SUBSTANCE ABUSE IN CHILDREN- A REVIEW

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ABSTRACT

Substance use among children and adolescents is a public health concern in several parts of the world. India has one of the largest proportions of children and adolescents in the world. The demographic base of our communities is rapidly evolving and has intensified the need for an awareness regarding substance abuse by teenagers. This subject in the past remained beyond the traditional concerns of a pediatric dentist. Therefore, this review has been carried out regarding the evolving demographics, the proportion of teenagers involved with substance abuse, the rationale for the use of varying elicit substances and the associated symptoms. The series of options for action that can be considered by a pediatric dentist in the care of teenagers using elicit substances and modifications during dental treatment are also included. The population-level interventions to prevent this reckless havoc are also included. The pharmacological and non-pharmacological management of drug dependence are also touched upon.

KEYWORDS: Substance abuse, Teenagers, Pediatric Dentist, Adolescents, Stress

INTRODUCTION

"Children are our greatest treasure. They are our future."- Nelson Mandela

Children are a precious asset and pride, not only to their family but to the nation. Today's children are tomorrow's adults and builders of the nation. India is home to the greatest child population in the world with over forty-four crores children, according to the census of 2011.[1] Children between 10 and 19 years of age constitute 22.8% of the population that accounts to 243 million and those aged between 5 and 9 years constitute 12.5% of the population.[2] They constitute a vulnerable age group for social, educational, moral and physical development.

A myriad of physical, social, and behavioural changes occur during the adolescent years. Late childhood and adolescence are periods of experimentation, exploration, identity formation, risk taking, and assertion for independence in every person's life Adolescents as they may develop encounter difficulties and pressures without effective coping skills or maturity. Some teenagers are unfortunate to not have familial, peer, or other support systems to help and guide in adjusting to changes or with decision-making. Owing to this, they may turn to alcohol or drugs to seek comfort and reduce the stresses associated with this erratic time in their lives.[3] They fall prey to "Substance Abuse." It is astonishing to know that one in five of India's drug addicts is a child.[4]

American Academy of Pediatric Dentistry has defined Substance abuse as a maladaptive pattern of

substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances; individual use of illicit (illegal) drugs or use of legal drugs inappropriately; repeated use of alcohol or drugs to produce pleasure, reduce stress, or alter or avoid reality.[3]

Protecting children from substance abuse is one of the biggest challenges facing India.

PREVALENCE OF SUBSTANCE USE AMONG INDIAN CHILDREN

Until recently, substance use was considered as a problem associated mainly with street children, but is now increasingly being seen across children from all socioeconomic groups, from cities to small towns and rural areas, with multiple substance use also being documented. Several cultural and regional factors play a part, e.g., tobacco is used as a dentrifice in many parts of India.[5]

NATIONWIDE STUDIES

A national household survey on the prevalence and pattern of substance use in males (12–60 years) was done in 2001. It reported prevalence among males in the 12–18 years age group (n=8587; current use: 3% of cannabis and 0.1% for opioid use). The pattern was surprisingly similar to that of the 19–30 years age group. As part of this, a rapid assessment survey was also done at 14 sites, which found that nearly three-fourths of substance users had initiated their first substance use before completing 20 years of age.[6]

The National Family Health Survey 2005–06 (NFHS-3) showed that of the boys aged 15–19 years (n=13 009), 28.6% reported tobacco use and 11% reported alcohol use. Countrywide findings are not yet available for the adolescent subgroup from the more recent NFHS-4 (2015–16) survey.[7]

A nationwide study by the National Commission for Prevention of Child Rights (NCPCR, Ministry for Women and Child, Government of India, in collaboration and with technical support from the National Drug Dependence and Treatment Centre, Department of Psychiatry, All India Institute of Medical Sciences, New Delhi) observed that the commonest drugs of abuse were (in decreasing order of frequency): tobacco, alcohol, cannabis and inhalants, followed by pharmaceutical opioids, heroin/smack and sedatives. Drug use showed a progression from licit to illicit substances. The average age at the initiation of tobacco use was low (12.3 years) followed by inhalants (12.4 years), cannabis (13.4 years) and alcohol use (13.6 years). Opioids and pharmaceutical drugs were initiated in 14–15 years of age, followed by injectable use (15.1 years). This is typically indicative of the gateway theory of progression of substance use. On an average, street children initiated substances 1–1.5 years earlier compared to those living at home. Another important finding was that for tobacco and inhalants, the use was near daily (25.8/30 days and 23.2/30 days). For all other substances, the use was intermittent but varied between 13 and 19 days per month. Nearly half the children using substances were working, part- or full-time, in unskilled jobs. A large proportion of out-of-school children spent 8 or more hours in a day working away from home, possibly unsupervised by parents. The survey reported substance use among girl children too, which has remained a hidden population.[8]

SCHOOL SURVEYS

A systematic review of 15 epidemiological studies published between 1991 and 2007 on Indian high school students (classes VI to XII) found the median prevalence of ‘ever tobacco use’ was 18% (interquartile range [IQR]: 9.4%–53.9%).[9]

STUDIES ON STREET CHILDREN

An estimated 18 million children live and work on the streets in India. Use of substances appears to be particularly high in this vulnerable population, with Indian studies reporting that 40%–70% of street

children use substances.[10] Inhalant use has been found to be especially common among street children, in addition to tobacco, alcohol and cannabis.[11] Poverty, urbanization, breakdown of families and domestic violence are the most immediate causes of this growing phenomenon. There is a close relationship between child labour and substance use disorders. Substance use may be even more common in the marginalized populations such as trafficked or abused children.[5]

Reddy AP et al in 2014 found that among 187 sample size having inhalants, 132 (70.6%) sample had correction fluid, 20 (10.7%) sample had glue and 35 (18.7%) sample had both. The reasons for their high popularity were due to their easy availability and economic pricing. The above results indicate an urgent need to find alternatives for correctional fluid and promote usage of non-inhalant glues. [12]

Why do adolescents use drugs?

Substance abuse by children is mostly associated with rebellion against parents and society, especially due to neglect and child abuse. With this substance abuse they get a momentary feeling of independence and power because they have disobeyed the rules of their parents and society as a revenge for their neglect. This satisfaction obtained through rebelling against parents can give the children and adolescents a reinforcing motive for persisting in substance abuse and ending up in addiction.[13]

Childhood sexual trauma and age can be correlated with severity of adult drug use. Women with a history of physical or sexual abuse are more likely to report symptoms of psychological distress than women with no childhood experiences of abuse.[14] Therefore, child abuse increases risk for substance use in women.[15]

Top 5 reasons for use of drugs by adolescents
1.*Stress:* Adolescents may use drugs to deal with the pressures and stress of school.

2. *Social Acceptance and/or Low Self-Esteem:* Adolescents may use drugs to "feel cool." The self-worth of adolescents depends on the approval of others, and their desperation for social acceptance can urge them to engage in destructive behaviors, even if they know it could harm them

3. *Self-Medication:* The adolescent years are rough and it is difficult for them to find a healthy outlet for their frustration. These repressed emotions can take an emotional toll and can even lead to depression or anxiety.

4. *Misinformation:* Adolescents are widely misinformed about the dangers of drugs. While abuse of serious drugs is steadily dwindling among adolescents, their deliberate abuse of prescription and over-the-counter medications remains a serious concern.

5. *Easy Access* [16]

Some symptoms of drug use

• *Narcotics*: People on narcotics are usually lethargic and drowsy. They have constricted pupils that fail to respond to light, red and raw nostrils because of inhalation heroin of drugs. Scars or tracks may be found on inner arms or other parts of the body. They usually tend to wear full sleeved clothing to hide these repeated injection marks on their arms.

• *Stimulants:* In contrary to people on narcotics, the ones having stimulants will have dilated pupils when taken in large amount. They would have xerostomia, halitosis and frequent licking of lips. They also exhibit excessive activity, fidgety, difficulty in sitting still and lack of interest in food and sleep.

• *Marijuana:* Marijuana addicts talk loudly with frequent bursts of laughter in early stage of intoxication. Their conversation is discontinuous as they tend to forget easily. The sclera of the eye is inflamed. There is an odor similar to burnt rope on their clothing and breath.

• *Hallucinogens–LSD, mescaline:* They present with extreme dilatation of pupils, warm skin, excessive perspiration and body odor. There is a distorted sense of sight, hearing, touch and time perception.

• *Inhalants*– Glue, vapour producing solvents, propellants (spray paint cans, household cleaners): They display persistent substance odor on breath and clothes, runny nose, watery eyes and poor muscle control. [16]

THE ROLE OF A PEDIATRIC DENTIST

The increasing prevalence of substance abuse among adolescents obligates dental professionals to identify behaviours characteristic of active use, recognize clinical signs and symptoms of active use or withdrawal, modify dental treatment accordingly, and refer to medical providers or behavioural addiction specialists.

There is a tremendous probability that dental personnel can detect signs of possible substance abuse in their adolescent patient population. Attention should be paid to similar signs displayed by the parent. Clinical manifestations of substance use may include odor of alcohol on breath, odor of marijuana on clothing, impaired behavior, slurred speech, staggering gait, visual hallucinations, disorientation, rhinitis, scratching, physical injuries including lacerations, needle marks, cellulitis, diaphoresis, tachycardia, sensory impairment, and papillary dilation or constriction.[3]

Cognitive and behavioural features may present as mood changes or emotional instability, loud obnoxious behavior, laughing at nothing, withdrawn/ depressed affect, lack of communication/ silence, hostility/ anger/ uncooperative behavior, inability to speak intelligibly or to focus, rapid-fire speech, hyperactivity, and unusually elated mood.[17]

There are certain signs present in and around oral structures that include sores around the mouth, continual wetting or licking of lips, clenched teeth, bruxism, trismus, enamel chips or coronal fractures, neglected/ poor oral hygiene, multiple cervical carious lesions, gingivitis, gingival ulceration, periodontitis, pale mucosa, leukoplakia, and intraoral burns.[18]

Adolescents experiencing withdrawal syndrome may demonstrate behaviors such as altered mental status, agitation, irritability, restlessness, increased anxiety or panic, and inattentiveness. Clinical signs and reported symptoms of substance withdrawal include rhinorrhea, tachycardia, elevated temperature, yawning, tremors, hallucinations, and seizures.[3]

Pediatric dentists can assist the patient and family in finding treatment facilities, educating the patient and/or family on health risks of use or abuse of alcohol or other drugs, strong encouragement for avoiding drugs and alcohol, motivational interviewing, and initiating referrals for assessment and treatment by other health care providers. When substance abuse is suspected or confirmed, an empathetic, non-judgmental style of discussion facilitates a trusting patient-doctor relationship. Asking open ended questions may garner more information as they tend to be less threatening to the patient. The dental practitioner should ensure confidentiality of such cases.[3]

MODIFICATION OF DENTAL TREATMENT

When treating a patient suspected of substance use, the dentist may need to modify sedation procedures, administration of local anesthetics, and prescribing practices. Administration of nitrous oxide or anxiolytic or sedative medications to an adolescent who is actively using or has a current history of substance abuse can lead to unfavourable drug interactions, over-sedation, or respiratory depression.[17] The use of these agents for treatment during remission/recovery from substance abuse can predispose a patient to relapse.[3] There should be a judicial use of local anaesthetics containing vasoconstrictors in adolescent patients

who abuse stimulant medications such as methylphenidate, amphetamine and dextroamphetamine, methamphetamine, and cocaine. Drug interactions between vasoconstrictors and stimulants can lead to tachycardia, hypertension or hypotension, palpitations, hyperthermia, cardiac dysrhythmias, myocardial infarction, and cerebrovascular accidents.[20-22]

Pediatric dentists should have the basic knowledge of various substance use disorders (e.g., alcohol, opiate, benzodiazepine) when recommending or prescribing medications. When pain management is necessary, an adolescent with an opioid use disorder should receive non-opioid analgesics [e.g., acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDS)]. Prior to prescribing medications that have the potential to be abused, the practitioner should assess adolescent patients with risk factors such as active substance use, past substance abuse, current medications, and a family history of substance abuse. For patients at high risk, the dentist should consider prescribing alternative medications with less abuse potential, closely monitoring the patient, reducing length of time between visits for refills, prescribing smaller amounts of liquid medications or fewer pills, and educating both patients and parents about proper use and potential risks of prescription medications, including the risk of sharing them with others.[3]

The substance abuse menace requires comprehensive prevention and control programs in schools and the community. Effective measures are required to encourage shaping the attitude of school children toward self-confidence and adequacy, as also to prevent risk behavior among adolescents and develop effective and healthy coping mechanisms in times of needs.

POPULATION- LEVEL INTERVENTIONS

1. Prohibition of use of controlled substances

The NDPS Act, 1985 was framed taking into account India's obligations under the UN Drug Conventions as well as Article 47 of the Constitution. This Act prohibits the manufacture, production, trade and use of drugs except for medical or scientific purposes.

2. Availability and sale restrictions

In India, some states such as Gujarat, Bihar, Manipur, Mizoram, and Nagaland and the Union Territory of Lakshadweep prohibit the sale, purchase, and consumption of alcohol.

3. Minimum legal age for consumption of alcohol and tobacco

The legal age limits imposed by countries vary from 18 to 25 years with most requiring people to be at least 18 years or older to obtain these substances.

4. Taxation and maximum pricing

There is strong evidence in favour of increased alcohol taxation or price and reduction in overall alcohol consumption. Evidence states that raised alcohol prices produce moderate-to-large reductions in alcohol-related morbidity and mortality, crime, violence, and sexually transmitted diseases.

5. Restricting or banning of advertising substances

Advertising makes smoking and drinking seem like normative activities and may function as a "SUPERPEER" in subtly pressuring teenagers to experiment. Adolescents exposed to tobacco advertisement are more likely to smoke than those who are not exposed. Studies show that advertising may be responsible for up to 30% of adolescent tobacco and alcohol use. Therefore, such advertisements should be banned.

6. Mass media or public awareness campaigns

Mass media approaches aim to present positive role models who reject substance abuse and whose behavior the target audience may model.

7. Prevention interventions delivered in educational settings

Educational institutions provide an opportune platform for prevention because of the ease of

delivery of such powerful messages and access to young people in an ideal setting.[23]

PHARMACOTHERAPY FOR SUBSTANCE DEPENDENCE

Pharmacotherapies for alcohol dependence in adults – including naltrexone and acamprosate – are effective in preventing relapse to heavy drinking. In adolescents, most of the studies target substance abuse disorder secondary to psychiatric disorders. Lithium is found to be effective in reducing alcohol use in young people with bipolar disorder. Acamprosate was found effective in increasing abstinence rates in adolescent alcoholics. Naltrexone effectively reduces alcohol craving in young people with alcohol dependence.[23]

In tobacco users, nicotine replacement therapy, bupropion, nortriptyline, and varenicline are used for smoking cessation. Bupropion may increase suicidal ideation, particularly so in adolescents with depression. Therefore, mental health should be closely monitored in adolescents who are being given these medications.[24]

Clonidine, Buprenorphine, methadone and benzodiazepines have been used in cases of opioid dependence. Opioid antagonist, naltrexone, can precipitate sudden withdrawal symptoms in a patient who recently used opioids.[24]

NON-PHARMACOLOGICAL MEASURES

1. Psychoeducation of patient and family with special emphasis on harm minimization.

2. Brief interventions (BI): A common approach to the delivery of BIs is the FRAMES model developed by Miller and Sanchez based on the motivational interviewing style. FRAMES is an acronym for the elements of behavioral intervention, and includes providing feedback, encouraging the patient to take responsibility, advising to make changes in behavior, discussing a menu of options for change, providing empathy for the condition of the patient, and supporting self efficacy for effecting the change.

3. Cognitive based therapy

4. Supportive psychotherapy: May be considered for patients for whom CBT is not feasible.

5. Contingency management (CM) interventions/ motivational incentives: It includes voucher-based reinforcement and prize incentives approaches.[24]

CONCLUSION

June 26 is celebrated as The International Day against Drug Abuse and Illicit Trafficking. It was established in 1987 by the United Nations. It was marked as the International Day against Drug, Substance Abuse and Illicit Trafficking every year. It is an exercise undertaken by the world community to sensitize the people in general and the youth, but it spreads awareness among children in particular, towards the menace of substance abuse at an early age. Under this campaign, the theme of 2017 was "Listen First." We need to listen to our pediatric patients, what they want to tell us and also what they do not want to tell us. We need to listen to the unsaid state of affairs also. There is a prompt action required to study, understand, explore, take actions and prevention, and make strategies which help children as well as our society to fight against the addictive trap of substance abuse among children. After all it is rightly quoted by Frederick Douglass, "It is easier to build strong children than to repair broken men."

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