

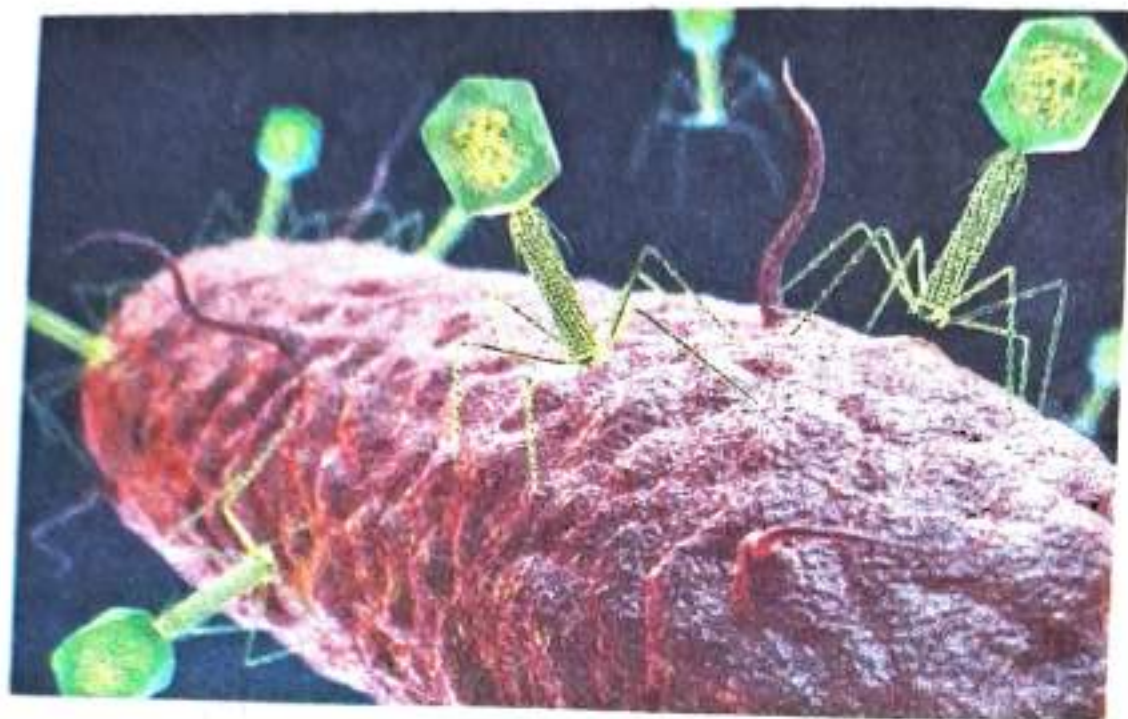


DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE Day
Sunday

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SNAPSHOTS



Scientists use AI to design viruses to kill hardy bacteria

Scientists have used AI to design entire genomes for bacteriophages, viruses that infect and kill bacteria. Using 'genome language models', they generated thousands of new DNA sequences, then used them with a well-studied virus called X174 as a template to yield 16 functional viruses. These phages were different from any found in nature, and could together successfully kill bacteria known to resist natural viruses. The work offers a path to create treatments to fight drug-resistant bacteria.

family had been out of touch with Dakshayini for around two years. ENS

custody of Athanikkal for questioning. PTI

Kerala govt makes cause of death medical certificate mandatory

Shaju Philip
Thiruvananthapuram,
August 8

THE KERALA government recently made Medical Certification Of Cause Of Death, or MCCD, mandatory for all deaths registered in the state.

According to Divya S Iyer, principal director of the local self-government department (LSGD), this course of action has been implemented in all 93 urban local bodies in the state since June 1, following an order issued on May 28. So far, the MCCD scheme has been implemented in four of the six corporations (Kochi, Thiruvananthapuram, Kollam and Kozhikode), and Alappuzha municipality were registered and certified.

"The scope of MCCD has been expanded considering its importance to public health. We have activated the civil registration system in all urban bodies (6 corporations and 87 municipalities) to incorporate the Certificate Of Cause Of Death while registering deaths, both institutional and at home," Divya said.

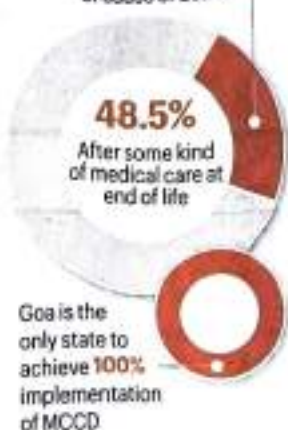
The MCCD is a key document that informs public health policy formation, disease surveillance, medical research and allied activities. In another two months, the 940-odd village panchayats, too, will follow the practice of making medical certification of cause of death mandatory, Divya highlighted. So far, the system has not thrown up major hitches. However, it was noticed that there is a delay in certifying deaths wherein a postmortem report is necessary to ascertain the cause.

Divya also pointed out that while the medical certification of institutional deaths is seamless in the new system, "certain issues have to be addressed with regard to certifying deaths at home." A meeting will soon be arranged with all stakeholders to remedy this.

In Kerala, the medical certification of cause of death under the new directive has been integrated with the Information Ke-

MCCD at a glance

22% of total deaths in India includes certification of cause of death



KERALA

2024	10.7%
2023	11.4%

AMONG MAJOR STATES

Maharashtra	42.4%
Tamil Nadu	39.1%
Telangana	38.4%
Karnataka	26.7%

SOURCE: ANNUAL REPORT ON MCCD, 2023, BY OFFICE OF REGISTRAR GENERAL OF INDIA

rala Mission, the state government venture giving IT services from local bodies.

The MCCD is the official legal and medical document that states the exact sequence of medical conditions and events leading to a person's death.

Under sections 10(2) and 10(3) of the Registration of Births and Deaths (Amendment) Act, 1969, it is stipulated that for all deaths occurring in medical institutions, the medical practitioner who treated the deceased must provide the registrar with a certificate regarding the cause of death in the prescribed format. In the case of deaths at home, the doctor who treated the persons during their terminal illness is required to report the cause of death.

As per official data, Goa is the only state to achieve 100% implementation of MCCD.

T61

Rising air turbulence tangible example of how warming climate affects everyday life

On Aug 4, Air India flight AI2379 from Phuket to Delhi was cruising through clear skies when it suddenly dropped nearly 300 feet, injuring 17 people. The culprit: clear-air turbulence, an invisible phenomenon that is becoming more frequent and violent. **Professor Paul Williams**, atmospheric scientist and head of the department of meteorology at the University of Reading, UK, tells **Joeanna Fernandes** why climate change is roughing up the skies, and why fixing it will take more than better radar

■ Your research has found that severe clear-air turbulence has been increasing around the world and could triple in places in the coming decades. Can you walk us through how a warming planet is driving it?

Climate change is altering the atmosphere in ways that are largely invisible to passengers but increasingly important to aviation. One of the key mechanisms involves the jet streams, which are fast-moving currents of air that encircle the globe at cruising altitudes. You can think of these as flowing rivers. When the current is smooth, a boat glides effortlessly. But where fast and slow currents interact, eddies and whirlpools develop. Aircraft encounter similar phenomena in the sky. Scientists have discovered that climate change is increasing the temperature difference between the tropical and polar air masses that collide high above our heads. This effect is destabilising jet streams and leading to more turbulence. It is a subtle but tangible example of how a warming climate is reshaping the atmosphere in ways that affect everyday life.

■ You've found that severe clear-air turbulence increased 55% over the North Atlantic — one of the world's busiest flight corridors — between 1979 and 2020. What exactly is this phenomenon, and why is it so hard to forecast and avoid?

Clear-air turbulence is exactly what its name suggests: turbulence that occurs in cloudless skies. Unlike the turbulence associated with thunderstorms, it leaves no visual clues for pilots and cannot be detected by conventional onboard weather radar. It typically forms near the jet streams, where strong wind shear—rapid changes in wind speed or direction—creates invisible pockets of atmospheric instability. An aircraft can, therefore, fly through seemingly calm skies before suddenly encountering a sharp jolt. The challenge is

FOR THE RECORD

that clear-air turbulence is both invisible and short-lived. Although weather forecasting has improved enormously, predicting the precise location and intensity of these turbulent patches remains difficult. Pilots rely on forecasts, reports from other aircraft, and increasingly sophisticated computer models to minimise encounters, but completely avoiding them is not always possible.

■ Are some parts of the world seeing sharper increases than others?

Climate change is unlikely to produce a uniform increase in turbulence, because different regions are dominated by different physical mechanisms. In the mid-latitudes, clear-air turbulence is expected to increase most sharply as climate change strengthens wind shear around the jet streams, making routes across the North Atlantic and North Pacific progressively bumpier. Over major mountain ranges such as the Rockies, Andes, Himalayas, and Alps, mountain-wave turbulence is the dominant hazard, generated when strong winds are forced over high terrain. Changes in the large-scale atmospheric circulation may alter its frequency and intensity, although the evidence is less definitive than for clear-air turbulence. Meanwhile, in the tropics, convective turbulence associated with powerful thunderstorms may increase because a warmer atmosphere contains more moisture and energy supporting more vigorous convection. So, while the atmosphere is becoming rougher worldwide, the type of turbulence that increases depends very much on the geography and the meteorology of the region.

■ Turbulence costs the global aviation sector close to \$1 billion a year in aircraft damage and rerouting-related fuel costs. What new tech...

The future of turbulence avoidance will depend increasingly on data fusion, bringing together multiple sources of atmospheric information and using artificial intelligence to turn them into actionable forecasts. A company leading the way in this field is SkyPath, which intelligently combines weather forecast data, satellite observations, and aircraft measurements to produce a much richer understanding of where turbulence is occurring and where it is likely to develop. This can help airlines optimise flight paths, improve passenger comfort, and reduce the operational costs associated with unexpected encounters.

■ Is there any research yet on how climate change is affecting turbulence over Indian airspace?

Research on Indian airspace is still relatively limited compared with regions such as the North Atlantic. However, the physical mechanisms suggest that India is a region of particular interest. Indian airspace sits at the crossroads of several turbulence-generating processes, including strong jet-stream variability, the Himalayan mountain ranges, and intense tropical convection. Mountain-wave turbulence associated with the Himalayas can be important for flights operating across northern India, while convective turbulence is a major concern during the monsoon season, when deep thunderstorms produce powerful updrafts and downdrafts. A warmer atmosphere can hold more moisture and energy, potentially increasing the intensity of these convective systems. In addition, changes to large-scale circulation patterns may influence the jet streams and wind shear affecting the region. We need more dedicated studies using Indian flight data and high-resolution climate simulations to quantify the trends.

■ If you could get airlines, regulators, or passengers to change one thing today, what would it be?

The single most important change would be to recognise turbulence as a growing climate-related challenge and invest in more research to understand the physics of turbulence generation and ultimately improve turbulence forecasts. For passengers, the simple message is to always keep your seatbelt fastened whenever you are seated, even if the skies appear calm and the seatbelt sign is switched off. Modern aircraft are exceptionally resilient, and turbulence is generally not a threat to the structural integrity of commercial aircraft, but unexpected encounters can still cause injuries to passengers and flight attendants. As climate change puts more...



Traditional diets shape unique gut microbes of Indian tribes

Research on Indian tribal populations shows that traditional diets foster unique gut bacteria; the findings show an urgent need for biobanking to preserve microbial diversity and develop region-specific probiotic therapies as required

Rohini Karandikar

The gut microbiomes of eight tribal populations across India have a unique diversity shaped by their traditional diets and are distinct from those observed in industrialised settings, researchers have reported in *Gut Microbes*.

The effects of probiotics depend on a population's diet and gut composition, and the study offers a baseline for India's tribal communities. It also points to the research still needed before such interventions can be tailored effectively.

The study's authors have also stressed a need to preserve these microbiomes in biobanks before the diversity disappears.

India has a large indigenous population that follows diverse diets based on location and culture. However, they are also under-represented in global human microbiome studies, making up less than 1% of the human microbiome samples.

"The Indian microbiome is very different compared to the Western population, with an enormous diversity within India," said Dhiraj Dhotre, a scientist at the National Centre for Cell Science (NCCS), Pune, and the study's co-corresponding author. "Secondly, the entire microbiome is shaped by our long-term dietary habits."

The study was led by researchers from NCCS in collaboration with scientists from other institutions

Microbial riches

New research offers a baseline to understand the effects of probiotics in India's tribal communities

■ A study of eight Indian tribal populations reveals unique microbial diversity shaped by their traditional dietary habits

■ Indian populations remain under-represented in microbiome research, making up less than 1% of samples in international studies

■ High dairy consumption in trans-Himalayan tribes is linked to unique bacterial strains that improve gut health

■ Tribal microbiomes differ from industrialised datasets, although globalisation is beginning to influence some specific microbial profiles

■ Scientists emphasise the importance of using biobanks to preserve indigenous microbiomes before urbanisation destroys them

■ The study also highlights the need for regional studies to develop diet-specific probiotic interventions for India



A group of Balti children in 2008. MARKA LY (CC BY)

in India, Finland, and the U.S.

In the study, the team investigated the effects of dietary variation across eight tribal cultures on their gut microbiomes. These communities were from four regions: Warli from the western coast, Madia and Gond from the northeastern Deccan plateau, Kabui from northeast India, and Brokpa, Purigpa, Balti, and Boto from the trans-Himalayas. Of these, 76 healthy adults contributed dietary data and faecal samples for study.

The team's analysis revealed that the diet of the trans-Himalayan communities mainly included a variety of grains and dairy while those of the other four tribes significantly differed, as they included home-brewed alcoholic beverages, fish, fruits, and/or greens and stems.

The gut microbiota of

the trans-Himalayan population was also more diverse and included a distinct strain of the bacterium *Bifidobacterium adolescentis*. The researchers associated this pattern with high dairy consumption.

"The dairy component in the diet has [exerted] an evolutionary selection pressure, due to which specific microbes have been established," Abhijit Kulkarni, lead co-author of the study and former PhD student at NCCS, said.

Bifidobacterium bacteria are known to improve gut health and are a major component of commercial probiotics. However, Dr. Dhotre cautioned against considering it to be a universal marker of a healthy microbiome.

"It is not that only healthy individuals have *Bifidobacterium* and others do not. Those consuming diets other than dairy and

grains may harbour different organisms that can provide similar health benefits," he said.

Among other species, *Bifidobacterium* bacteria convert dietary carbohydrates into short-chain fatty acids. In infants, the enzyme lactase converts lactose in milk to glucose and galactose. However, in adults, bacteria like *Bifidobacterium* take over and help ferment lactose. The trans-Himalayan population's microbiome showed enriched pathways of lactose and galactose metabolism and plant-degrading carbohydrate-active enzymes. The researchers also compared the microbial diversity from tribal communities with that from previously described samples from California, an industrialised setting, and found that the tribal gut microbiome was distinct.

"It becomes interesting to see how your human bi-

ological evolution, microbial presence, and cultural trait of having dairy or milk in your diet all go hand in hand to create not only human diversity but also affect the microbial diversity," Dr. Shantanu Ozarkar, a co-author and a biological anthropologist from Savitribai Phule Pune University, said.

Researchers did note that the study's sample size was small – yet they were able to identify 14 putatively novel bacterial taxa from 76 participants. The work in this study led to the conceptualisation of the Indian Human Microbiome Initiative, which concluded recently with the goal of "sampling more than 3,400 individuals across [India] from 10 endogenous and 7 tribal communities."

"The data is very robust because [the study] employs better and novel analytical, statistical, and bioinformatic tools," Moji-bur Khan, of the Institute of Advanced Studies in Science and Technology, Guwahati, and an independent expert, said.

Researchers also stressed the importance of preserving these microbial communities in biobanks.

"After a few decades, when we need them for corrective measures or for clinical applications, we will not have any representations left of these ancient microbes. This microbial biodiversity must hence be preserved."

(Rohini Karandikar works with the TNQ Foundation, and is a science communicator and educator)

कई अस्पतालों में सिर्फ कागजों में पहुंची दवाएं: सौरभ

नई दिल्ली। आप के दिल्ली प्रदेश अध्यक्ष सौरभ भारद्वाज ने दिल्ली सरकार की दवा खरीद व्यवस्था पर गंभीर आरोप लगाए हैं। उन्होंने दावा किया कि 650 करोड़ के कथित घोटाले के अलावा करीब 100 करोड़ रुपये मूल्य की दवाएं 400 करोड़ रुपये में खरीदी गईं, लेकिन इनमें से बड़ी मात्रा में खरीद केवल कागजों में दिखाई गई। भारद्वाज ने कहा कि दिल्ली सरकार के अस्पतालों में जरूरी दवाएं उपलब्ध नहीं हैं, जबकि रिकार्ड में आपूर्ति दर्शाई गई है। सरदार वल्लभ भाई पटेल अस्पताल में लाखों रुपये की दवाओं की आपूर्ति कागजों में दिखाकर वास्तविकता में अस्पताल तक नहीं पहुंचाई गई। पहले केंद्रीय खरीद एजेंसी से ली जाने वाली दवाओं पर एमआरपी नहीं अंकित होती थी, जिन पर स्पष्ट लिखा रहता था कि ये दिल्ली सरकार की आपूर्ति हैं और बिक्री के लिए नहीं। आप नेता ने आरोप लगाया कि 100 करोड़ की खरीदी गई दवाओं में से केवल 20-30 फीसदी ही अस्पताल पहुंची, जबकि 70-80 फीसदी कागजों में आपूर्ति दिखाकर खुले बाजार में निजी केमिस्टों को बेच दी गई। इससे पहले भी भारद्वाज 650 करोड़ रुपये के दवा घोटाले का आरोप लगा चुके हैं। ब्यूरो

स्वाइन फ्लू का बढ़ता खतरा, लक्षण दिखें तो तुरंत लें डॉक्टर की सलाह

अमर उजाला ब्यूरो

लक्षण सामान्य वायरल बुखार जैसे हो सकते हैं

नई दिल्ली। दिल्ली में मानसून के साथ स्वाइन फ्लू (एच1एन1) का खतरा बढ़ता नजर आ रहा है। मौसम में नमी और तापमान में उतार-चढ़ाव के बीच इन्फ्लूएंजा वायरस तेजी से फैल सकता है। स्वास्थ्य विशेषज्ञों के अनुसार स्वाइन फ्लू एक वायरल संक्रमण है, जो संक्रमित व्यक्ति के खांसने, छींकने और नजदीकी संपर्क में आने से फैलता है। साथ ही संक्रमित सतह को छूने के बाद बिना हाथ धोए आंख, नाक या मुंह छूने से भी वायरस शरीर में प्रवेश कर सकता है।

स्वाइन फ्लू के शुरुआती लक्षण सामान्य वायरल बुखार जैसे हो

सकते हैं। इसमें तेज बुखार, लगातार या सूखी खांसी, गले में खराश, नाक बहना, सिरदर्द, शरीर में दर्द और अत्यधिक थकान शामिल हैं। कुछ मरीजों में संक्रमण बढ़ने पर सांस लेने में परेशानी भी हो सकती है। आरएमएल अस्पताल के मेडिसिन विभाग के प्रोफेसर डॉ. अजय चौहान का कहना है कि खासकर बुजुर्गों, गर्भवती महिलाओं, छोटे बच्चों और पहले से गंभीर बीमारियों से जूझ रहे लोगों को अतिरिक्त सावधानी बरतनी चाहिए। उन्होंने बिना सलाह के एंटीबायोटिक या अन्य दवाएं लेने से भी बचने की सलाह दी है।

ब्रेन ट्यूमर से बुजुर्ग को लगा चीनी खाने का चस्का

सिम्पटम

जांच में मानसिक रोगों के लक्षण नहीं मिले

नई दिल्ली। एक 89 साल के बुजुर्ग को खाने की पसंद अचानक ऐसी बदली कि परिवार हैरान रह गया। उन्हें मीठा इतना पसंद आने लगा कि वह रोजाना करीब 100 ग्राम तक चीनी खाने की ज़िद करने लगे। वहीं नमकीन और सामान्य भोजन से उन्होंने लगभग मुंह मोड़ लिया। शुरुआत में यह बदलाव सिर्फ स्वाद की पसंद लगा, लेकिन जांच में इसके पीछे दिमाग में दोबारा फैले कैंसर और उससे बने ट्यूमर का पता चला। वर्धमान महावीर मेडिकल कॉलेज

डॉ. पी वर्मा के अनुसार, मरीज का इलाज स्टीरियोटेक्टिक रेडियोथेरेपी से किया गया। इसके बाद परिवार ने उनके व्यवहार में असामान्य बदलाव महसूस किया। वह बड़ी मात्रा में चीनी खाने की मांग करने लगे और रोजाना करीब 100 ग्राम तक चीनी खाने के लिए अड़ जाते थे। इसके विपरीत नमकीन भोजन से उसे चिढ़ होने लगी और वह उसे खाने से इन्कार करते थे।

परिवार की चिंता के बाद डॉक्टरों ने उनकी मानसिक स्थिति की भी जांच की। विस्तृत मूल्यांकन में अवसाद, भ्रम, पागलपन या ऑब्सेसिव-कम्पल्सिव डिसऑर्डर जैसे मानसिक रोगों के लक्षण नहीं मिले। यानी बदलाव किसी सामान्य मानसिक बीमारी के कारण नहीं था, बल्कि खाने की पसंद और उससे मिलने वाली संतुष्टि में आया असामान्य परिवर्तन था।

(वीएमएमसी) और सफदरजंग सामने रखा है।

अस्पताल के मनोचिकित्सा विभाग के डॉक्टरों ने इस दुर्लभ मामले को 2021 में एडिनोकार्सिनोमा नामक

कैंसर का इलाज हुआ था। करीब चार साल बाद शरीर में सोडियम की कमी के कारण उन्हें दौरे पड़ने लगे। साथ ही याददाश्त कमजोर होने लगी। इन लक्षणों के बाद डॉक्टरों ने एमआरआई कराया। जांच में पता चला कि कैंसर दोबारा फैल चुका है। दिमाग के बाएं भाग के पिछले हिस्से, यानी लेफ्ट पैरिटो-ऑक्सिपिटल क्षेत्र में ट्यूमर बन चुका था। ट्यूमर के कारण दिमाग में सूजन भी थी। डॉक्टरों के मुताबिक, सूजन और दबाव ने दिमाग के उन हिस्सों के कामकाज को प्रभावित किया, जो स्वाद, आनंद और भोजन से मिलने वाली संतुष्टि से जुड़े हैं।

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नशे के खिलाफ लड़ाई को जनआंदोलन बनाएं

भारत में नशे की बढ़ती समस्या अब केवल कानून-व्यवस्था का नहीं, बल्कि सामाजिक, स्वास्थ्य और राष्ट्रीय विकास का गंभीर प्रश्न बन चुकी है। इसी चुनौती को देखते हुए प्रधानमंत्री ने 2 अगस्त, 2026 को 'नशा मुक्त युवा- विकसित भारत संकल्प अभियान' का शुभारंभ किया था। इस अवसर पर एक करोड़ युवाओं ने नशा मुक्ति की शपथ ली थी। प्रधानमंत्री ने कहा कि नशा केवल शरीर को नुकसान नहीं पहुंचाता, बल्कि पूरे परिवार की खुशियां और भविष्य छीन लेता है।

डॉ. पी. के. बाजपेयी



खुला आवाज

नशे के खिलाफ लड़ाई तभी निर्णायक बनेगी, जब सरकार के प्रयासों के साथ परिवार, स्कूल, समाज और स्वास्थ्य व्यवस्था भी मिलकर इसे जनआंदोलन का रूप दें।

विकसित भारत के लक्ष्य को हासिल करने के लिए युवाओं का नशे से दूर रहना अनिवार्य है। इस अभियान की गूंज राज्यों में भी दिखाई दे रही है। हरियाणा के यमुनानगर में आयोजित 'नशे से जंग, यमुनानगर के संग' मैराथन में हजारों लोगों की भागीदारी ने सामाजिक जागरूकता का संदेश दिया। हालांकि जन-जागरूकता अभी प्रभावी होगी, जब उसे रोकथाम, उपचार और पुनर्वास की व्यापक रणनीति से जोड़ा जाएगा।

स्थिति की गंभीरता का अंदाजा इस बात से लगाया जा सकता है कि देश में 'एनडीपीएस अधिनियम' से जुड़े कई लाख मामले लंबित हैं। इनके शीघ्र निस्तारण के लिए 65 विशेष अदालतें कार्यरत हैं। पंजाब में 60 हजार, केरल में 50 हजार, ओडिशा में 17 हजार के अलावा तमिलनाडु, कर्नाटक, मध्य प्रदेश, पश्चिम बंगाल और हिमाचल प्रदेश में सबसे अधिक मामले लंबित हैं। नशे का सबसे बड़ा दुष्प्रभाव परिवारों पर पड़ रहा है। हाल ही में एक 16 वर्षीय किशोर को उसकी मां नशे और

मोबाइल गेमिंग की लत के कारण काउंसलिंग के लिए लाई। पिता पहले ही नशे की वजह से परिवार से अलग हो चुके थे और अब बेटा भी उसी राह पर चल पड़ा। यह अकेली घटना नहीं, बल्कि हजारों भारतीय परिवारों की हकीकत है।

हरियाणा में पिछले कुछ वर्षों में हजारों युवाओं का नशा मुक्ति केंद्रों में इलाज हुआ है। वर्ष 2024-25 में ही लगभग 52 हजार से अधिक युवा उपचार के लिए पहुंचे। सिरसा जिले में पिछले एक दशक में नशा रोगियों की संख्या में कई गुना वृद्धि दर्ज की गई है। वहीं, पंजाब में ढेर सारे लोग किसी न किसी प्रकार के नशे की चपेट में हैं, जिनमें बड़ी संख्या किशोरों की भी है। राज्य सरकार उपचार, पुनर्वास और व्यापक सर्वेक्षण के माध्यम से समस्या की वास्तविक तस्वीर समझने का प्रयास कर रही है। इस संकट से निपटने के लिए पांच प्राथमिकताओं पर आधारित रणनीति आवश्यक है- सोमा सुरक्षा और तस्करी पर नियंत्रण, विद्यालयों व समुदायों में वैज्ञानिक जागरूकता, मानसिक स्वास्थ्य एवं नशा मुक्ति सेवाओं का एकीकरण, प्रभावी पुनर्वास तथा परिवार और समाज की सक्रिय भागीदारी। यदि भारत को विकसित राष्ट्र बनना है, तो नशे के खिलाफ लड़ाई पुलिस और कानून तक सीमित नहीं रह सकती। परिवार, विद्यालय, स्वास्थ्य व्यवस्था, समुदाय और न्याय प्रणाली के संयुक्त प्रयास ही इस सामाजिक चुनौती का स्थायी समाधान बन सकते हैं।