the study.

Before initiating field work, the research staff was provided an orientation program to train them in building rapport, dealing with street child, concepts of drug abuse, dependence, inhalant abuse, types of inhalants, their acute and chronic effects; risk factors, reasons and outcome of inhalant use.

A semi-structured questionnaire with items pertaining to the demographic and drug use parameters was used. It was administered by trained research staff in a one-to-one in field setting after obtaining the consent of the respondents. All attempts were made to collect data in an environment, which ensured privacy and confidentiality. The study was approved by the Ethics Committee of AIIMS.

Data were analyzed for descriptive statistics to summarize results using SPSS 12.0.

RESULTS

Among total sample, there were 96 males and four females; mean age was 12.8 ± 2.4 years (range 5-17 years); mean age of onset of inhalant use was 9.3 ± 2.8 years (range 4-17 years); 72% were waste collectors, only nine were living with family while rest were living on streets/railway platform/shelter/footpath; 43% had no contact with their family and 53% reported drug use by their family members as well.

Table 1 summarizes drug use among the sample. The sample reported using a variety of drugs, in the life time as well as currently, that is, in the preceding 1-month. The rates of inhalant use for past 24 h were (87.0%), past month (96%), and lifetime (100%), respectively. Besides inhalants, tobacco was most commonly reported (70.0%), followed by cannabis (35.0%) and alcohol (28.0%). A few also reported using opium, heroin and pharmaceutical preparations as well.

Table 2 shows that a large majority of street children reported using toluene in the form of eraser fluid (83.0%), glues (34.0%) and a minority reported using petroleum products. Among eraser fluid users, 53% reported using 1-4 units/day similar numbers reported

Table 1: Drugs used by street children (*n* = 100)

Name of Drug	Ever *n* (%)	Past 30 days *n* (%)	Past 24 h *n* (%)
Inhalants	100 (100.0)	96 (96.0)	87 (87.0)
Tobacco (smoking/chewing)	86 (86.0)	70 (70.0)	64 (64.0)
Cannabis (bhang, charas, ganja)	63 (63.0)	35 (35.0)	22 (22.0)
Alcohol	44 (44.0)	28 (28.0)	6 (6.0)
Opium (doda, phukki)	4 (4.0)	4 (4.0)	4 (4.0)
Heroin (smack, brown sugar)	3 (3.0)	2 (2.0)	2 (2.0)
Pharmaceutical preparations (tablets, cough syrups, injections etc.)	8 (8.0)	2 (2.0)	—

Table 2: Pattern of inhalant use

Pattern	*n* (%)
Type of inhalants used	
Eraser fluid	83 (83.0)
Glues (dendrite etc.)	34 (34.0)
Petroleum products	3 (3.0)
Usual amount consumed in a day	
>13 units	1 (1.0)
9-12 units	24 (24.0)
5-8 units	22 (22.0)
1-4 units	53 (53.0)
Frequency-times/day	
Through-out day	32 (32.0)
4-6 times/day	13 (13.0)
1-3 times/day	55 (55.0)
Mean	9.8
Size of usual drug using network (number)	
Take drugs alone	18 (18.0)
Between 1 and 5	46 (46.0)
Between 6 and 10	19 (19.0)
Between 11 and 15	12 (12.0)
>16	5 (12.0)
Tolerance (yes)*	76 (76.0)
Withdrawal symptoms**	
Restlessness/anxiety	41 (41.0)
Strong urge/desire	53 (53.0)
Irritability	60 (60.0)
Lethargy	66 (66.0)

*Indicator of tolerance: Experience that compared to the earlier phase one has to consume in larger amount to get the same effect; **Indicator of withdrawal: Experience that whenever one does not take inhalants/ take reduced amount of inhalants then experience some discomfort, multiple responses, total cannot be added

using 5-8 units (22.0%) and 9-12 units (24.0%)/day, respectively. The mean frequency of use of inhalants was 9.8 times in a day. There were 55% users who reported using inhalants 1-3 times in a day; 32% were using it throughout the day and those using 4-6 times were a minority (13%). Most inhalant users were consuming inhalants in groups usually 1-5 children (46%); a small minority reported taking inhalants alone (18%).

The respondents were asked two indicators of physical dependence, that is, tolerance (an increase in the amount consumed to get the same effect) and withdrawal symptoms (experiencing discomfort on missing the intake or with reduced intake). Whereas a large majority (76%) reported tolerance, a smaller proportion (57%) reported experiencing withdrawal symptoms. Those reporting withdrawal symptoms were asked to provide the details of the same. While lethargy was most commonly reported, other symptoms reported were irritability, craving, restlessness and anxiety.

On the issue of perceived benefits of inhalant use, as seen from Table 3, 55% of the users reported that its use reduces pain. Other benefits as perceived by the respondents were a feeling of boldness (42%), emotional numbing (43%), drives away hunger (35%) while 10% reported receiving no benefit from its use.

A variety of problems were reported as a result of inhalant use. Most respondents reported health problems (71%); weight loss (67%); change in physical appearance (48%); loss of money (47%) problems in psychosocial domains were reported by relatively fewer respondents. However, it is noteworthy that almost all (99%) reported experiencing one or more problems.

Table 4 shows that as many as 46% inhalant users had not been able to ever abstain from the use of drugs. Among the rest of users, 29% reported abstaining for a period less than a month, 18% abstained for a period ranging 1-3 months and 7% >3 months. A recent attempt at quitting drug use was reported by 53% of these, 26% had attempted to quit using inhalants >3 months ago.

Respondents were also asked whether they have received any help for reducing/stopping drugs so far. An overwhelming majority (77%) reported never having sought any help. Just about 14% reported that they had been to a doctor, and 8% reported receiving in-patient treatment for their inhalant use. They were also asked whether they need some help for stopping/reducing the use of inhalants. On this issue, the sample was divided into three equal parts.

DISCUSSION

The present study examined inhalant use and its correlates among street children in the city of Delhi. Among adolescent substance users, inhalant use was the most prevalent and a common substance used by street children.[17] Results show that about 96% of the sample had been regularly using these volatile substances in the past month; with 83% reporting use of eraser fluids, which are a form of typewriting correction fluid containing toluene and highly preferred because of its euphoric effect, cheapness and easy availability. There

Table 3: Perceived benefits and problems experienced due to inhalant use

Benefits and problems	*n* (%)
Perceived benefits of inhalant use	
Reduces pain	55 (55.0)
Feeling of boldness	42 (42.0)
Emotional numbing	43 (43.0)
Drives away hunger	35 (35.0)
No benefit	10 (10.0)
Others (time-pass, enjoyment)	3 (3.0)
Problems experienced due to inhalant use	
Health damage	71 (71.0)
Weight loss	67 (67.0)
Change in physical appearance	48 (48.0)
Loss of money	47 (47.0)
Family members upset	36 (36.0)
Impaired memory	20 (20.0)
Undertaken risky activities	9 (9.0)
Not visiting NGO often due to continued drug use	8 (8.0)

NGO – Nongovernmental organization

Table 4: Treatment seeking behavior

Help seeking	
Ever been able to stop use of drugs (duration)	
<1-month	29 (29.0)
Between 1 and 3 months	18 (18.0)
More than 3 months	7 (7.0)
Not able to stop	46 (46.0)
Recent attempt to quit	
<1-month back	15 (15.0)
Between 1 and 3 months back	12 (12.0)
>3 months back	26 (26.0)
Not attempted to quit	47 (47.0)
Ever received any help for stopping/reducing drug use	
No, I never looked for it	77 (77.0)
Yes, someone advised me to stop but I did not visit a doctor	4 (4.0)
Yes, seen a doctor for treatment of drug use, but was not admitted	6 (6.0)
Yes, seen a doctor for treatment of drug use and was hospitalized	8 (8.0)
Need help for stopping/reducing use of drugs	
No, I do not think that I have a problem	34 (34.0)
Yes, I have a problem, but I can quit on my own	33 (33.0)
Yes, I want to quit and would need help for quitting	33 (33.0)

were four female users identified signifying an alarming trend as earlier reports from clinical and community samples have reported substance use/inhalant use among males only and from other countries such as Nepal, Bangladesh, Pakistan[19] though the review[1] had indicated an increase among females in the developing and developed world.

In the absence of any recent epidemiological data from India, some comparisons are being made with the Bengaluru study[15] which reported inhalant use among 43% while rates in the present sample are quite high. Similarly in the Bengaluru study, the age at onset was 11.5 years, which is higher than 9.3 ± 2.8 years observed in the present sample besides high quantity-frequency of use. As psychological addiction, and physiological dependence on inhalants occurs (criteria for diagnosing inhalant intoxication as found in the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition, 292.89) the street child sample as per self-report reported features for tolerance and dependence on inhalants. Yet, about half of the sample reported no attempts at stopping or quitting inhalant use or seeking treatment for inhalant use.

Given that inhalant use is strongly influenced by peer influences,[20] the present study sample also indicated a drug using network of peers for consumption of inhalants. Therefore, it is possible that they perceived little likelihood of quitting use and seeking treatment. This is particularly relevant as perceptions of harm of inhalant use were found to be unrelated with intentions to seek treatment and as per study results about 77% had not sought help from a health provider.

Studies indicate that inhalants, are often the first category of substances to be abused by adolescents and thus constitute a gateway drug[21] preceding cigarettes by 1.5 years. Inhalant consumption in study sample needs to be carefully monitored to avoid the progression to heroin or injection drug use.[22]

Though physical, financial, familial and other problems were being faced by them, one-third of the sample did not think they had a drug problem and did not want help for it, half of them had not attempted to stop and two-thirds had never looked for help for their habit. There is an urgent need to identify approaches at the community level, e.g., family and school involvement.

The study results have helped in gaining an understanding of inhalant use in street children and provided a baseline measure that can be used to develop issues that need to be addressed in an intervention. Present study provided an opportunity where research team was able to establish a network chain between treatment specialists, NGO's and users. However, there exist challenges in addressing substance use in adolescents. Most treatment professionals lack a contemporary understanding of the abuse patterns in the child population that can provide a baseline for planning prevention and treatment. The study results are a primer in this direction.

Inhalant abuse is one of few types of substance abuse for which demonstrably effective treatment interventions are largely absent from the clinical research literature. Treatment programs that specialize in inhalant dependence are almost nonexistent. Clinical data reveals that >33% adolescent drug users seeking

treatment are inhalant users (ink eraser fluid/toluene is the primary drug), both school going children and school dropouts.[18]

Help seeking by street-child needs to be increased. Management of intoxication, withdrawals need to be addressed. Effective pharmacotherapy is not yet available for inhalant use disorders. The treatment approaches being used for inhalant users are mostly multi-modal and multi-component. Psychosocial approaches are commonly being used for treatment of inhalant users. There are no practice guidelines to assist psychiatrists, general physicians, pediatricians and other clinicians in the management of adolescents with inhalant use disorders. The development of such guidelines would be of immense value. Guidelines to address inhalant use are also relevant to other health professionals such as psychologists, social workers, counselors and nonspecialist health workers who routinely come in contact with inhalant users.

The management strategy most suitable for this population needs to have features like feasibility of deliverance in field settings, ease of manpower training and addressal in multiple areas of a street-child's life and its acceptability by the target population. The use of elements of deterrence, short-term behavioral management using culturally sensitive adolescent community reinforcement approach appears promising. Treatment addressal should focus on networking and referral among the different agencies like governmental specialist treatment programs, community-based field workers and counselors. As inhalant use is usually a group activity, treatment needs to include group therapy along with availability of individual counseling; regular follow-up to detect relapses while encouraging them to be honest about lapses. Finally, advocacy efforts at broader, national levels would be required to explore ways of addressing availability and accessibility of inhalant products.

There is a need for availability of specialized treatment services for substance using children. These services should be available in government hospitals; NGOs funded by Ministry of Social Justice and Empowerment and also by NGOs that provide services to street children. Networking[23] needs to be established wherein treatment intervention should be made available at government run de-addiction centers with rehabilitation in NGO/community setting with linkage with NGOs. The settings in which the treatment programs take place must try to involve the family and address the family issues as a part of the treatment process. It is strongly suggested that substance use treatment facilities that exist in India be prepared to provide services that are child sensitive, safe and taking care of the needs of the children. There is a need to strengthen community-based intervention models. Over the past decade, several studies, two meta-analysis and a review have reported at least some effectiveness of brief intervention in adolescent substance users in the community[24,25] but requires further research in the Indian context.

Strengths of this study include a large sample of inhalant users, use of face-to-face structured interviews, high study participation rate, examination of important and understudied high-risk population for inhalant-related problems and focus on treatment needs an under researched issue.

Limitations include the self-report nature of the assessment and possibly limited generalizability of study findings given that the sample comprised of users in contact from five agencies working with this vulnerable group.

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