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Theme: Early Intervention, Lasting Prevention: Understanding Adolescent Substance Use

SCAN ME

THEMATIC ARTICLES

- EPIDEMIOLOGY OF ADOLESCENT SUBSTANCE USE
- UNDERSTANDING VULNERABILITY TO SUBSTANCE USE
- SCHOOL-BASED SUBSTANCE USE PREVENTION
- INTERVENTION BEYOND SCHOOL SETTINGS
- LESSONS FROM THE FIELD

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The erstwhile President of APSI, Prof. Rajat Ray has stepped down from his position due to health issues. Prof. Rakesh Chadda is currently leading the EC of APSI as the Interim President. We gratefully acknowledge the leadership provided by Prof. Ray and express our best wishes for his good health. We hope that he continues to guide APSI as Past-President.

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Editorial

Adolescent Substance Use: Early Risk to Early Rescue

Vinit Patel, Ravindra Rao

While it is well recognised that the majority of substance use disorders (SUD) are diagnosed in adulthood, the onset of substance use typically occurs during the critical adolescent phase (1). Substances such as tobacco and alcohol often serve as "gateway drugs," with nicotine and alcohol being the most common initial exposures among adolescents (2). Early initiation is a key determinant of long-term risk, as neurobiological changes during this sensitive developmental period further increase vulnerability to dependence (1).

Adolescents, however, are far from a homogeneous group. While some grow up in stable and protective environments, others navigate high-risk contexts marked by broken families, absence of caregivers, homelessness, or engagement in unorganised sectors such as child labour. These vulnerable youth are at a significantly higher risk for negative outcomes, including substance use, as early life stress and reduced parental support are associated with altered neurodevelopment and heightened reward sensitivity to substances (3).

Globally, surveillance systems have enabled continuous monitoring of adolescent substance use trends. In countries like the United States, the Monitoring the Future (MTF) survey has provided critical insights into evolving patterns of use and emerging risks, for over five decades. As highlighted in our previous issue marking 50 years of MTF, such longitudinal surveillance offers a powerful window into, otherwise hidden, behavioural trends (4). In contrast, India lacks a comparable continuous monitoring system. While recent nationwide surveys across multiple cities provide valuable snapshots, they fall short of capturing the dynamic nature of adolescent substance use. In our first thematic article, we hear insights from Prof. Dhawan, the expert who led this nationwide study, about the current patterns of use among Indian school children, including the alarming finding that a substantial proportion already report using psychoactive substances (5). These findings underscore the urgent need to establish a sustained national surveillance framework.

Adolescent substance use is fundamentally an outcome of layered vulnerabilities. Biologically, the adolescent brain is still maturing, with the prefrontal cortex—responsible for judgment and impulse control—developing later than subcortical reward systems (6). This imbalance, often compounded by conditions such as ADHD, creates a critical window of susceptibility. Psychologically, traits such as impulsivity, emotional dysregulation, and identity exploration further drive risk-taking behaviours. Social transitions—leaving home, peer influence, poverty, and educational disruption—add another layer of risk. Increasingly, the rapid penetration of social media has amplified these influences, with adolescents quickly adopting global trends such as vaping and cannabis use. Our second thematic article by Dr Eesha Sharma and colleagues, leading work on childhood vulnerabilities, highlights ground-breaking Indian work

in this area, specifically the cVEDA (Consortium on Vulnerabilities to Externalizing Disorders and Addictions) and PARAM (PAthways to Resilience And Mental health) projects.

Although only a minority of adolescents who use substances go on to develop SUD, a much larger proportion remains at risk, making prevention a central priority. Schools are often considered the most accessible platform for preventive interventions. However, traditional approaches—such as didactic lectures or pledge-based campaigns—have shown limited effectiveness. The experience of Project DARE in the United States is instructive: despite substantial investment, long-term evaluations demonstrated minimal impact on preventing substance use. This era, closely associated with Nancy Reagan's "Just Say No" campaign, reinforced an important lesson—information alone does not change behaviour (7,8). Instead, evidence supports participatory, skill-based, approaches such as life-skills training and normative education (9). School based interventions are explored in detail in our third thematic article by Prof. Kattimani, which also highlights the need to build such structured prevention infrastructure in India. The Government of India has also released a training module "Navchetna" that provides background material for teachers to develop the knowledge and skills needed to impart life skills and drug education to school children (10). This module is being increasingly used to impart drug prevention training at school level.

At the same time, a significant proportion of adolescents in India remain outside the school system. As per the 2025 report of the Unified District Information System for Education-Plus (UDISE+), school enrolment remains high at the primary level (10.4 crore), but declines progressively across subsequent stages, reaching 2.8 crore at the higher secondary level, indicating that transitions across schooling stages—particularly from primary onwards—represent critical points of attrition in India. This decline in enrolment is driven by economic constraints, the need for child labour, and broader structural inequities—all of which are, themselves, risk factors for substance use. This out-of-school population represents a particularly vulnerable group requiring tailored, community-based interventions. Our fourth thematic article by Prof Kattula addresses these approaches. Some of these approaches have evolved into national programmes. Dr Kumar in the fifth thematic article provides an experiential account of his organisation's involvement in various ground-level youth-based initiatives for prevention and early intervention for SUD in India.

Beyond the thematic articles, this issue also brings updates on emerging areas, including emerging work on digital biomarkers for SUD, rising vaping trends among Indian youth, implications of cannabis-related policy changes on pregnancy, and digital harm reduction strategies for cannabis use in first-episode psychosis. Finally, our Creative Section offers a different lens of engagement, featuring a crossword, an artwork, and a review of Beautiful Boy, a film that poignantly captures the lived experience of adolescent substance use and its impact on families.

Adolescent substance use is not merely a behavioural concern—it is a developmental and public health priority. If the burden of SUD in adulthood is to be reduced, interventions must begin early, be sustained, and be embedded within systems that adolescents actively engage with. Early intervention is not simply timely—it is foundational to lasting prevention.

We look forward to your feedback to this issue of the newsletter and contributions in the creative section of future issues.

Happy reading!

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THEMATIC ARTICLES

Mapping The Landscape: Epidemiology of Substance Use in Adolescents

Gayatri Bhatia, Anju Dhawan

Adolescence is a developmental stage characterized by a heightened neurobiological sensitivity to reward, novelty, and peer influence, while cognitive control systems are still maturing. This makes early adolescence, a key "entry point" for experimentation with psychoactive substances, and late adolescence, a high-risk period for escalation and harms. As per Census, 2011, India is home to more than 253 million adolescents, constituting around 21% of the population. Thus, even a modest prevalence of substance use translates into large absolute numbers of adolescents exposed to psychoactive substances, making it a major public health concern.

Epidemiology of Adolescent Substance Use in India

Substance use, viewed earlier as a problem associated mainly with street children, is now increasingly being seen across various subpopulations of children- school students, out-of-school children, as well as those living in homes with their families (1). The national survey, Magnitude of Substance Use in India, 2019, estimated the prevalence of current use among adolescents (10-18 years of age) as 1.8% for opioids, 1.3% for alcohol, 1.17% for volatile solvents, and 0.9% for cannabis (2). The fourth round of the Global Youth Tobacco Survey (GYTS-4), 2019, reported that 8.5% of Indian youth (9.6% males and 7.4% females) used some form of tobacco; 7.3% smoked and 4.1% used smokeless tobacco (3).

A. School students

A recent 10-city survey (2019-20) undertook a focused thematic survey on 5920 school students (4). The survey included government and private schools from urban as well as rural areas. Students studying in grades VIII, IX, XI/XII were selected. The mean age of the respondents was 14.7 (± 1.64) years. The prevalence of "ever use" of any substance was 15.1%, while the past-year use was 10.3% and past month use was 7.2%. Prevalence of use in the past year was 4% for tobacco, 3.8% for alcohol, 2.8% for opioids, 2% for cannabis, 1.9% for inhalants and 0.6% for sedatives. Notably, the prevalence of substance use in the school survey was higher than that reported among adolescents in the national survey for most substances. The prevalence of opioid use in school students was even higher than that reported among adults in the national survey. The opioid used among school students was largely pharmaceutical opioids (in contrast to heroin, which was seen more commonly among adults). The same data highlighted under-reporting as an important issue in adolescents who use substance as 53.1% students preferred not to disclose cannabis use if they were using, and 47.8% chose not to reveal heroin use.

A striking aspect of these findings was continuity of substance use – 2 out of 3 ever-users had used in the last year, and 1 out of 2 ever-users had used in the last month. This suggests that "experimentation" frequently does not remain experimental and may pave the way for harmful

use and dependence at an early age.

B. Children on streets

A 2019 study was conducted to estimate the burden of substance use among street children of Delhi (n=766) by implementing respondent driven sampling method. Data was collected from street children (i.e. either living on or spending most of their time on streets with or without family) between the ages of 7-18 from all nine districts of Delhi. The weighted prevalence of various substance use were: 31.1% for tobacco, 13.5% for alcohol, 11.3% for inhalants, 8% for cannabis, and 1.2% for opioids. Less than one percent of street children reported using drugs through injecting route (5).

An earlier study conducted in 2015 by the National Commission for Protection of Child Rights (NCPCR) reported that the average age at initiation of substance use among adolescents was the lowest for tobacco (12.3 years) followed by inhalants (12.4 years), cannabis (13.4 years), and alcohol use (13.6 years). Use of opioids and pharmaceutical drugs was initiated at 14–15 years of age, followed by use through injecting route (15.1 years). Street children were reported to initiate substance use approximately 1–1.5 years earlier as compared to those living at home (6).

Global Context: How India Compares

A recent study estimating the global burden of substance use disorders in children and youth (aged 10-24 years) from 1990 to 2021, reported the global incidence and prevalence of SUDs as 614 (95% CI 467.6-805.0) and 1557 (1234.1-1944.6) per 100,000 population between 10-24 years. The study noted a declining trend in prevalence, incidence, and substance use related disability rates, while reporting an increasing trend in substance use-related mortality rates from 1990 to 2021. Populations belonging to higher socio-demographic index (SDI) regions, males, and those older in age, exhibited disproportionately higher substance use (7). This study observed decreasing trends of age-standardized DALYs, incidence and prevalence rates in India since 2014 onward (8).

According to 2023 report of USA's Monitoring the future survey, an ongoing longitudinal survey estimating substance use among 8^{th}, 10^{th} and 12^{th} grade students, approximately 31% of 12th graders reported using any illicit drug in the past 12 months, compared to 20% of 10th graders and 11% of 8th graders. Based on 2023–2024 data, the key findings highlight a continued, significant decline in substance use among adolescents following the initial COVID-19 pandemic drop. Data from 2024–2025 survey indicates a continued decline in cannabis use across all three surveyed grades. However, daily vaping (nicotine) increased from 15% (2020) to 29% (2024). Among students who use marijuana, the percentage of students who consume by vaping increased from 2021 to 2024 (from 58% to 67% in 12th grade). Additionally, around 11% of 12th graders reported past-year use of Delta-8 THC products and nearly 91% of Delta-8

users also reported traditional marijuana use.

The Health Behaviour in School-aged Children (HBSC) study is a WHO collaborative school-based survey, collecting data from 11-, 13-, and 15-year-olds from 51 regions across Europe, Central Asia and North America every 4 years. Its latest report (2021-22) indicated that alcohol is the most frequently consumed substance among adolescents with prevalence of "ever use" as 57% and "past month use" as 37% in 15-year-olds. The percentage of 15-year-olds who ever used cannabis reduced from 14% (2018) to 12% (2022), indicating a declining trend. Also, 32% of 15-year-olds reported ever use of e-cigarette and 20% in the past 30 days, surpassing cannabis in popularity (9).

Vaping related epidemiological data in India is limited, and till recently, was not included in national surveys and reports. The GYTS-4 (2019) reported 'ever use' of e-cigarettes among 13-15 year olds to be 2.8%, while the GATS-2 (2016-17) reported about 4% of Indian youth aged 15-24 years expressing awareness about e-cigarettes (10).

Thus, for India, a relevant "global lesson" is that product landscapes and youth behaviour can shift rapidly—especially for nicotine delivery systems (vaping) and "new" drug forms—requiring agile surveillance and prevention messaging.

Sociodemographic Variations

A. Age

In the ten-city student survey, the average age of starting any substance use was 12.9 ± 2.8 years, and inhalants had the lowest age of initiation (11.3 ± 2.8 years). The study also reported that the likelihood of having ever used any substance in students of grade-11 and -12 was twice that of grade-8 students (4). As per data from the NCPCR study, the average age at initiation of substance use among adolescents was the lowest for tobacco (12.3 years) followed by inhalants (12.4 years), cannabis (13.4 years), and alcohol use (13.6 years). The age of initiation of opioids and pharmaceutical drugs was 14–15 years, followed by use via injection route (15.1 years) (6). Street children were reported to initiate substance use approximately 1–1.5 years earlier as compared to those living at home (6). These studies suggest a steep "risk slope" across mid-adolescence, where timely, repeated, interventions may be more effective than one-off awareness activities among adolescents and may begin ideally in upper-primary/early secondary years.

B. Gender

Over the last decade, both international and national data indicates a narrowing gender gap among adolescents in the context of substance use. The 10-city survey noted "less than expected" gender differences in different age groups. While boys had higher prevalence of substance use as compared to girls for alcohol, cannabis, opioids and tobacco, the difference

was not statistically significant for alcohol, bhang, opium and sedatives. On the contrary, girls had significantly higher prevalence of use for inhalants as compared to boys (12.5% vs 26.8%, p=0.01) (4). Other studies on adolescents also highlight substance use among girls as a largely understudied area, characterised by quicker progression in severity, higher rates of physical and psychological comorbidities and lower treatment seeking (11). This pattern indicates that "boys-only" framing of research studies misses a substantial portion of adolescent substance use burden. The risk of substance use in girls may concentrate in specific substances and contexts (e.g., pharmaceutical opioids, inhalants), requiring gender-sensitive screening and prevention.

C. Socio-economic gradient

Recent national data from Nasha Mukt Bharat Abhiyaan Portal reports higher prevalence of substance use (any) in adolescents of rural communities (37.7%) as compared to urban (22.7%). While rural areas show slightly higher rates for some traditional substances like opium, urban areas report higher clinical presentations for heroin and prescription opioids. Cannabis use is also significantly associated more with urban backgrounds. Studies highlight socio-economic disparity as one of the determinants of choice of substance among adolescents. The 10-city school student survey reported higher substance use among students of government schools as compared to private schools, also indicating the role of a socioeconomic gradient (4). NCPCR data (2015) also reported differences in the prevalence rates among rural and urban students as 6.1% and 0.6% for illicit substance use, 8.6% and 11.0% for tobacco, 7.4% and 5.2% for alcohol, and 4.9% compared to 0.6% for cannabis (6). This emphasises prioritizing government schools, low-resource settings, and areas with higher social adversity for intensive prevention.

D. Burden of harm: consequences

The onset of substance abuse during the formative years of life interferes with academic, social and life skills development. Substance use among youth has a unique bi-directional association with psychiatric disorders, such as depressive disorders, anxiety disorders, attention deficit hyperactivity disorder and conduct disorders, one increasing the risk and worsening the prognosis of the other (12). Substance use in adolescents is associated with other risky behaviours like unsafe sexual practices that may lead to sexually transmitted infections and teenage pregnancies, warranting a need for special attention in terms of prevention, recognition, and management (12,13).

The ten-city survey employed the Strengths and Difficulties Questionnaire (SDQ) to assess perceived problems among adolescents who used substances and reported high/very high scores in 26% adolescents surveyed. The most commonly reported problems were hyperactivity and emotional problems. Relationship, financial, and legal harms such as peer/parent conflict, money loss, illegal activities/apprehension by police were also reported (4). Also, a higher proportion of past-year users had high/very-high SDQ scores (30.8% vs

25.3% non-users, p<0.001), and the mean difficulty score was higher among past-year users (15.0 ± 5.1) than those who did not report drug use in the past year (13.4 ± 5.7, p<0.001). The immediate implication of these findings is the need for integrated screening—substance use plus mental health status—rather than treating these as separate domains. Early identification and holistic management of such difficulties may prevent long term harms, such as early discontinuation of education, engagement with illegal activities, conflict with law, irreversible social and familial relationship problems such as estrangement and ostracization, chronic health conditions such as HIV, viral hepatitis, and COPD, and adverse life events such as sexual coercion and physical or sexual violence.

Low Help-Seeking: A Critical Treatment Gap

Treatment seeking for substance use in India is low across most populations, especially so in adolescents and youth. As per the recent survey, among past-year users, help-seeking for substance use was abysmally low (around one per cent) and formal treatment seeking was even lower. Plausible reasons for low treatment seeking could be not perceiving substance use as a major problem, unawareness in the family, lack of adolescent-specific services, low knowledge of service availability, and privacy/confidentiality concerns.

For mental healthcare providers and substance-related policy makers, this is a call to action: adolescent-friendly access points (schools, community clinics, helplines, outreach) may reduce untreated morbidity more effectively than relying on tertiary services alone.

Key Gaps in Surveillance for India

1. **Over-reliance on school surveys:** adolescents who use substances are a hard-to-reach population. School-based surveys miss out-of-school adolescents, children in care homes, shelters and those living on streets, which are the populations with often the highest burden and need of services. Surveillance and services must include child care institutions, street settings, and community outreach components so as to cover these epidemiological blind spots.

2. **Under-reporting and stigma:** The survey indicated that there is a significant number of participants who preferred to keep their substance use hidden. This self-reported reluctance was high for cannabis as well as heroin. Confidentiality protection may encourage adolescents who wish to seek help to talk about substance use more openly and honestly. Sometimes indirect questioning methods may prove essential to elicit details prior to intervention.

3. **Insufficient product granularity:** Substance use landscape evolves constantly. New products and delivery systems are being introduced faster than authorities can catch up. This warrants active surveillance and inclusion in management and research focus. Nicotine surveillance must include smokeless tobacco and emerging nicotine delivery

systems; opioid surveillance must differentiate pharmaceutical opioids vs heroin.

4. **Weak linkage between surveillance and services:** Data are often collected without a clear pathway to early intervention, counselling, or referral. Referral to treatment or brief intervention to engage with specialized services may be strengthened for an effective pathway development.

Conclusion

Adolescent substance use in India is substantial and stratified: measurable prevalence in schools is meaningful, but burden is far higher in vulnerable out-of-school and street-connected youth. Initiation begins early—often in early adolescence—and continuity of use is common. Harms extend across mental health, education, relationships, and legal outcomes, while help-seeking remains very low. For India, the central epidemiological mandate is clear: build surveillance that captures hidden populations and emerging products, and translate data into early, accessible, adolescent-friendly prevention and intervention—especially through schools and community outreach.

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Vulnerable Beginnings: Patterns and Predictors of Adolescent Substance Use

Insights from the cVEDA-PARAM cohorts

Eesha Sharma, Bharath Holla, Vivek Benegal, cVEDA Consortium, PARAM Collaborators

Adolescence represents a critical developmental window characterised by rapid neurobiological, psychological, and social transitions. It is also a period marked by experimentation, risk-taking, and novelty-seeking. These tendencies are developmentally normative and, in many ways, adaptive – facilitating cognitive growth, socio-emotional development, and the acquisition of life skills. At the same time, however, they increase susceptibility to health-risk behaviours, including the initiation of substance use. Globally, substance use contributes substantially to morbidity and mortality among young people. Early initiation is consistently associated with a range of adverse outcomes, including substance dependence, psychiatric comorbidities, academic disruption, and long-term social disadvantage. In low- and middle-income countries such as India, these risks are further compounded by demographic pressures, rapid sociocultural transitions, and uneven access to mental health care and support systems.

National estimates provide an important backdrop to these developmental considerations. The National Survey on Extent and Pattern of Substance Use in India reported a prevalence of substance use disorders (SUDs) of 1.3% among adolescents aged 10–17 years, compared to 17% among adults (1). Among adolescents, cannabis and inhalants were the most commonly reported substances (0.9% and 1.17%, respectively). While these figures appear modest relative to Western contexts, where up to half of adolescents report some form of substance use, they must be interpreted in light of India's demographic scale (2). Even a prevalence of around 1% translates to nearly 3 million adolescents potentially in need of services (3). Importantly, the epidemiological landscape is evolving. Although substance use has historically been more prevalent among boys, emerging evidence suggests a narrowing gender gap. By mid-adolescence, girls may match or, in some contexts, exceed boys in rates of use (4). This convergence underscores the need for prevention and intervention strategies that are sensitive to gendered pathways into substance use.

Despite comparatively lower prevalence estimates, the challenges in the Indian context remain substantial. Co-existing socioeconomic adversities, limited systemic supports, and gaps in child protection and educational infrastructures contribute to heightened vulnerability. Furthermore, knowledge, attitudes, and practices related to substance use among parents, educators, and communities remain variable and often limited. It is also important to recognise that current estimates may underrepresent the true extent of adolescent substance use. In the absence of robust routine monitoring systems, reliance on self-report introduces potential biases. Stigma, fear of legal repercussions, and recall limitations may all contribute to under-reporting, particularly among younger populations (5). Taken together, these findings highlight a critical paradox: while prevalence rates in India may appear lower than in some Western settings, the

combination of population scale, systemic vulnerabilities, and under-detection creates a substantial and urgent public health challenge. Understanding the developmental and contextual roots of substance use is therefore essential to informing early, targeted, and contextually relevant interventions.

Adolescent substance use does not emerge in isolation; rather, it unfolds within a context of intersecting vulnerabilities. Temperamental traits (such as impulsivity or novelty-seeking), developmental factors, family environments, and broader social influences all contribute to risk. This complexity underscores the need for multi-level, multisystemic approaches to prevention and intervention – an area where longitudinal cohort studies such as cVEDA (Consortium on Vulnerabilities to Externalizing Disorders and Addictions) and PAthways to Resilience And Mental health (PARAM) could offer critical insights (6, 7).

cVEDA–PARAM

Indian cohorts advancing understanding of neurodevelopment and mental health

The cVEDA-PARAM studies together constitute a unique neurodevelopmental research platform spanning the developmental continuum from the antenatal period to young adulthood. Drawing on recruitment sites across north, north-east, west, central, and southern India, these cohorts capture geographically, ethnically, and socio-culturally diverse populations. Recruitment sites were selected to capture populations with a wide range of early-life exposures – psychosocial adversity, high familial psychiatric morbidity (particularly substance use), socioeconomic disadvantage, urban and rural agrarian contexts, slum habitation, tribal communities, regions affected by socio-political conflict, nutritional factors, and environmental toxins. cVEDA-PARAM are designed to examine multi-level determinants of mental health by integrating genomic, biological, psychological, and environmental data. This includes detailed phenotypic assessments using structured instruments, alongside biospecimen collection (blood, saliva, urine, hair, nails, stool, placenta, and breast milk) to enable genetic, epigenetic, and toxicological analyses. A subset of participants has also undergone neuroimaging, both structural (T1, T2, diffusion tensor imaging) and functional (resting-state fMRI), allowing investigation of brain-behaviour relationships.

cVEDA, the first and largest multi-site cohort of its kind in India, recruited over 9,000 participants aged 6-23 years using an accelerated longitudinal design with planned missingness over a two-year period. The cVEDA baseline represents a predominantly adolescent sample with balanced gender representation and intentional enrichment for determinants of mental health vulnerabilities (8). As a result, the cohort shows higher familial loading for substance-related problems and greater exposure to childhood adversity compared to similar international cohorts. (9, 10) Building on the cVEDA foundation, PARAM has established a baseline cohort of approximately 8,000 participants, including a subset followed longitudinally from cVEDA. With both closed (pregnant women, infants, toddlers) and

accelerated cohorts (≥3 years through early adulthood), PARAM aims to enable examination of lifespan developmental trajectories. These cohorts provide an unparalleled opportunity to examine adolescent substance use within the Indian context, enabling a nuanced understanding of how early vulnerabilities evolve into substance use trajectories over time. As PARAM continues its longitudinal follow-up, findings from cVEDA have already laid a strong foundation for understanding adolescent substance use in India.

Substance use in adolescence is best conceptualised within a developmental psychopathology framework, wherein risk emerges from the dynamic interplay of biological predispositions and environmental exposures. The cVEDA-PARAM cohorts are uniquely positioned to operationalise this framework, given their multi-level, longitudinal design and rich characterization of neurodevelopmental, behavioural, and socioecological domains across diverse Indian contexts. Within this framework, several pathways to substance initiation can be delineated. Neurodevelopmental and socioecological influences are particularly salient in shaping adolescent substance use, while internalizing and externalizing pathways represent transdiagnostic risk processes that extend into adulthood (8).

A neurodevelopmental vulnerability pathway reflects normative adolescent tendencies toward heightened risk-taking and sensation-seeking, coupled with immature prefrontal regulatory systems and heightened limbic reactivity. These processes are particularly well captured within cVEDA through detailed cognitive assessments and neuroimaging data, enabling examination of how variations in executive function and brain maturation relate to early substance use behaviours. The cVEDA dataset characterised neurodevelopmental trajectories across executive and socio-emotional domains (11). In over 8,000 individuals aged 6-23 years, cognitive functions – including working memory, response inhibition, set-shifting, and social cognition – were analysed using quantile regression. Maturation followed an ordered progression from working memory to inhibitory control to cognitive flexibility. Socioeconomic factors, particularly wealth index, exerted strong influences on developmental trajectories. Sex differences were evident in inhibitory control, cognitive flexibility, and emotion recognition, while childhood adversity negatively impacted cognitive development. Neuroimaging findings from cVEDA further reinforce these developmental vulnerabilities. Resting-state fMRI analyses contributed to a large international dataset (~2000 scans), demonstrating hypoconnectivity across multiple brain networks (sensory, default mode, subcortical), particularly in adolescents using alcohol and tobacco (12).

Another salient (bio-)socioecological pathway reflects vulnerabilities arising from family dynamics, peer influences, school climate, and neighbourhood contexts, where substance use may be normalised or modelled. The strength of cVEDA-PARAM lies in its detailed capture of these contextual exposures – including adversity, parenting, school environment, and broader socioeconomic conditions – allowing for a nuanced understanding of how environmental risks shape substance use trajectories in the Indian setting. In a neuroimaging analysis (~1000 scans),

dynamic mode decomposition identified atypical patterns of default mode network (DMN) organisation associated with greater exposure to childhood adversity (13). While cognitive performance remained comparable, altered network organisation suggested potential adaptive responses to adversity that may carry long-term costs for brain function and behaviour. Consistent with these findings, cVEDA data have indicated a high burden of adversity: approximately 50% of participants reported child maltreatment and/or family-level adversities. Substance use was more commonly reported among males (87.3% vs. 12.7%), and regression analyses showed that familial and collective adversities were associated with adolescent substance use, while child maltreatment showed stronger associations in young adulthood (14). Further analyses using latent gene-environment (G×E) models have demonstrated that both familial vulnerability (indexed by family history density) and environmental adversity independently predicted substance use, with evidence of interaction effects (15). Familial vulnerability appeared to amplify environmental risk, supporting a differential susceptibility model. Environmental risk was driven primarily by adverse childhood experiences and unsafe school environments, while familial risk reflected broader psychiatric loading, particularly alcohol dependence.

An externalizing pathway to substance use is characterised by impulsivity, aggression, poor inhibitory control, and reward sensitivity, i.e. features of early behavioural dysregulation that may progress to conduct problems and substance use. A contrasting internalizing pathway involves depression, anxiety, and emotional dysregulation, with substance use emerging as a form of self-medication. Through enriched sampling for behavioural risk and familial psychiatric loading, combined with repeated assessments of emotional and mental health symptoms, cVEDA-PARAM facilitate the examination of a) how internalizing and externalizing difficulties intersect with emerging substance use patterns over time, and b) how the various pathways intersect, evolve, and differentially contribute to substance use initiation and progression within a longitudinal, developmentally informed framework.

Future Directions

The cVEDA-PARAM studies comprise large, diverse, longitudinal cohorts that capture wide variation across geographic, socioeconomic, and cultural contexts in India. The studies also integrate multimodal, multi-level data, combining biological, psychological, and environmental measures to provide a comprehensive understanding of developmental processes. Importantly, their strong grounding in Indian sociocultural contexts enhances the relevance and applicability of findings to real-world settings. Looking ahead, several important directions emerge. Longitudinal modelling of substance use trajectories will be critical to understanding pathways from early vulnerability to later outcomes. Greater integration of neuroimaging, genomic, and environmental data can further elucidate underlying mechanisms. Cross-cohort harmonisation – particularly with other Indian studies –

offers opportunities for comparative and pooled analyses, and risk determination at scale (16, 17). Finally, there is a pressing need to translate these findings into policy and practice, informing prevention strategies that are developmentally sensitive and contextually appropriate.

Adolescent substance use in India is shaped by early vulnerabilities interacting with dynamic developmental contexts. The cVEDA-PARAM cohorts underscore that risk begins early, preceding substance use itself, and unfolds across biological, psychological, and social domains. Understanding these vulnerable beginnings offers a critical opportunity to shift from reactive approaches to early, preventive, and developmentally informed interventions. By integrating individual, family, peer, and environmental perspectives, we can move toward a more holistic and contextually grounded response to adolescent substance use in India.

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Catching It Early: Screening and School-Based Prevention of Adolescent Substance Use

Shivanand Kattimani, Ragul Ganesh, Balaji Bharadwaj

Adolescence is a critical developmental period characterised by increased vulnerability to risk-taking behaviours, including substance use (1,2). Evidence indicates that a large proportion of individuals initiate alcohol, tobacco, and drug use during adolescence, which increases the likelihood of long-term substance use disorders (SUDs) and associated psychosocial consequences (1). In India, this concern is particularly significant given that approximately one-quarter of the population falls within the age group of 10–24 years (2). National surveys have reported early exposure to substances among adolescents, including alcohol, cannabis, opioids, and tobacco (3, 4).

Rationale for early screening in schools and community settings

Early identification of substance use and prevention is essential. Schools and colleges represent a practical and scalable setting for such efforts, as they provide access to adolescents during a critical developmental window (3, 4). Integrating screening and preventive interventions within educational systems offers an opportunity to address substance use before it escalates into dependence (5, 6).

School-based screening enables early detection of risky behaviours among adolescents who may otherwise have limited contact with healthcare services (7, 8). The Screening, Brief Intervention, and Referral to Treatment (SBIRT) framework is widely recommended for adolescent populations and has demonstrated feasibility in school settings (1, 5). In addition to identifying substance use, screening can help detect co-occurring emotional and behavioural problems, facilitating a more comprehensive approach to adolescent health (Figure 1).

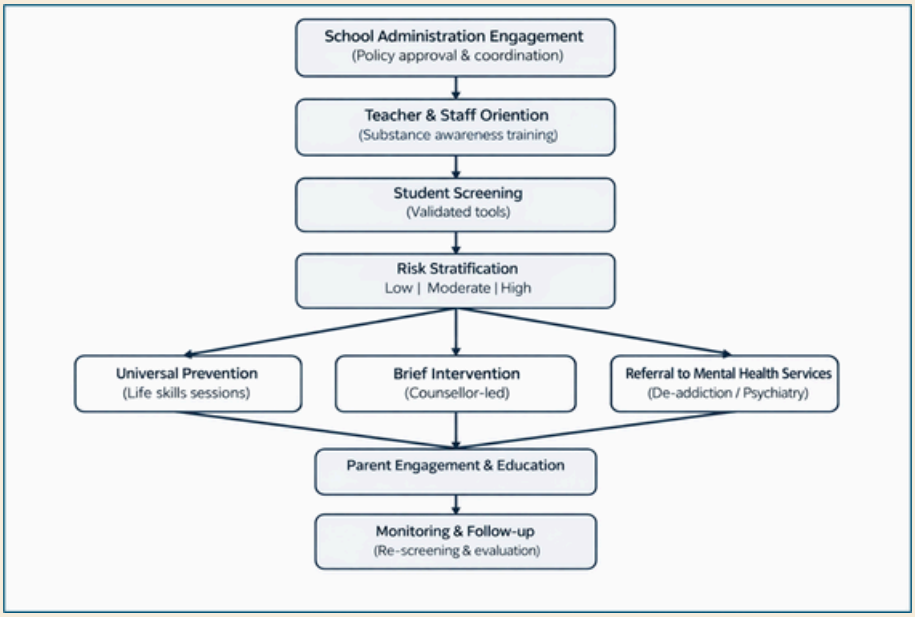

Figure 1. Integrated stakeholder model illustrating the roles of educators, counsellors, parents, and peer leaders in supporting screening, prevention, and referral pathways.

Overview of screening tools suitable for adolescents

Validated screening instruments are essential for accurate identification of substance use risk. Structured tools have been shown to be more reliable than clinician judgment alone, which often underestimates substance use in adolescents (6).

The CRAFFT questionnaire is a widely used six-item screening tool designed for adolescents and young adults (7). Other brief tools such as S2BI (Screening to Brief Intervention) and BSTAD (Brief Screener for Tobacco, Alcohol, and other Drugs) use frequency-based questions to stratify risk and have demonstrated good validity in primary care settings (8, 9). Alcohol-specific tools such as AUDIT (Alcohol Use Disorder Identification Test) and AUDIT-C are also commonly used, although they were originally developed for adults and may require adaptation for younger populations (10). The GAIN-SS (Global Appraisal of Individual Needs – Short Screener) provides a broader assessment, including co-occurring mental health problems (11).

Adolescent self-report remains the preferred screening method. Evidence suggests that adolescents provide reliable information when confidentiality is ensured and the environment is supportive (12). Digital self-administered tools are increasingly used to enhance privacy and improve disclosure. Biological testing may complement screening, but is not recommended for routine use.

Evidence for school-based prevention programs and life-skills education

School-based prevention programmes are a key strategy for reducing adolescent substance use, particularly in low- and middle-income countries. These programmes aim to strengthen protective factors such as decision-making skills, emotional regulation, and resistance to peer pressure (Table 1).

Table 1. Types of School-Based Substance Use Prevention Interventions

Intervention Type	Key Components	Evidence Summary
Life-skills training	Coping strategies, decision making, refusal skills	Delays initiation of substance use
Classroom health education	Information on health risks of substances	Improves knowledge; limited behavioural impact alone
Family-based programs	Parent training and communication strategies	Moderate reductions in alcohol and tobacco use
Motivational interviewing	Brief counselling and personalized feedback	Effective for early experimentation
Multi-component interventions	School, family, and community components	Most effective overall

Life-skills education programmes are among the most widely implemented approaches. Evidence from systematic reviews suggests that such interventions can delay initiation of substance use and reduce risky behaviours when delivered with fidelity (5). A meta-analysis of 22 studies suggests that structured school-based interventions also improve emotional and behavioural wellbeing of students (13). Recent overview of systematic reviews indicates that though schools are a strategic setting for substance use prevention, the overall effectiveness of existing programs remains limited and uncertain, particularly for drugs such as alcohol and cannabis (14). Multi-component interventions that include classroom education, peer engagement, and family involvement have demonstrated stronger outcomes compared to single-component approaches (5).

Brief interventions based on motivational interviewing have also shown effectiveness in reducing alcohol use and related harms among adolescents (15). Meta-analysis of studies on peer-led interventions to prevent substance use demonstrated that the odds of using tobacco, alcohol and cannabis were lower among those receiving the peer-led intervention compared with control (16).

However, evidence regarding long-term effectiveness remains mixed, with variability attributed to differences in implementation and contextual factors.

Role of Key Stakeholders: teachers, counsellors, parents, and peer-led interventions

School-based substance prevention works best when key stakeholders—teachers, counsellors, parents, and peers—work together, each adding a unique role (17). Teachers play key role as they engage with students daily and deliver life-skills education that builds decision-making and refusal skills. Their effectiveness improves with interactive methods but depends on proper training (18-20). School counsellors focus on at-risk students, offering early support, addressing emotional or family issues, and linking students to care when needed (21).

Parents reinforce these efforts at home; supportive relationships and open communication reduce risk, especially when parents are actively involved in programmes (17). Peers also shape attitudes, with peer-led approaches showing short-term benefits in reducing experimentation (22). Overall, a coordinated, whole-school approach combining these roles is most effective in reducing and preventing substance use (17, 23).

Challenges in implementation and strategies to enhance acceptability and impact

Several challenges limit the implementation of school-based screening programmes, including limited training, resource constraints, stigma, and confidentiality concerns. Adolescents may be reluctant to disclose substance use due to fear of punishment or social consequences (Table 2).

Table 2. Barriers to Implementing School-Based Substance Use Screening

Barrier	Description
Limited training	Insufficient knowledge of screening tools among staff
Time constraints	Limited time within academic schedules
Resource limitations	Lack of school counsellor or payment related issues
Stigma	Fear of labelling or disciplinary consequences
Confidentiality concerns	Hesitation among students to disclose substance use

Strategies to enhance implementation include training educators, integrating screening into existing school health services, and using digital tools to improve confidentiality and efficiency. Policy support is essential to shift from punitive approaches to health-oriented prevention. Strengthening linkages between schools, healthcare systems, and community services can improve referral pathways and continuity of care.

Conclusion

Adolescent substance use is a significant public health issue in India, with long-term implications for health and social outcomes. School-based screening and prevention provide a valuable opportunity for early intervention. Validated screening tools, combined with life-skills education and multi-component prevention strategies, can reduce substance use risk. Addressing implementation challenges through capacity building, digital innovation, and supportive policies is essential for achieving sustainable impact.

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Adolescent-Centered Interventions: What Works in Treatment and Prevention in Non-School Settings

Dheeraj Kattula

Adolescence is a critical developmental window during which the brain undergoes significant structural and functional reorganization, rendering young people both particularly vulnerable to the harms of substance use and uniquely responsive to well-timed, developmentally appropriate intervention. A substantial proportion of at-risk young people are encountered outside school — in community health clinics, emergency departments, youth justice systems, child welfare services, primary care, and community organizations. These non-school settings present distinctive challenges, including fragmented service structures and variable workforce capacity, alongside important opportunities for early identification and sustained engagement.

Epidemiological data, patterns and predictors of use, experiential accounts, and school-based approaches are addressed elsewhere in this volume. This article focuses on what works — and for whom — in community, clinical, and justice-adjacent settings, spanning both prevention and treatment across the full continuum of severity of adolescent substance use.

Principles of Adolescent-Centred Care

Effective intervention begins with recognizing how adolescents differ from adults — in neurobiological development, motivational structures, and the social meaning of substance use (1). Five core principles apply equally across prevention and treatment contexts:

- Developmental appropriateness: Interventions must engage immediate motivations and identity formation rather than relying on abstract risk framing. The heterogeneity within adolescence itself — a 13-year-old and a 17-year-old inhabit very different developmental realities — demands age-sensitive tailoring (1).
- Autonomy support: Coercive or didactic approaches provoke reactance. Adolescent-centred care respects the young person's right to make decisions while offering accurate information and genuine reflection — a principle that underpins the evidence base for motivational approaches (2).
- Trauma-informed and culturally responsive practice: Substance use frequently co-occurs with adverse childhood experiences, poverty, and marginalization. Services must understand use as often a coping response and must demonstrate cultural humility, particularly with indigenous, refugee, and minority ethnic communities (3).
- Family and social system involvement: Unlike adult services, adolescent care occurs within family systems and peer networks. Effective care engages families as therapeutic partners and attends to the social factors sustaining or challenging recovery (4).
- Confidentiality and trust: Fear of parental notification or legal consequences suppresses disclosure. Clear, honest communication about privacy boundaries is foundational to engagement (5).

Prevention in Non-School Settings

A significant proportion of at-risk adolescents — those excluded, truanting, care-experienced, or already in high-risk environments — are poorly reached by school programmes (6). Non-school settings carry a distinct prevention responsibility.

Universal, Selective, and Indicated Prevention

Universal prevention, delivered through community organizations, youth clubs, sports settings, and digital platforms, aims to delay initiation across whole populations (7). Effective programmes emphasize life-skills development (refusal skills, emotional regulation), social norms correction to challenge inflated perceptions of peer substance use, and engagement of trusted community figures rather than external experts (6).

Selective prevention targets adolescents at elevated risk due to family history, adverse childhood experiences, or socioeconomic disadvantage — groups most likely to present in health, justice, and child welfare settings (3). Indicated prevention addresses young people already showing early signs of hazardous use who do not yet meet disorder criteria. At this tier, the SBIRT (Screening, Brief Intervention, and Referral to Treatment) model — embedding brief motivational conversations into primary care and emergency presentations — has demonstrated reductions in frequency of use and alcohol-related harms (5).

Harm Reduction and Digital Prevention

Harm reduction — reducing consequences of use without requiring abstinence as a precondition — is essential for the most marginalized young people (7). Community-based services such as naloxone distribution and drug checking establish contact with adolescents unreachable by conventional services, serving as gateways to comprehensive care when the young person is ready (8, 9). Non-judgmental psychoeducation about safer use meaningfully reduces acute risk where abstinence-focused messaging has failed (3).

Digital and peer-led prevention extends reach beyond clinic walls. App-based personal feedback tools and online motivational interventions have shown modest but meaningful reductions in cannabis and alcohol use (2). Peer-led models, where trained young people deliver prevention in community settings, achieve social credibility that adult-led programs often cannot — particularly when young people co-design, not merely deliver, the program (10).

Evidence-Based Psychosocial Interventions

Motivational Interviewing (MI)

MI is among the most widely evidenced brief interventions for adolescent substance use (2). Its core techniques — open-ended questioning, reflective listening, affirmation, and evoking the

young person's own reasons for change rather than imposing external motivations — are well suited to the ambivalence that characterizes most adolescent presentations in emergency departments, primary care, and youth justice settings. Single-session MI has demonstrated reductions in frequency of use and associated risk perceptions (2), and the approach serves effectively as a bridge to more intensive treatment when clinical assessment indicates the need (5).

Cognitive Behavioural Therapy (CBT)

CBT addresses maladaptive cognitions and behavioural patterns sustaining substance use, while building coping skills and targeting co-occurring depression and anxiety — prevalent in this population (1). Manualized adolescent adaptations such as the Adolescent Community Reinforcement Approach (A-CRA) and the Cannabis Youth Treatment (CYT) series have performed well in community trials (11). Group CBT formats leverage peer influence constructively, though careful facilitation is needed to mitigate iatrogenic peer contagion (11).

Family-Based Approaches

Family-based interventions represent the most robustly evidenced treatment modality for adolescent substance use disorders (4, 11). Key models include:

- **Multidimensional Family Therapy (MDFT):** A comprehensive ecological approach targeting the adolescent, parent-adolescent relationship, and family-community connections. MDFT has outperformed group CBT and individual therapy in multiple trials (4).
- **Functional Family Therapy (FFT):** Targets maladaptive family interaction patterns and builds communication and parenting skills across substance use and co-occurring conduct disorders (1).
- **Multisystemic Therapy (MST):** A high-intensity ecological intervention for the most complex presentations, targeting family, peer, and community systems simultaneously (11).

Pharmacological Intervention

Pharmacotherapy for adolescent substance use disorders remains underdeveloped relative to adult evidence, constrained by ethical and regulatory barriers to trials in paediatric populations (1, 3). For opioid use disorder, buprenorphine/naloxone is the most evidence-supported option and is now recommended from mid-adolescence onward in several national guidelines, recognizing that the risks of untreated disorder substantially outweigh treatment risks (5). Methadone is generally reserved for older adolescents where buprenorphine has failed or is unavailable (9). For alcohol use disorder, naltrexone may be considered by specialists for severe cases in older adolescents (1). Nicotine replacement therapy and varenicline show modest benefit for tobacco use when combined with behavioural support (3).

In all cases, pharmacotherapy must be embedded within psychosocial intervention and a comprehensive care framework; medication as a standalone approach is unsupported by evidence and antithetical to adolescent-centred principles (1, 5).

Integrating Prevention and Treatment Across Sectors

Prevention and treatment are most effective when delivered as a joined-up continuum of care rather than siloed services (3, 7). Health settings — particularly primary care and emergency departments — are underutilized platforms for universal screening and brief intervention; integrating SBIRT into routine adolescent health contacts can shift the system from reactive crisis management to proactive, early identification (5). Youth justice and child welfare settings encounter the highest-risk young people and must be equipped to screen, briefly intervene, and refer rather than defaulting to punitive responses that exacerbate social exclusion and worsen long-term prognosis (1). Diversion programs routing adolescents toward assessment and treatment rather than adjudication show consistently better outcomes (11). Community organizations, youth services, and faith communities provide informal access for young people who avoid formal health and justice systems and are particularly valuable for delivering selective and indicated prevention (8, 9). Across all sectors, interagency coordination, shared information systems, designated care navigators, and clear referral pathways are preconditions for effective continuum-of-care delivery — not optional enhancements (10).

Gaps In Evidence And Priorities For Future Research

Significant gaps persist across both prevention and treatment. Most randomized trials involve White, male, English-speaking samples from high-income countries; evidence for girls and young women, LGBTQ+ youth, Indigenous adolescents, and populations in low- and middle-income settings is substantially thinner (8, 9), and interventions developed in one cultural context cannot be assumed to translate without rigorous adaptation (10). Trial follow-up periods rarely exceed twelve months, leaving questions about sustained effects and long-term developmental sequelae unanswered (11). The pipeline from efficacy to routine delivery remains slow, demanding greater investment in implementation science to understand what conditions support high-fidelity practice at scale (4). The evidence base for non-school prevention specifically — including community programs, harm reduction entry points, and digital tools — lags behind school-based research (6). Paediatric pharmacotherapy trials are urgently needed, particularly for opioid use disorder where the treatment gap carries lethal consequences (3). Finally, truly integrated dual-diagnosis services for co-occurring substance use and mental health conditions remain rare, despite being the clinical norm rather than the exception (1, 5).

Conclusion

Adolescent-centred interventions in non-school settings rest on a growing and coherent evidence base (1, 3). Prevention — from universal community programs to indicated early intervention and harm reduction — and treatment — through motivational (2), cognitive-behavioural (11), and family-based approaches (4) — are most effective when delivered as part of an integrated continuum across health, justice, and community sectors (7, 10). The central challenge is not the absence of effective approaches but the persistent failure to implement them equitably and at scale. Every non-school setting where an adolescent presents is a potential intervention point. This mantra needs systems to adapt to fit the purpose and not just individual practitioners.

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Lessons from the Land: An Experiential Account of Working with Adolescents and Youth

Rajesh Kumar

Why Prevention Matters: Setting the Context

Evidence from India consistently shows a paradox that is central to adolescent substance use policy: overwhelming majority of children and adolescents do not use psychoactive substances; yet a small, vulnerable minority contributes disproportionately to long-term health, social, and legal harm. Large-scale studies demonstrate that current substance use among children aged 10–17 years remains between 1–3% for most substances (1, 2). However, early initiation (often before the age of 14) is strongly associated with school dropout, progression to dependence, psychiatric comorbidity, risky sexual behaviour, and juvenile justice involvement (2).

Additional indicators of concern as reported in the multi-city survey by Dhawan et al. (2026) also shows that the ever use of psychoactive substances in adolescents was about 15% (1 in 7 students), past-year use was about 10% (1 in 10 students), and past-month use was about 7% (1 in 14 students). The risk of continuation of substance use is seen by the fact that nearly 50% of ever-users report use in the last month, indicating continued use once initiation occurs. The mean age of initiation is also alarmingly low. The mean age of onset of tobacco and inhalant use was about 12.3 years, while that of alcohol and cannabis was 13.6 years, and for opioids was 14.6 years. Among street-connected children, the prevalence of substance use is substantially higher, with 40–70% reporting substance use, alongside elevated exposure to violence, exploitation, and criminalization.

These epidemiological patterns reinforce a critical programmatic insight: prevention and early intervention during early adolescence yield far greater returns than late-stage treatment alone. It is within this prevention-first paradigm that the Society for Promotion of Youth and Masses (SPYM) has conceptualized and operationalized its adolescent-focused interventions over the past decade.

A. Understanding Adolescent Substance Use: A Developmental and Ecological Lens

SPYM's work with adolescents is grounded in a developmental–ecological framework, recognizing substance use as the outcome of interactions between:

- Individual developmental vulnerabilities
- Family environment and caregiver functioning
- Peer norms and exposure
- School engagement or exclusion
- Community-level deprivation, migration, homelessness, and urban marginalization

Field experience across urban settlements, slums, shelters, observation homes, and street-based settings demonstrates that adolescent substance use is rarely an isolated behaviour. It commonly co-occurs with:

- Emotional dysregulation and trauma exposure
- Disrupted attachment and inconsistent caregiving
- Poor school retention and limited vocational pathways
- Substance use within the family (reported in about half of cases)

Consequently, SPYM prioritizes strengthening protective factors early, before substance use becomes entrenched, while maintaining flexible pathways for early intervention and treatment when required. The interventions by SPYM have helped inform the designing of similar interventions by the Ministry of Social Justice and Empowerment (MoSJE), Government of India.

The community-based peer led intervention (CPLI) and Outreach-cum-Drop-in-Centre (ODIC) are two of the recent interventions supported by MoSJE for addressing substance use among adolescents through the Nasha Mukt Bharat Abhiyan (NMBA).

B. Community-based Peer Led Intervention (CPLI)

CPLI was developed by SPYM in response to three persistent gaps in adolescent prevention efforts in India:

1. Over-reliance on information-based awareness, despite evidence that knowledge alone does not change behaviour.
2. School-centric prevention models, which exclude out-of-school, migrant, and marginalised adolescents.
3. Limited attention to psychosocial competencies that mediate risk-taking behaviour.

CPLI aligns with global evidence on life skills-based prevention (WHO framework) while remaining deeply contextualized to Indian socio-cultural realities.

(I) Intervention Design and Components

CPLI is a structured, modular intervention delivered through schools, communities, shelters, and youth collectives. The core components of CPLI include:

- Life skills education modules covering:
- Decision-making and critical thinking
    - Emotional regulation and stress management
    - Communication and refusal skills
    - Problem-solving and goal-setting
- Experiential and participatory methods, including role plays, floor games, storytelling, group discussions, and scenario analysis
- Peer-led facilitation, with adolescents trained as Peer Educators to enhance credibility and diffusion of protective norms
- Adult gatekeeper engagement, involving parents, teachers, and community leaders

Sessions are sequenced (3–4 sessions per theme, 60–90 minutes each), ensuring progressive

skill acquisition rather than one-time exposure.

(II) Implementation Processes

The key steps in implementation include:

- Rapid situation assessments and hotspot mapping: Systematic field-level assessments are conducted to identify high-risk areas, patterns of substance use, and vulnerable groups, enabling targeted and evidence-based intervention planning.
- Selection and mentoring of Peer Educators: Individuals from within the community, especially those with lived experiences, are identified and trained as Peer Educators to build trust, facilitate outreach, and sustain engagement with beneficiaries.
- Creation of child-friendly community spaces: Safe, inclusive, and non-judgmental spaces are established within communities where children can access counselling, participate in structured activities, and receive psychosocial support.
- Continuous supervision and refresher trainings: Regular monitoring, handholding, and periodic capacity-building sessions are conducted to ensure peer educators remain effective, motivated, and updated with intervention strategies.
- Embedded feedback mechanisms for contextual adaptation: Ongoing feedback from beneficiaries, peer educators, and community stakeholders is systematically captured and used to adapt programme design and delivery in response to emerging needs and ground realities.

(III) Key Outputs and Outcomes

Evidence from programme evaluations (including independent assessments by academic institutions) demonstrates:

- Improved refusal and coping skills (64% reporting confidence to say 'No')
- Reduction in substance-related school absenteeism
- Improved parent–child communication (96.9% reporting ease of communication)
- Enhanced self-care and confidence (>78%)
- 50% reduction in juvenile apprehensions for petty crimes in intervention areas

According to official MoSJE documents, 127 vulnerable districts across India were identified for implementing intervention programmes, including the Community Based Peer Led Intervention.

C. Outreach and Drop-in-Centre (ODIC)

(I) Rationale

While CPLI addresses universal and selective prevention, SPYM identified the need for indicated early intervention for adolescents already experimenting with substances. Conventional clinic-based services often remain inaccessible, stigmatizing, or unacceptable to this group. ODIC was, therefore, designed as a low-threshold, community-embedded model, prioritising engagement, continuity, and early course correction.

(II) Core Intervention Components

1. **Outreach**
   - Active identification of affected adolescents in streets, slums, worksites, and informal settings.
   - Relationship-based engagement through repeated contact.

2. **Drop-in Centres**
   - Safe, stigma-free spaces
   - Counselling, psychoeducation, recreation, and basic health support
   - Voluntary access without formal registration barriers

3. **Individual Counselling and Follow-up**
   - Brief, structured, counselling using motivational interviewing
   - Family engagement, where feasible
   - Referral to specialised treatment for cases with greater severity

(III) Technical Emphasis

ODIC emphasises:

- **Stage-appropriate intervention intensity:** Services are tailored to the individual's stage of substance use—ranging from early prevention and brief interventions to more structured counselling and referral for treatment—ensuring that support remains relevant and proportionate to the level of need.

- **Continuity of care and relapse-sensitive engagement:** ODICs ensure sustained engagement with beneficiaries through regular follow-ups, case management, and relapse prevention strategies, recognizing recovery as a non-linear process and providing timely support during periods of vulnerability.

- **Integration with child protection, education, health, and justice systems:** The intervention is closely linked with key institutional systems to enable holistic support, including referrals, service convergence, and coordinated case handling to address the broader social, legal, and developmental needs of children and adolescents.

(IV) Key Outputs and Outcomes

ODIC has enabled:

- Early identification of affected individuals before they progress to dependence
- Improved help-seeking behaviour
- Reduction in high-risk use patterns
- Strengthened referral pathways between community and institutional care

Recognising its effectiveness, MoSJE incorporated ODIC into national operational guidelines, supporting standardized replication across states. Currently, there are 74 ODICs in the country which are being funded by this Ministry.

D. Intensive Care and Learning from SPYM-Managed Centres

SPYM's prevention and early intervention continuum is complemented by three specialised residential treatment and rehabilitation centres, which, together, address the full spectrum of adolescent vulnerability related to substance use. Rather than operating as isolated facilities, these centres function as an integrated learning ecosystem, continuously informing SPYM's prevention (CPLI), early intervention (ODIC), and policy engagement efforts.

Collectively, the centres cater to:

- Children in Conflict with the Law (CCLs)
- Children in Need of Care and Protection (CNCP)
- Adolescent girls and young women (a group often rendered invisible within addiction services)

(I) Integrated Residential Care Model: The Three SPYM Centres

SPYM operates a continuum of residential services with differentiated mandates, but with a shared therapeutic philosophy grounded in rehabilitation, trauma-informed care, and continuity of care; medical detoxification is facilitated through referrals and linkages with government hospitals to ensure safe and supervised withdrawal management.

1. **Juvenile Drug De-addiction and Rehabilitation Centre (JDRC), Sewa Kutir** - Established in 2010 at the request of the Juvenile Justice Committee of the Hon'ble Delhi High Court, Sewa Kutir is India's first specialised de-addiction centre for children in conflict with the law. Operating in partnership with the Department of Women and Child Development, Government of NCT of Delhi, the centre provides structured, court-linked care for boys aged 7–18 years.

2. **De-addiction and Rehabilitation Centre for Children in Need of Care and Protection, Delhi Gate** - Established in 2016, this centre responds to the needs of highly vulnerable boys aged 7–17 years who are outside the juvenile justice system, but are exposed to homelessness, abuse, neglect, and early substance use. Referrals are primarily through Child Welfare Committees, enabling protective rather than punitive engagement.

3. **Female Drug De-addiction and Rehabilitation Centre, Daryaganj** - Inaugurated under the aegis of the Hon'ble High Court of Delhi, this 30-bed centre is the only facility of its kind in India dedicated to adolescent girls and women who use substances. It addresses gender-specific vulnerabilities, stigma, violence, reproductive health needs, and caregiving responsibilities through a female-staffed, multidisciplinary model.

A critical systems-level learning emerging from SPYM's field and residential care experience has been the importance of strong medical linkages for managing severe cases of adolescent substance use. Recognising the gap in accessible, child-sensitive detoxification services, SPYM successfully advocated before the Hon'ble Delhi High Court to institutionalise dedicated

medical support within the public health system. This resulted in the allocation of 60 beds across key government hospitals in Delhi—including Deepchand Bandhu Hospital, Madan Mohan Malviya Hospital, GB Pant Hospital, Deen Dayal Upadhyay Hospital, and B.R. Ambedkar Hospital, Rohini, for detoxification and management of co-morbidities among children with severe drug use disorders. At these facilities, children undergo an initial comprehensive medical assessment, including screening for substance use severity, withdrawal risk, psychiatric co-morbidities, and general physical health status. Based on this assessment, a structured detoxification protocol is initiated, involving medically supervised withdrawal management, pharmacological support where required, and continuous monitoring to manage complications safely.

This institutional arrangement complements SPYM's three residential de-addiction and rehabilitation centres, where the broader drug de-addiction process is carried forward post-detoxification. While acute withdrawal is managed in hospital settings, the centres focus on long-term recovery through a structured, evidence-based programme that includes psychosocial assessment, individual and group counselling, life skills education, family engagement, and vocational rehabilitation within a therapeutic community framework. Together, this integrated model ensures a seamless continuum from medical stabilisation and detoxification to sustained behavioural change and social reintegration, significantly strengthening outcomes for children and adolescents affected by substance use.

(II) Common Structural Features Across the Three Centres

Despite differing target populations, the centres share a unified service architecture:

- Residential capacity: 30–50+ beds per centre
- Age range: 7–18 years for children and adolescents (with extended services for women in the female centre)
- Treatment duration: Minimum 90 days, with scope for extension and semi-independent living
- Referral pathways: Juvenile Justice Boards, Child Welfare Committees, courts, and community outreach

(III) Core Intervention Components

Across all three centres, adolescents receive:

- Comprehensive clinical and psychosocial assessment
- Detoxification and pharmacotherapy through linked government hospitals
- Trauma-informed individual, group, and family counselling
- Life skills education, literacy, and non-formal education
- Vocational training and skill development
- Therapeutic Community approach, including art, music, sports, yoga, and mindfulness
- Legal aid, identity documentation, and social protection linkages
- Structured aftercare, relapse prevention, and community reintegration planning

(IV) Cross-cutting Learning from Residential Care

Experience across the three centres has generated several consistent insights:

- Adolescent substance use is rarely isolated and is deeply intertwined with trauma, disrupted caregiving, homelessness, school exclusion, and justice involvement
- Many adolescents require habilitation rather than rehabilitation, acquiring foundational life skills for the first time
- Relapse prevention depends heavily on continuity of care, linking residential treatment with ODIC outreach and community follow-up
- Early, skill-based prevention through CPLI and school/community platforms can significantly reduce later need for intensive residential care

These collective learnings have directly shaped SPYM's prevention-first, systems-linked approach, ensuring that practice-based evidence from residential care feeds back into scalable prevention and early intervention models, including the national adoption of CPLI and ODIC frameworks.

E. Key Learnings and Policy Relevance

SPYM's longitudinal field experience highlights several transferable lessons:

- Prevention must be developmentally informed and skill-based
- Early intervention works best when embedded in the community and is flexible
- Process fidelity and relational engagement matter as much as content
- Documentation and evaluation enable translation from practice to policy

The integration of CPLI and ODIC into MoSJE's national framework illustrates how grassroots, evidence-informed practice can scale into national policy and practice.

Conclusion

With nearly 99% of Indian children and adolescents not using substances, India holds a decisive preventive advantage. SPYM's experience demonstrates that investing early in life skills, community engagement, and adolescent-centred systems can protect this majority while effectively supporting the vulnerable minority.

These lessons from the land reaffirm a central truth: early intervention is not only effective; it is essential for lasting prevention.

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SECTION UPDATES

Digital biomarkers in addiction psychiatry: Quantifying brain health in real time

Sayani Bisoi, Kamini Verma

Substance use disorder (SUD) represents a disease of dysregulation, a chronic cycle of intoxication, withdrawal, and relapse driven by enduring neuroadaptations. Traditional assessment of brain health in addiction has relied either on costly neuroimaging or retrospective subjective self-reports, vulnerable to concealment and recall bias. Thus, both fail to appreciate the real-world, dynamic fluctuations in brain function. Moreover, the concept of brain health in addiction has been overshadowed by the overwhelming emphasis on acute toxicity and withdrawal (1).

In 2022, the WHO defined brain health as "the state of brain functioning across cognitive, sensory, social-emotional, behavioural, and motor domains, allowing a person to realize their full potential over the life course, irrespective of the presence or absence of disorders" (2). Addiction psychiatry thus stands on the cusp of a paradigm shift enabled by digital biomarkers. They provide a data stream, derived from wearable devices, thus giving dynamic insights into a user's condition, thereby facilitating timely intervention, personalized feedback, earlier relapse detection and sustained recovery (1).

Mapping the Digital Phenotype to Neurocircuitry

SUD disrupts interconnected neural networks involved in executive control (prefrontal cortex), reward and salience processing (limbic system), stress pathways (HPA axis), autonomic balance, and sleep–wake regulation. Digital biomarkers serve as behavioural windows of these disruptions (1). For example:

- Reaction time inconsistency may signal executive deficits
- Impulsive behaviours may reflect reward dysregulation
- Low heart rate variability indicates stress imbalance
- Disturbed sleep patterns suggest circadian instability
- Altered communication trends may capture social dysfunction

Capturing these behavioural windows requires reliable, real-world measurement tools, an opportunity increasingly filled by digital biomarkers.

Domains of Digital Biomarkers for Brain Health in Addiction

Cognitive Markers:

Cognitive impairment, particularly in impulse control, working memory and decision-making, are core features of substance use and major hurdles in recovery. These cognitive fluctuations can be detected by smartphone-based tools. For instance, a prospective study in Norway successfully used a mobile Go/NoGo test to demonstrate the feasibility of conducting repeated

cognitive assessments in clinical populations (3).

Physiological Markers:

Physiological changes in response to cue-induced craving such as variability in heart rate or skin conductance, can be captured by wrist-borne biomarkers, thus aiding in relapse prevention (4). Researchers are engineering wearable sensors using plethysmography, heart rate variability and galvanic skin response as stress markers in real time. This can be utilized for craving assessment. Sleep and circadian rhythm jeopardized by substance use, can also be monitored using wearable sleep trackers.

Behavioural Markers:

An emerging passive biomarker is keystroke dynamics, proposed by researchers of Rutgers University, reflecting cognitive function in substance use disorders. Here, the typing patterns of a person can reflect brain health (5). Mobility and social activity, tracked by GPS data can detect withdrawal-related behavioural change or depression manifested by reduced movement, lower location variability, or fewer texts and calls (6).

Integration with Multi-Modal Assessment

Digital biomarkers can be integrated with genomics, proteomics, neuroimaging, and computational modelling (7). Machine learning algorithms are instrumental in converting the raw data generated by digital devices into clinically actionable insights. By analyzing the patterns across cognitive, physiological, and behavioral data, these tools can anticipate relapse risk and support tailored interventions.

Clinical Implications

Digital biomarkers are opening new frontiers in addiction care, enabling interventions that are timely, personalized, and scalable:

- **Just-in-Time Adaptive Interventions:** Wearable sensors can detect converging signs of stress, fatigue, and impulsive behaviour in real time. This provides support by deploying digital micro-tasks or direct escalation pathways to human care when needed (8).
- **Psychedelic-Assisted Therapy:** Digital phenotyping may help identify individuals most likely to benefit from psychedelic treatment and monitor how acute drug effects evolve into long-term behavioural change.
- **Prevention across the life span:** Remote monitoring of substance use and cognitive function is being explored across the lifespan, from youth interventions to preventing cognitive decline in older adults.

Current Scenario

Recent studies illustrate real-world applications of digital biomarkers. Wearable physiological

sensors, for instance, are currently being validated against withdrawal symptom scales during inpatient detoxification. Separately, actigraphy-based research is elucidating the role of sleep disruption in relapse risk across SUD (9).

Together, these efforts illustrate the growing potential of digital biomarkers to provide continuous, real-world insights into addiction, bridging the gap between laboratory research and clinical care.

Ethical and Regulatory Concerns

As digital biomarkers move toward large-scale, continuous monitoring, ethical and regulatory challenges become critical. Protecting personal data, ensuring privacy, and maintaining trust are essential. This can be addressed through data anonymisation, rigorous app quality evaluation and adherence to regulatory compliance. User acceptability and feasibility are other key concerns as app efficacy depends largely on user engagement. Thus the challenge lies in building simple, elegant, and intuitive user interface designs, especially for patients with low digital literacy. Moreover, many digital tools remain inaccessible to rural underserved areas and vulnerable populations (10).

Roadblocks

Despite their potential, the clinical translation of digital biomarkers is impeded by critical roadblocks. Foremost among these is the requirement to meet rigorous benchmarks for reliability, validity, standardisation, and sensitivity before integration into routine care is possible (2). Without deliberate attention to these barriers, there is a real risk that these innovations will not reach the patients who need them most.

Conclusion

Digital biomarkers thus shift addiction medicine from reactive to proactive care. It enables intervention before relapse by quantifying brain health in real time. The future lies in integrating these tools into standard care, giving patients a personal "dashboard" to manage their recovery with precision.

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Rising Vaping Among Indian Youth: Emerging Trends, Policy Gaps, and Prevention Strategies

Manmeet Kaur Brar, Khushpreet Kaur

The landscape of nicotine addiction in India's youth is undergoing a rapid, technology-driven evolution. Electronic nicotine delivery systems (ENDS), also known as e-cigs or e-cigarettes (ECs), are penetrating a market that has traditionally been dominated by combustible and chewable tobacco products. ECs produce an aerosol by heating a liquid containing propylene glycol or glycerol, flavourings, and often nicotine. While ECs have been used as harm-reduction tools for adult smokers, their use among adolescents and non-smokers poses significant public health concerns.

While adolescents use of combustible and smokeless tobacco has declined by 42% over the past decade, the proliferation of ENDS threatens to subvert these public health gains (1). Despite the enactment of the Prohibition of Electronic Cigarettes Act (PECA) in 2019, access and adolescent use persist through black markets and peer networks (2).

Epidemiology of Vaping in Youth

Globally, an estimated 37 million children aged 13–15 years use tobacco. In many countries, the rate of e-cigarette use among adolescents exceeds that of adults (3). In India, pre-PECA surveys, such as the GATS-2, found that awareness of e-cigarettes was highest (3.9%) among youth (15–24-year-olds). The Global Youth Tobacco Survey-4 (GYTS-4) reported 8.5% of 13-15-year-olds were current tobacco users (42% reduction from 2009) (1). While traditional tobacco prevalence is contracting, e-cigarette experimentation is establishing a foothold, with 3% of adolescents reporting ever-use.

This epidemiological trajectory steepens drastically among educated young adults aged 18–30 years, with studies reporting23% ever-use, and 8% dual-use with combustible tobacco. Furthermore, susceptibility among non-users remains high, with 31% expressing curiosity and 23% intending to initiate vaping within the following year (4). Higher socioeconomic status and educated youth often vape more, viewing it as a status symbol (5, 6).

Qualitative study, among adolescents (11-16-year-olds) (n=24) from Mumbai, highlighted the role of flavoured products, and social use were primary reasons for continued use (7). The flavour also reinforcing the perception that it is less harmful than tobacco. The fun element emerged from the ability to create smoke rings or do tricks with the smoke; often learnt from social media videos.

The strongest risk factors for adolescent EC use, identified in a systematic review, included social acceptance and peer or family use, male gender, low risk perception, younger age, and greater financial resources. Motives for use include low perceived risk and appealing flavours.

EC use is significantly associated with smoking initiation, cannabis consumption, and alcohol use (8).

Access despite the Ban

PECA led to a complete prohibition on all forms of sale (both online and physical stores), import or trade, purchase for personal use, and advertising related to ECs, yet young people still procure them through online and offline means. Primary channels remain black markets (illegal imports), peers/siblings, and social media (Instagram/WhatsApp sales near campuses) (5, 6, 7).

The Public Health Foundation of India (PHFI) surveyed 370 young people about their experiences with ECs and found 83 e-stores offering these products, 49 of which were located in India and 34 abroad. With social media (especially Instagram) emerging as a major source of awareness and promotion, influencer-driven marketing portrays ECs as stylish, affordable, and beneficial for smoking cessation (5).

Another study among Mumbai-based teenagers indicated that social media platforms blur the boundaries between factual information and promotion, with product reviews and lifestyle vlogs shaping perceptions and curiosity about ECs. Vaping in Mumbai schools thrives on "crowdfunded ownership" and USB-disguised devices, which have led to the flourishing of sophisticated networks (2).

Enforcement Effectiveness

Health Ministry data shows 350+ violations under PECA since 2022 (48 FY22, 33 FY23, 263 FY24), mostly urban (9). Legal Enforcement agencies reported 384 cases of violation nationally (up to 2025), with Maharashtra (229), Gujarat (31), Karnataka (19), and Arunachal Pradesh (19) reporting the most, and several states reporting zero cases (10). These numbers are significantly low as compared to the availability and prevalence of EC use in India. Recently, the Indian government reaffirmed the ban on ECs despite lobbying by Philip Morris, which sought to launch its heated tobacco device, IQOS (11).

Public Health Policies for Prevention

Adolescents are particularly vulnerable to the addictive effects of nicotine because of the ongoing neurodevelopment. Early exposure to nicotine not only increases the long-term nicotine dependence but may also act as a gateway to other substance use in adulthood. In 2019, ICMR white paper, indicated that e-cigarette usage in adolescents can negatively impact the cardio-respiratory system, and interfere with immune and airway responses, yielding effects akin to conventional tobacco.

Recognising these risks, the recent policy efforts such as Tobacco-Free Educational Institutions (ToFEI) aims to reduce exposure through school-based environmental control. However,

implementation, enforcement and oversight to the provisions of the Cigarettes and Other Tobacco Products Act (COTPA) are limited. International experiences suggest that regulatory bans alone may have a limited impact without strong border controls and regulation of online sales (4).

School-based prevention programmes can play an important complementary role in reducing vaping in adolescents. A Tobacco-Free-School (TFS) training intervention conducted in Maharashtra schools demonstrated significantly lower tobacco use among students exposed to the programme, with 14.7% reporting tobacco use compared with 24.2% in comparison schools. The research additionally identified that reduced exposure to TFS activities, heightened peer pressure, and the presence of tobacco consumption among adults in the household are key predictors of adolescent tobacco use (12).

Evidence from systematic review indicates that regulatory measures such as taxation, retail licensing, and flavour bans are effective in reducing youth vaping, while warning labels decrease the desire to initiate use (13). In contrast, age restrictions or restrictions on location alone have limited impact. Overall, preventing vaping among youth requires coordinated, multi-level public health strategies, with stronger regulatory interventions generally demonstrating greater effectiveness (Table 1).

Conclusion

Evidence suggests that ECs remain accessible and actively promoted despite existing prohibitions. A sizable proportion of youth, including non-users, remain vulnerable to initiation, with family and peer use acting as key drivers. Sustained prevention will require coordinated action across government agencies, schools, and families, alongside vigilant regulatory oversight of emerging vaping products and evolving marketing strategies.

Table 1. Interventions to reduce vaping in youth (14)

S.no.	Level of intervention	Key strategies	Expected effectiveness
1.	**Eliminate choice (Strong regulatory action)**	Ban retail sales to minors, remove in-store displays, enforce penalties (including online vendors), prohibit cross-border advertising, civil penalty for youth who violate the law	Highest impact – reduces initiation changes attitudes and beliefs about vaping
2.	**Restrict choice (Regulation of product and marketing)**	Limit nicotine concentration, regulate packaging design and flavours, restrict marketing claims (e.g., as smoking cessation tools), control social-media advertising	Effective in preventing initiation

S.no.	Level of intervention	Key strategies	Expected effectiveness
3.	**Guide choices by changing default**	Graphic warning, smoke-free household norms, messaging on health and financial harms	Effective in preventing initiation
4.	**Enable informed choice**	School-based prevention programmes, peer-led interventions, refusal-skills training, digital modules explaining marketing tactics and harms, creating culture where non-vaping is 'cool'	Effective in preventing initiation
5.	**Provide information**	Mass media campaigns, social media messaging, text-message interventions with loss-framed messaging, education on second-hand aerosol and environmental harms, multiple session programmes	Effective for changing knowledge, attitude and perception of harms
6.	**Monitor and reinforce norms**	Periodic revision of health warnings, parental monitoring, household rules against vaping	Supportive role
7.	**Reorient government action**	Mandatory advance notification of new vaping products, regulatory oversight of emerging products	System-level strategy

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Digital Harm Reduction for Cannabis Use in First Episode Psychosis: Findings from the CHAMPS Pilot Randomized Controlled Trial

Gaurav Kumar Singh

Cannabis use is common among individuals with first-episode psychosis (FEP) and is associated with poorer outcomes, including relapse, prolonged hospitalization, and reduced treatment adherence. Despite this, effective interventions for cannabis use in this population remain limited, with abstinence-based approaches showing modest benefits.

At the same time, digital interventions are increasingly being explored as scalable tools in psychiatry. However, their role in addressing substance use— particularly cannabis use in individuals with psychosis—remains underexplored, with limited availability of tailored interventions for co-occurring psychiatric disorders (1). Against this backdrop, the Cannabis Harm Reduction Application to Manage Practices Safely (CHAMPS) pilot randomized controlled trial offers timely insights into a digital harm reduction approach in this high-risk group.

In this context, CHAMPS, the pilot randomized controlled trial evaluated a smartphone-based harm reduction intervention as an adjunct to early intervention services (EIS) for young adults with FEP and cannabis use. Participants were followed over 18 weeks to assess feasibility and preliminary clinical outcomes (2).

A total of 180 individuals were screened, of whom 101 participants were recruited and randomized (51 to EIS + CHAMPS and 50 to EIS alone). The mean age of participants was 25.2 years, with a male predominance (72.3%).

The study demonstrated strong feasibility, with a retention rate of 82.2% at 6 weeks, exceeding the predefined threshold of 60%. While both groups showed improvement over time, the intervention group demonstrated a significant increase in harm reduction practices at 18 weeks ($d = –0.45$; $p = 0.02$).

Cannabis-related problems declined in both groups, with more consistent and statistically significant reductions observed in the intervention group at 6, 12, and 18 weeks. However, no significant differences were observed in motivation to change, dependence severity, or psychotic symptoms.

The study signals modest but meaningful improvements in harm reduction behaviours and cannabis-related problems, reinforcing the clinical value of harm reduction approaches, particularly for individuals not ready for abstinence-focused treatment.

However, these findings must be interpreted in the context of methodological limitations, including lack of blinding, potential selection bias due to clinician referral, and conduct within a legally permissive, high-income setting.

From an Indian perspective, the implications are substantial. Substance use disorders co-occurring with psychosis represent a major and under-addressed clinical challenge, with significant treatment gaps driven by limited specialist availability, stigma, and poor long-term engagement. In this context, digital interventions are not merely adjunctive but may represent a scalable strategy to extend care beyond tertiary centres.

That said, direct transplantation of such interventions is unlikely to be effective without contextual adaptation. Differences in legal frameworks, patterns of cannabis use (e.g., bhang and traditional preparations), health system capacity, and digital access necessitate locally tailored models.

Overall, this study provides a strong conceptual and practical foundation for India—not as a ready-to-implement solution, but as a direction for developing context-specific, digitally enabled harm reduction interventions integrated within existing mental health services.

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Cannabis Legalization and Pregnancy: Perceptions, Risks, and Policy Lessons

Shinjini Choudhary

With evolving global cannabis policies, understanding their impact on vulnerable populations, such as pregnant women, becomes imperative. Perinatal cannabis use is associated with adverse outcomes including low birth weight, small for gestational age, preterm birth, longer neonatal intensive care unit (NICU) stay, although the effect size remains modest in some studies (1). Emerging evidence also raises concern regarding later neurodevelopmental outcomes such as Attention Deficit Hyperactivity Disorder (2).

A recent qualitative meta-synthesis examined women's perceptions, experiences, and decision-making processes regarding perinatal cannabis use in regions where recreational cannabis use is legal (3). The review included 19 studies from the United States of America (n=15) and Canada (n=4), and identified eight key themes shaping women's decision making regarding cannabis use during perinatal period. Themes spanned recreational cannabis legalisation, clinical policies and practice, stigma and discrimination, access and desire for information, clinician-patient relationships, most trusted sources: family and friends, perceptions and experiences, and self-management.

Findings highlighted a critical mismatch between perceived and actual risk. Many women's perceived benefits often outweighed harms of perinatal cannabis use, influenced by intersecting social, clinical and policy factors. Legalisation and regulated retail environments further reinforced these perceptions, with availability through dispensaries contributing to beliefs that cannabis use is safe and acceptable during pregnancy. Fear of judgment, stigma and potential legal consequences, losing child custody, frequently discouraged open discussions with healthcare providers during perinatal care. Many women reported greater trust in personal narratives from family and friends, with anecdotal experiences often perceived as more credible and relatable than clinical advice. In addition, inconsistent and sometimes non–patient-centred communication from healthcare providers further contributed to disengagement from formal medical guidance. Self-medication with cannabis during pregnancy was also described, particularly among women with prior positive experiences. In some cases, cannabis use was also framed as a harm-reduction strategy relative to other substances.

A recurring concern across studies was the lack of clear and consistent information regarding cannabis related risks, prompting women to seek guidance through social media and informal networks. Cannabis was often viewed as a natural and safer alternative to substances such as alcohol, tobacco or opioids, and as a means of managing mental health and pregnancy-related symptoms. This combination of information gaps and favourable perceptions further reinforced the tendency to prioritise perceived benefits over potential risks.

In conclusion, women's decision-making regarding cannabis use is shaped by a complex interplay of social, clinical and policy factors. Access to clear, evidence based information and non-stigmatizing healthcare is essential. Public health efforts must address the knowledge gaps and communicate risks effectively. As global cannabis policies evolve, India too needs to proactively strengthen clinician–patient trust, counter misinformation, and develop context specific strategies to support informed and safer maternal health decisions.

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CREATIVE SECTION

Art Work

Where Can Telehealth Fit in Vertical and Horizontal Substance Use Care?

Gargi Sinha

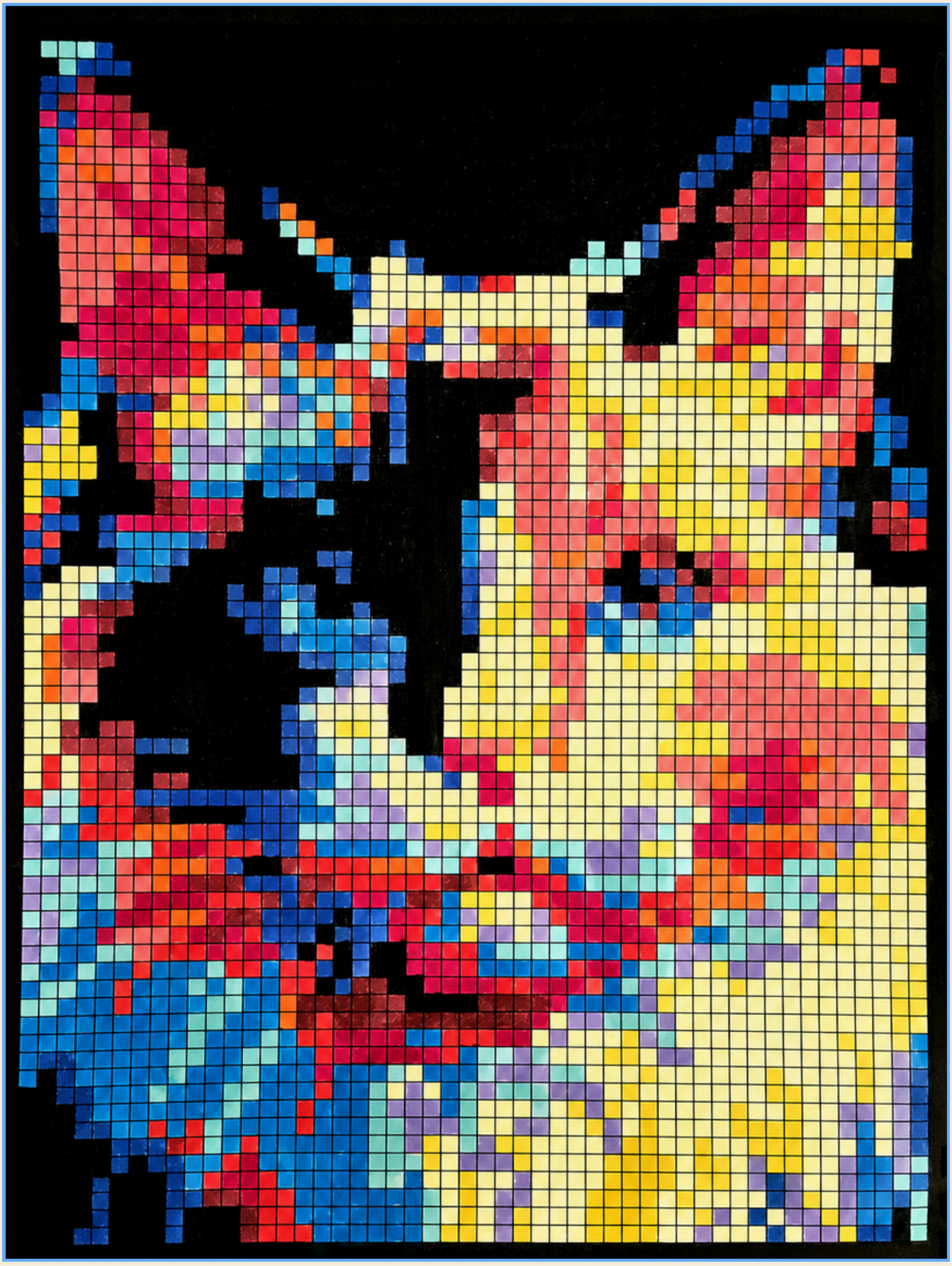
This illustration shows vertical and horizontal care side by side, highlighting where telehealth can make the most impact. Through my illustration, I aim to visually portray the role of telemedicine—how it can extend beyond traditional healthcare settings to support capacity building and early prevention.

When we talk about vertical and horizontal care in substance use, it is important to visualize where telehealth services can sit most effectively. Within the vertical care model, telehealth not only helps to build capacity within the health sector but also plays a key role at the prevention level by connecting with a range of settings such as schools and community services.

Art Work

Whiskers — I Know This Cat, Yet I Don't

P.Anuprabha



Art Work

Whiskers — I Know This Cat, Yet I Don't

P.Anuprabha

This artwork depicts a front-facing portrait of a cat created through vivid, pixel-like geometric squares. It explores how psychedelic substances such as LSD (lysergic acid diethylamide) can drastically alter perception, transforming a familiar pet cat into something distorted, fragmented, and almost unrecognizable. The piece reflects the heightened sensory experiences, visual distortions, and derealization commonly associated with psychedelic drug use. The cat blurs the boundary between recognition and alienation, symbolizing the fragile nature of perception under LSD. While visually intriguing, the artwork also emphasizes the psychological risks of psychedelics, including serotonin disruption, anxiety, paranoia, perceptual disturbances, and possible long-term mental health consequences such as psychosis.

"Whiskers" is inspired by artists who explored altered perception and mental states through distortion and abstraction. Louis Wain influenced the repetitive and distorted portrayal of a familiar pet, while Bryan Lewis Saunders inspired the idea of perceiving a subject differently under the influence of substances. The fragmented psychological imagery in Bryan Charnley's work informed the sense of instability within a recognizable form, and Henri Michaux's mescaline drawings shaped the representation of altered consciousness. The vibrant colors and geometric repetition in Brian Pollett's psychedelic works also influenced the visual style. Together, these influences helped shape "Whiskers" into an exploration of how perception can shift, causing even familiar and comforting subjects to appear distorted and unfamiliar.

In its essence, "Whiskers" reflects the fragile nature of perception, revealing how easily it can be altered. It shows how even the most familiar and comforting presence can transform into something distant, distorted, and unfamiliar under the influence of a psychedelic substance, blurring the boundary between recognition and alienation.

Movie Review
Beautiful Boy: When Love Isn't Enough

Arambam Chanu Yaiphabi, Evlin Aloshy, and Mahnaz Gani

Beautiful Boy (2018) tells the real-life story of Nic Sheff's battle with methamphetamine addiction and his father David's relentless efforts to help him recover. Based on their memoirs, the film does not offer a clean recovery arc. Instead, it takes us through a recurring but heartbreaking pattern of hope, relapse, and emotional exhaustion, an experience that many families living with addiction quietly endure.

Starring Steve Carell and Timothée Chalamet, the film moves back and forth in time, showing Nic as a bright, sensitive, and creative teenager before addiction slowly begins to take hold. Instead of telling a straightforward "fall and rise" story, the narrative reflects the inherent instability of addiction. Moments of laughter, warmth, and connection are abruptly disrupted by absence, deception, and fear.

At its core, the film is not just about addiction. It is about a parent's hope and emotional investment, even in the face of repeated setbacks and apparent failure.

What makes it so compelling about Beautiful Boy is not only Nic's deterioration, but the repetitive nature of addiction trajectory itself. The movie does not provide a classic "Aha!" moment, rather presents addiction as a chronic, relapsing cycle—pulling Nic along and dragging him back until he and his family are completely exhausted.

The movie's gravity lies in its endless cycle.

The Cycle of Addiction

Hope

Nic is also admitted to rehab and begins to speak up during group discussions, appearing better, as he has finally managed to get a focus. His father can see a glimpse of the son he once was. In the family dinner scene with the tentative optimism, it seemed as if this time it might be different. The family had a moment to breathe.

Relapse

Nic abruptly vanishes. David stays out all night exploring the streets, calling hospitals, driving through unknown areas. Nic had disengaged from care, resuming his substance use, appeared dishevelled, and deteriorated physically. He steals cash and also consumes meth resulting in overdose, reflecting the destabilizing nature of relapse.

Recovery attempts

Nic returns to treatment, starts attending meetings and initiates a wobbling conversation with

his dad full of regrets and longing. He later joins college and starts speaking optimistically, giving a perception of functional improvements to both the family and viewers.

Collapse

Nic misses treatment, demands cash and heads more into addiction. David finds him high again, in a nauseating scene, his disappointment mingles with a pathetic love. The house which seemed to be safe, now feels exposed, strained and uncertain.

This cycle continues to manifest itself across settings, after rehab, in college, and even when he starts living with his mom, gradually eroding the emotional resilience of the family. The monotony makes the viewer experience exhaustion and strain of having an addicted family.

Psychological Lens

Understanding Beautiful Boy requires understanding the addiction from a neurobiological and psychosocial framework.

Addiction as a Brain Disease

Methamphetamine floods the brain's reward system. It discharges dopamine on a scale much higher than natural reinforcers. Over time, neuroadaptation leads to cravings intensify, decision-making weakens, urge to use again overruns the impulse control.

Throughout the movie, Nic is continuously making decisions on behalf of the drug, neglecting his family, education, and future. Addiction no longer seemed a choice, rather had become a compulsion.

Impact on Family System

Addiction seldom concerns the individual only. The whole family is seriously affected. The preoccupation with rescuing Nic consumes David and strains his marriage with Karen and alienates him from his younger kids. The children slowly start losing the brother whom they are used to and become acquainted with the man who tells lies, robs, and vanishes without coming back. The home that was a symbol of safety turns into a place of anxiety, quarreling, and fear.

Emotional Dysregulation and Trauma

The movie hints at cumulative vulnerabilities, including parental divorce and early experimentation of drugs by Nic. Substance use serves both as an emotional numbing strategy and a driver of further dysregulation, leading to impaired coping. David once attempts to use weed, which is an indication of shared stress.

Recovery, Co-dependency, and Boundaries

Learning how to support a loved one and not being able to implement it effectively is one of the most challenging issues that families face in addiction. David's persistent efforts to help Nic, giving money, searching for him, and repeated rescue attempts, reflect an enabling

pattern often seen in codependency, where a caregiver's emotional state becomes contingent on the patient's behavior.

In contrast, Karen is the voice of reason who reminds David that he cannot force Nic to recover. The film underscores that sustained recovery requires patient engagement with internal locus of control, while families must learn to support without reinforcing maladaptive patterns.

Beautiful Boy also makes us understand that addiction is not merely a matter of lack of will, but rather a complicated psychological and neurological battle that leaves an imprint on the person and the family.

It reminds us that recovery is hardly linear. That relapse does not mean absence of love or effort, but the chronic, relapsing nature of addiction. The worst part of addiction is watching a person you love battle against a fight that you cannot fight on their behalf.
Love alone may not cure addiction. But sometimes, it is the reason someone survives long enough to try again.

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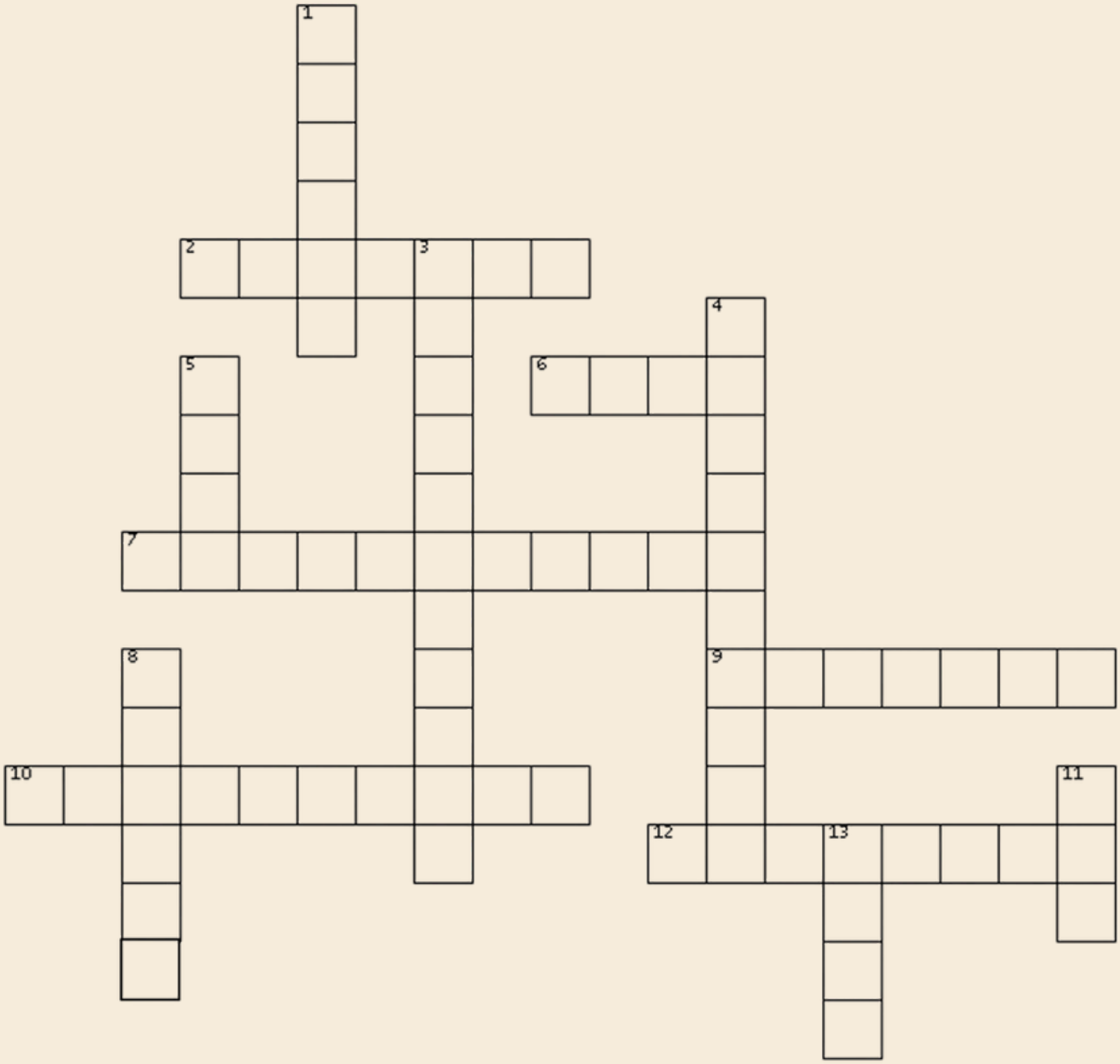


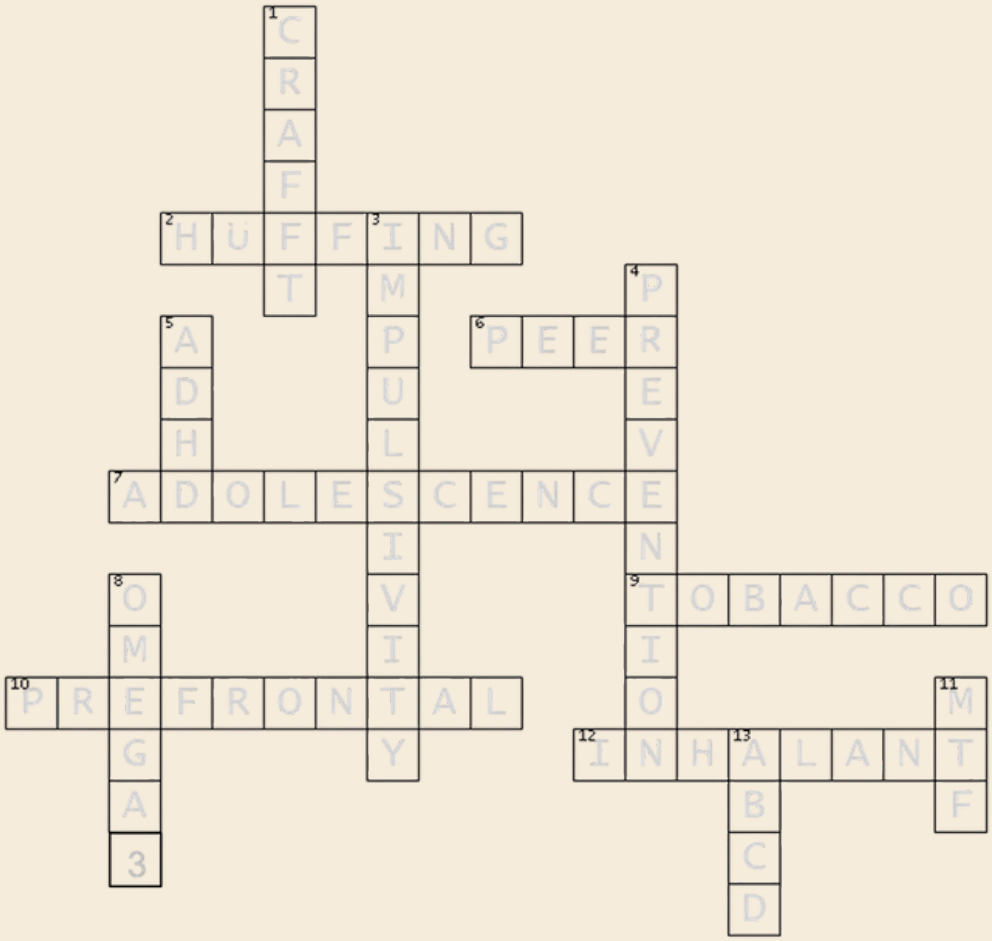
Across

2. Method of inhalant use involving inhalation with a cloth covering the mouth (8)
6. Strongest social predictor of adolescent substance use (4)
7. Developmental period marked by increased risk-taking and substance initiation (10)
9. Most common entry substance among Indian adolescents (7)
10. Brain region responsible for impulse control, last to get myelinated in adolescents (10)
12. Substance showing higher prevalence among children than adults in India (9)

Down

1. Validated screening tool for adolescent substance use (6)
3. Behavioural trait linked to poor self-control and higher SUD risk (11)
4. Public health approach aimed at reducing initiation of substance use (10)
5. Neurodevelopmental disorder associated with higher SUD risk (4)
8. Fatty acid linked to improved impulse control and studied in addiction (6)
11. Acronym of a long-running US survey monitoring adolescent substance use trends (3)
13. Large longitudinal study on adolescent brain development in the USA (4)

Solution



ADDICON, 2026

Organised by: All India Institute of Medical Sciences

When: December 4-6, 2026

Where: AIIMS Nagpur

Link: https://addictionpsychiatry.in/

Annual Global ISAM Congress, 2026

Organised by: International Society of Addiction Medicine (ISAM)

When: October 1-3, 2026

Where: Rotterdam, the Netherlands

Link: https://congresscare.eventsair.com/isam-2026-rotterdam/attendee-registration-2/Site/Register

2026 CPDD Annual Meeting

Organised by: The College on Problems of Drug Dependence

When: June 13-17, 2026

Where: Portland, Oregon

Link: https://cpdd.org/meetings/current-meeting/registration/

NIDA 2026 International Forum

Organised by: National Institute on Drug Abuse

When: June 3-4, 2026

Where: Virtual Event

Link: https://2026nidaintlforum.vfairs.com/

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