Original Article

Risk Factors of Substance Use Among Street Children from Delhi

Deepti Pagare, G.S. Meena, M.M. Singh and Renuka Saha

From Department of Community Medicine, Maulana Azad Medical College, New Delhi.

Correspondence to: Dr. Deepti Pagare, C-601, Kalka Apartments, Sector-6, Plot No. 31, Dwarka, New Delhi 110 045. E-mail: drdeeptipagare@rediffmail.com

Manuscript received: May 14, 2003, Initial review completed: July 8, 2003, Revision accepted: November 11, 2003.

Objective: *To estimate the magnitude of and socio-demographic factors related to substance use among street children in Delhi.* ***Design:*** *Observational study.* ***Methods:*** *115 male street children aged 6 to 16 years were interviewed at the time of their admission to an observation home.* ***Results:*** *More than half (57.4%) of the subjects had indulged in substance use before coming to the observation home. The agents consumed were nicotine (44.5%), inhalants (24.3%), alcohol (21.8%) and cannabis (26.4%). On application of multiple logistic regression, maltreatment of the child by family members was found significant predictor of substance use in the study group.* ***Conclusion:*** *Substance use in street children is associated with unstable homes and maltreatment.*

Key words: *Maltreatment, Risk factors, Street children, Substance use.*

THE non-medical use of chemical substances in order to achieve alterations in psychological functioning has been termed as substance use(1). WHO estimates that globally, 25% to 90% of street children indulge in substance use(2). According to UNICEF, there are more than 5,00,000 street children in India(3) who live and work in inhuman conditions(4) and are at high risk of substance use(4-6). Knowledge of extent of the problem and socio-demographic risk factors is essential to devise effective preventive strategies against substance use. The present study was designed to know the magnitude of substance use and its risk factors among a group of street children in Delhi.

Methods

The study was conducted in an observation home for boys in Delhi that provides temporary shelter to children in need of protection. These children are mainly homeless street children.

A pilot study was conducted on 30 inmates of the observation home in January 2002 in which the substance use rate was found to be 50%. At 10% allowable error, the sample size was calculated as 100. Based on the admission rate of 25 children per month, it was estimated that about 125 boys would be available for study in 5 months, allowing an attrition rate of 20%.

All the boys between 6-16 years who were brought to the observation home between February to June 2002 were included. At admission, the boys underwent psychological screening and IQ testing whenever required by trained psychologists. The criteria for exclusion were (*a*) mental retardation defined as IQ £70 (*b*) inability of the subject to understand either Hindi or English.

The age of the child was taken from the official records and was determined by the Juvenile Welfare Board at the time of admission. The study tools consisted of a self-developed, semi-structured questionnaire about child's social and demographic background. This questionnaire was pretested on 30 inmates of the observation home in January 2002 and suitably modified. The study subjects were interviewed regarding substance use anytime before coming to observation home and the knowledge of its harmful effects. The informed written consent of the observation home authorities was obtained.

Statistical Methods

For data entry, EPI-INFO version 2000 was used. Chi-square test and Fishers' exact test were applied to detect any significant association. Odds ratios were also calculated. Multivariate analysis was done using binomial logistic regression and adjusted odds ratios were calculated using SPSS 7.5 version. P value less than 0.05 was considered as statistically significant.

Results

Out of the 130 boys admitted to observation home during the study period, 10 (7.7%) were excluded due to mental retardation, (n = 4, 3.1%) and their inability to understand either Hindi or English (n = 6, 4.6%). Of the remaining 120, five (4.2%) refused to give consent. The final sample consisted of 115 boys aged between 6 to 16 years.

Table I shows the socio-demographic characteristics of study subjects. Majority had runaway from homes. The average age of leaving home was 9.1 years. A total of 68.7% subjects reported substance use in their family (*Fig. 1*) among whom 86% reported substance use by the father.

Substance use in children

Among the children interviewed, 57.4% (n = 66) had indulged in substance use any time in their life. The minimum age at starting substance use in our study was 5.5 years. The most common substance consumed was nicotine, as cigarettes or "bidis' and "gutkha" (*Fig. 1*). Inhalant / volatile substance use in the form of sniffing of adhesive glue, petrol, gasoline, thinner and spirit was reported by one fourth of children. Twenty per cent of children reported having sold cigarettes; "bidi" and "gutkha" while 2.5% had been anytime employed in preparation of "charas" cigarettes.

The harmful effects of substance use named by children were lung problems (28.2%) like "burning of lungs" and tuberculosis (6%), some stomach ailment like stones, rupture and bloody vomiting (12%), cancer (10.9%), death (10%), blackening of teeth and rupture of cheeks (7.3%), closing of heart or kidney stones (5%). Thirty per cent denied any knowledge about this issue.

Risk factors for substance use among study subjects

The results of univariate analysis are shown in *Table 1*. Substance use was significantly associated with domestic violence, maltreatment of the child, nuclear families, running away from home, and working status of the child. The rural or urban origin, native state, age of the child and his literacy level were not significantly associated with substance use.

Multiple logistic regression was applied taking Substance use as dependent variable and domestic violence, maltreatment, nuclear family, runaway status and working status as independent covariates. After regression analysis, maltreatment of the child was the

TABLE I– *Risk Factors for Substance Use*

Risk factor	Substance use (%) N = 155	Odds ratio (95% CI)	P value
Place of origin			0.56
Rural	25 (21.7)		
Urban	41 (35.7)		
Nuclear Family	49(42.6)	2.6(1.1,6.7)	0.03
Death of father	12(10.4)	–	0.59
Death of mother	14(12.2)		0.85
Presence of step parents	11(9.6)	–	0.10
Domestic violence	48 (41.7)	2.46 (1.04, 5.87)	0.04
Maltreatment at home	40 (34.8)	4.5 (1.9, 10.7)*	0.0002
Runaway from home	57 (49.6)	3.08 (1.04, 9.4)	0.04
Substance use in family	50 (43.5)		0.13
Working children	60 (52.2)	3.7 (0.8, 19.4)	0.04

*Adjusted odds ratio = 4.7 (95% CI: 2.1, 10.4)

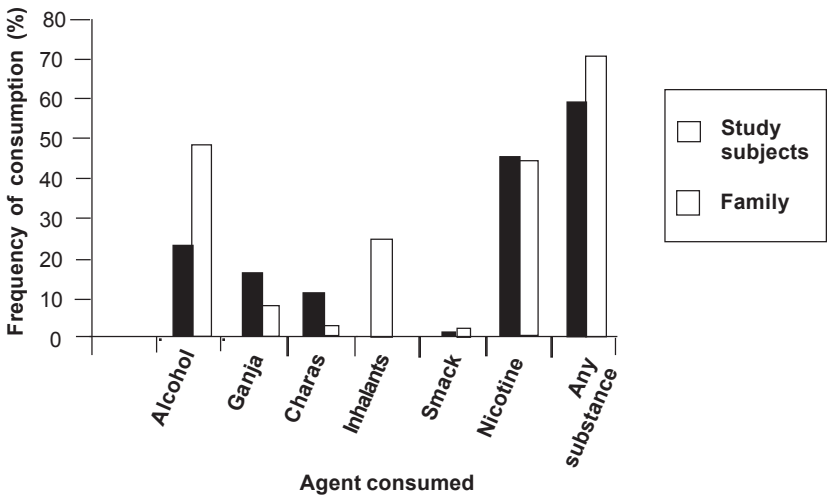

Fig. 1. Frequency of Consumption of Various Substances by study subjects and their family members.

only variable that reached significant value (*Table I*).

It was noted that the knowledge of harmful effects was more among children who had indulged in substance use but there was no statistically significant difference. The older

Key Messages

- Boys brought to observation homes report high rates of substance use, which requires early diagnosis, treatment and rehabilitation.
- Substance use in street children is related to their maltreatment by their family members.

children (11 to 16 years) had more knowledge than younger children ($p > 0.05$). Children revealed that this knowledge was based on their own experiences and the information provided by their parents, by peer group and during health education classes organized by some voluntary organizations.

Discussion

A sizable proportion (over 50%) of children coming to observation homes were found to indulge in substance use. The fact that children had access to a large variety of intoxicating substances, reflected ineffective implementation of the existing legislations, namely the Narcotics and Psychotropic Substances Act, 1985 and The Delhi Anti-Smoking and Non-Smoking Health Protection Act, 1996(7). A study on street children in Bombay, Calcutta, Delhi and Hyderabad also revealed high rates of substance use among runaway boys(4).

Running away exposes children to stressful life on streets, which accompanied by lack of parental care and supervision and easy access to intoxicating substances, creates an atmosphere conducive for indulging in substance use. Maltreatment of the child emerged as the only significant predictor (adjusted OR = 4.7) of substance use in the present study. The results are similar to other studies(8-10).

The knowledge of harmful effects did not deter children from indulging in substance use. This factor needs consideration while devising preventive interventions against substance use.

It was found that substance use in the family did not increase the risk of substance use in children. This finding is different from other studies(1,11). The most common agents consumed were nicotine and alcohol. Other workers have also reported similar findings(9, 12).

The present study has some limitations. The results are based on the information given by children, who may have underreported because of social stigma attached to consumption of intoxicating substances. Also, information about the frequency, regularity and duration of consumption was not available to allow identification of physical or psychological drug dependence. The results at best give an estimate of substance use patterns.

The observation home authorities should use the period of detention of children to implement focused preventive interventions against substance use. This may involve early diagnosis, treatment and rehabilitation of substance dependants, and counseling of parents at the time of family restoration of child regarding long term effects of maltreatment of children.

Acknowledgements

The authors gratefully acknowledge Dr. Pranay Bhanu, Medical officer and staff of "Prayas" observation home for boys, New Delhi, Ms Nirmata Kureel, Mrs Govil and the interns from the batch of 2002, Maulana Azad

Medical College, for their active support and co-operation for this research.

Contributors: DP developed the concept and design of the study, collected the data, analyzed, interpreted the data and wrote the draft and final paper. GSM revised the draft and gave approval of the version to be published. MMS helped in conceptualizing and designing the study, analysis and interpretation of the data, drafting and revising the article. RS helped in statistical analysis and interpretation of data.

Conflict of interest: None stated.

Funding: None.

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