

Volatile Solvent Abuse among Street Children and Adolescent in India: A Systematic Review

Sanjay Sevak¹, Sudershna Lal²

¹Department of Mental Health Nursing, College of Nursing, AIIMS, Jodhpur, Rajasthan, India, ²Department of Community Health Nursing, B.V.U. College of Nursing, Navi-Mumbai, Maharashtra India

Abstract

In India, the previous few decades have been a period of rapid increase in consumption of substance abuse. Recently, volatile solvent is comparatively recent phenomenon among street children, urban youth, and adolescence. Volatile solvent is deliberate inhalation of fumes and petroleum derivatives for euphoria and mind-altering effects. The impact of volatile solvents substance also occurs rapidly and disappears reasonably quickly, compared with other types of substance abuse. The volatile solvent abuser has a significant impact on physical, mental, social, psychological, and economical area of individual life. The reasons for volatile solvents attract street children and adolescents because of easy availability, low price, poor impulse control, and peer pressure. The adverse consequence of volatile abuse affects not only the individual user but also the whole family and society. Management of volatile solvent abuse includes treatment as well as prevention. The treatment incorporates many components including behavior therapy, psychotherapy, pharmacotherapy, social support, and awareness. Hence, it is necessary to provide health education, mass media educational activities, and health promotion programs directed toward street children and their families. It will help to improve the knowledge among adolescents to comply with ill effects of volatile solvent abuse and to continue with healthy living. At the same time, public awareness about volatile solvent abuse and its associated risks awareness need to be raised. This review mainly focuses on the current status of volatile solvent abuse, risk factors, associated factors, prevalence, complication, and recommendations, which may help the youth and family to understand prevalence and allied serious problems.

Keywords: Volatile solvent abuse, street children, adolescent

INTRODUCTION

The Republic of India is the seventh-largest country by area and second most populated country in the world. The level of urbanization grew by further from 27.81% to 31.16% in the past 10 years according to 2011 Census.^[1] According to the World Health Organization (WHO), approximately one-fifth of the Indian population consists of youth between 15 and 24 years of age.^[2] Youth in developing countries usually get involved in activities related to substance abuse due to financial, personal, or familial issues. Substance abuse refers to non-medical use of chemical substances or harmful use

of substance abuse to achieve alterations in psychological functioning. Substance abuse changes the way an individual think, feels, or behaves, without taking into consideration the physical, financially, and mental side effects.^[3]

In India, substance abuse has been recognized as a growing problem. It is widespread among street children and adolescents. As per recent study, approximately more than 1 million street children in metro cities include Mumbai, Kolkata, and New Delhi.^[4] As per Indian embassy, approximately 314,700 street children live in major cities such as Mumbai, Chennai, Kanpur, Kolkata, and Bengaluru and more than 1,000,000 street children in New Delhi.^[5]

Volatile solvent was common among street children and adolescent. Volatile solvents are chemical vapors and petroleum derivatives whose vapors can be intentionally inhaled to produce mind-altering effect. Inhalants are classified into many groups such as [Table 1] volatile solvents (e.g., paint

Access this article online

Website: <http://innovationalpublishers.com/Journal/ijnh>

ISSN No: 2454-4906

DOI: 10.31690/ijnh.2020.v06i04.001

Address for Correspondence:

Sanjay Sevak, Department of Mental Health Nursing, College of Nursing, AIIMS, Basni Phase II, Jodhpur, India. E-mail: sanjayrajsevak@gmail.com

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removers, glues, varnish thinner, aerosols (e.g., spray paint), and gases (e.g., nitrous oxide and ether).^[6]

Volatile solvent is more approachable in street children as its easily available, low price, and capable of producing a rapid euphoria. Its use cannot be detected after a sometimes due to its volatile nature, making it easier for the user to keep out of sight. There is a strong relationship between child crime incidence and volatile solvent abuse. Volatile solvent abuse may well be a gateway to other kind of substance abuse. A majority of the volatile solvent users stop using after a brief period of experimentation, and only 4% develop physical and psychological dependence.^[7] Lubman *et al.* conducted study on inhalant misuse in youth reveal early adolescence is associated with high rates of volatile abuse. Inhalant misuse is not only impact on harmful outcomes but also associated increased morbidity and mortality among abuser.^[8] A similar study conducted by Abhay at all on substance abuse among street children in Mumbai. The study revealed that common causes for substance abuse were peer pressure, to boost self-confidence and pleasure seeking behavior among children.^[9]

A cross-sectional survey by Daniel *et al.* (2017) was designed on “Prevalence and pattern of substance use among adolescents in New Delhi.” A total of 110 samples were conveniently selected and data collected with structured questionnaire. The study revealed that 55.6% of the samples consume one or more types substances in their lifetime, while 44.26% of the samples stated that they use substances in early age (before 13 years). Most common reasons to take substance abuse were peer pressure (57.38%), to feel like an adult (24.6%), and other reported as curiosity and escape reality. Majority of abuser consumed tobacco (77.05%), volatile solvents (26.23%), and alcohol beverages (11.47%). In association, analyses study indicates early onset of substance abuse and low educational status is associated as adolescents who studied less educated reported more usage of any kind of substances than who studied more than secondary, while in type of family, more prevalence of substance use was observed among adolescents who were from nuclear family compared to joint family.^[10]

Dadwani and Thomas (2016) conducted study on “Prevalence of substance abuse: A community-based study” reveals overall prevalence of substance abuse 18.86%. The mean age of onset for substance abuse was found 27 years. The prevalence of substance abuse found to be greater among males (79.84%) as compared to females, those who belong to joint families (61.67%) and who were literate (55.73%). The highest prevalence of substance used was tobacco (38%) followed by alcohol (34%).^[11] A research by Praveen *et al.* conducted in Hyderabad indicated that approximate 35% of street children and adolescents were abuser.^[12] Elkoussi and Bakheet (2011) conducted study on 120 street children aged 10–18 years. The study results showed that familial neglect and lack of supervision were the main social motivations for misusing volatile substances among street children.^[13]

A study by Basu *et al.*, on volatile solvent abuse interprets that majority of samples belongs to lower to middle socioeconomic background, initiated the substance in early adolescence, and had been poor in scholastic or academic performance. The reason for volatile solvents addiction was inexpensive cost, easy accessibility, faster onset of action, and the regular “high” that it provided.^[14]

The short-term effects of volatile solvent abuse include euphoria, clouded thinking, slurred speech, hallucinations, and sudden death (sniffing these drugs). Long-term effects include psychosis and permanent brain damage, tachycardia, damage to the liver, kidneys, and heart which are also possible. Volatile solvent intoxication developed during or shortly after excessive consumption. In volatile solvent intoxication, dizziness, lethargy, incoordination, slurred speech, unsteady gait, depressed reflexes, psychomotor retardation, tremor, generalized muscle weakness, stupor or coma, and euphoria were observed in abuser.^[15] Substance abuse led to increase in the crime rate. The substance abuser resorts to criminal activities to pay for their drugs/substances. The incidence of misbehaving, eve teasing, stealing, group clashes, assault, and impulsive murders increases with substance abuse.^[16] A study conducted in Delhi on substance use and criminality among juveniles. The study revealed that 86.4% of the juveniles-under-enquiry had a history of substance use. There is an increasing trend in serious crimes among juvenile substance abuser. The study also indicates correlation of substance abuse and crime such as volatile solvents with rape, cannabis abuser with murder, and opioids with snatching-related crime.^[17]

The above literature clearly reveals that street children and adolescent substance abuse are on the rise and it becomes a burning issue in India, mainly metro cities and urban areas. The important steps in prevention of substance abuse are to create awareness among the street children and adolescent about not only the health hazards but also the physical, psychological, and economic impact on them.

To help a street children and adolescents to recover from volatile solvent use, suggestions for moving forward include health education initiatives, mass media campaigns, detoxification, recreation activities, motivational programming, family reintegration, and occupational mainstreaming.^[18] Sinha *et al.* offered additional suggestions regarding intervention strategies regarding drug abuse in children such as adult mentor system, peer education, individual and family therapy, life skills training, sensitizing police personnel’s to protect rather than exploit children, public police partnership, night school, vocational training centers, and an increase in societal and community awareness.^[19]

A study by Abraham (2015) conducted in Guntur, Andhra Pradesh, suggested following recommendation for street children. The data of the street children should be collected and maintained by the department of child welfare and social welfare departments. A program or a drive should be run to counteract and educate the children on street diverting them to

Table 1: Types and examples of volatile solvents and inhalants

Types	Examples of volatile solvents and inhalants
Solvents	Household/industrial products including: (e.g., paint thinners, dry cleaning fluids, lighter fluid, correction fluids, glue)
Aerosols	Household aerosol including: (e.g., spray paints, deodorant sprays, aerosol computer cleaning products)
Gases	Household/commercial products, including: (e.g., propane tanks, used as anesthesia including nitrous oxide chloroform)
Nitrites	Often sold in small brown bottles labeled as: (e.g., cyclohexyl nitrite)
National Institute of Drug abuse (NIDA). 2020, April 16. Inhalants Drug Fact	

some vocational training. There is a need of vocational training for street children to help them with their livelihood. Street children must be motivated for admission in school so they can be empowered. Health education or mass education can be provided to make them aware about the hazards and future complications of substance abuse. There is a need for advocacy and protection of human rights, child abuse and child labor act is a neglected agenda which can contribute for protection of street children. Policy-makers must be sensitized and also focus to the issue regarding street children. Media should positively participated in awareness drives and publish the success stories of restoration of street children with their family members.^[20]

CONCLUSION

The above review has identified key issues regarding volatile solvent abuse which is on the rise and it becomes a major issue among street children and adolescents. Above reviews also revealed that they have very less knowledge of the prevalence, causes, and ill effects of it and through street play, media, newspaper, internet, counseling, and residential care in a substance free environment along with family support system may be useful.

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How to cite this article: Sevak S, Lal S. Volatile Solvent Abuse among Street Children and Adolescent in India: A Systematic Review. Innov J Nurs Healthc. 2020;6(4):34-36.