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Suicide Prevention: From Individual Risk Management to a Comprehensive Public Health Response

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Abstract: Background: Suicide is a preventable cause of premature mortality with profound consequences for families and communities. Although mental disorders are important contributors, suicidal behaviour arises through complex interactions among psychological distress, social adversity, substance use, physical illness, discrimination, economic insecurity and access to highly lethal means. Prevention therefore requires action extending beyond clinical services. **Objective:** This narrative review critically examines the contemporary epidemiology, determinants and evidence-based prevention of suicide, with emphasis on recent global developments and the Indian context. **Key findings:** An estimated 727,000 people died by suicide worldwide in 2021, and 73% of these deaths occurred in low- and middle-income countries. Suicide was the third leading cause of death among people aged 15–29 years. Evidence supports a multilevel strategy incorporating restriction of access to lethal means, responsible media communication, development of socioemotional skills in adolescents, early identification and effective treatment of mental and substance-use disorders, safety planning, brief follow-up contacts and continuity after self-harm. Means restriction is among the strongest population-level interventions, while brief clinical interventions can reduce subsequent suicidal behaviour. However, risk-prediction scales have limited ability to identify who will die by suicide and should not replace comprehensive clinical assessment. India recorded 170,924 suicide deaths in 2022 and launched its first National Suicide Prevention Strategy in the same year. Persistent under-registration, limited mental-health capacity, pesticide access, socioeconomic vulnerability and fragmented follow-up remain major challenges. **Conclusion:** Suicide prevention should be organized as a whole-of-government and whole-of-society responsibility. Effective action requires universal, selective and indicated interventions operating together, supported by timely surveillance, adequately financed community mental-health services, compassionate post-attempt care and meaningful participation of people with lived experience.

Keywords: Suicide prevention; self-harm; means restriction; mental health; public health; India.

INTRODUCTION

Suicide is among the most devastating and preventable causes of premature death. Each death represents not only the loss of an individual but also enduring grief, trauma and social consequences for relatives, friends, colleagues and communities. Non-fatal suicidal behaviour is considerably more common and may result in physical injury, disability, stigma, financial hardship and recurrent crises.

The World Health Organization (WHO) estimated that 727,000 people died by suicide in 2021. Suicide accounted for approximately 1.1% of global deaths and was the third leading cause of death among people aged 15–29 years. Nearly three-quarters of suicides occurred in low- and middle-income countries, where specialist mental-health services and reliable mortality surveillance are often least available.[1]

Suicide is sometimes framed primarily as the consequence of psychiatric illness. Depression, bipolar disorder, psychosis, substance-use disorders and personality pathology are undoubtedly important, but this framing is incomplete. Suicidal crises may emerge from the interaction of mental illness with relationship breakdown, bereavement, violence, chronic pain, unemployment, indebtedness, academic pressure, discrimination, social isolation or legal difficulties. Some deaths occur during brief periods of acute distress in people without a previously recognized psychiatric disorder.

Prevention must therefore extend beyond identifying "high-risk patients." A comprehensive approach combines population policies that reduce exposure to risk, targeted support for vulnerable groups and timely intervention for individuals experiencing suicidal thoughts or behaviour. WHO's LIVE LIFE framework identifies four priority interventions: restricting access to means of suicide, promoting responsible media reporting, developing socioemotional life skills in adolescents, and ensuring early identification, assessment, management and follow-up of people affected by suicidal behaviour.[2]

Understanding Suicidal Behaviour

Suicidal behaviour includes suicidal thoughts, planning, non-fatal attempts and suicide death. Non-suicidal self-injury is undertaken without an intention to die, but it may coexist with suicidal ideation and is associated with elevated future risk. Intent can fluctuate and may be difficult to determine, particularly when a person is ambivalent, intoxicated or unable to provide a clear account.

Suicide rarely results from a single cause. A useful model distinguishes longer-term vulnerability from immediate precipitants. Vulnerability may arise from genetic predisposition, childhood adversity, chronic mental or physical illness, previous self-harm, social disadvantage or limited support. Acute triggers may include humiliation, interpersonal conflict, financial loss, disciplinary action, worsening pain or intoxication. Access to a highly lethal means can determine whether a transient crisis becomes fatal.

The presence of risk factors does not permit accurate individual prediction. Most people with depression, unemployment or relationship difficulties do not die by suicide, while some people who die had not been identified as high risk. Conversely, protective factors—including meaningful relationships, responsibility towards family, cultural belonging, problem-solving capacity and accessible care—can weaken under severe stress.

A previous suicide attempt is among the most important indicators of subsequent risk, especially during the period immediately following discharge from emergency or psychiatric care. However, prevention cannot focus solely on previous attempts because many deaths occur on the first known attempt. Population-level interventions remain essential.

Global Epidemiology and Inequalities

The global age-standardized suicide mortality rate declined between 2000 and 2021, but progress has been uneven and remains insufficient to meet international reduction targets.[1] Regional trends differ substantially, reflecting social change, conflict, alcohol availability, access to lethal means, health-system capacity and data quality.

Men account for more suicide deaths in most countries, while non-fatal attempts are often more frequently reported among women. These patterns are not universal and should not obscure major risks among young women in parts of Asia. Gender norms may discourage men from disclosing distress or seeking help, while women may face gender-based violence, restricted autonomy and unequal access to support.

Young people require particular attention because suicide is a leading cause of death during adolescence and early adulthood. Academic pressure, bullying, family conflict, discrimination, relationship difficulties and harmful online interactions may contribute. Older adults may experience bereavement, isolation, disability, chronic pain and perceived loss of independence.

Suicide rates are also elevated in populations exposed to discrimination or social exclusion, including refugees, migrants, Indigenous communities, sexual and gender minorities, prisoners and people experiencing homelessness. These patterns should not be attributed to identity itself but to violence, rejection, deprivation, restricted access to care and structural disadvantage.

Mortality statistics underestimate the true burden. Suicide may be misclassified as accidental poisoning, drowning or undetermined injury because of stigma, legal concerns, incomplete investigation or uncertainty about intent. Differences in registration systems complicate comparisons between countries and over time.

A Public Health Framework for Prevention

A contemporary public health approach recognizes that suicidal behaviour is influenced by social and commercial environments as well as individual vulnerability.[3] Interventions can be classified as universal, selective or indicated.

Universal interventions target the entire population. They include regulation of lethal means, responsible media reporting, alcohol policy, social protection, anti-bullying programmes and mental-health literacy. Selective interventions target groups experiencing elevated risk, such as farmers facing debt, bereaved families, sexual minorities, prisoners or people with severe chronic illness. Indicated interventions are provided to individuals with suicidal ideation, self-harm or previous attempts.

These levels are complementary. Clinical treatment alone cannot compensate for unsafe access to lethal means, economic insecurity or sensationalized media reporting. Equally, population policies cannot replace compassionate care for a person in immediate crisis.

Restricting Access to Lethal Means

Restricting access to commonly used, highly lethal means is one of the most effective suicide-prevention strategies.[4] It works by creating time and distance between an acute suicidal impulse and a fatal act. Suicidal crises frequently fluctuate, and survival of the immediate episode permits reconsideration, help-seeking and treatment.

Effective interventions have included pesticide regulation, safer storage, restrictions on toxic medications, barriers at high-risk locations and policies reducing access to firearms. The strongest evidence occurs when access is reduced at population scale rather than relying entirely on voluntary individual behaviour.

Method substitution is an important concern but is usually incomplete. Alternative methods may be less lethal or less immediately available, reducing overall mortality. Nevertheless, means restriction must be accompanied by surveillance to identify displacement and emerging risks.

In rural Asia, pesticide self-poisoning remains a major preventable cause of suicide. Regulation and withdrawal of highly hazardous pesticides can produce large reductions in suicide without compromising agricultural productivity when safer alternatives are available. Household lockboxes may reduce immediate access but are unlikely to equal the impact of removing highly hazardous products from routine use.

Clinical means-safety counselling is also important. It should be collaborative, respectful and focused on temporarily reducing access during a crisis. Family involvement may be valuable with the person's agreement, provided it does not increase violence, conflict or loss of autonomy.

Responsible Media and Digital Communication

Media coverage can influence suicidal behaviour. Repetitive, prominent or romanticized reporting—particularly coverage of celebrity deaths—may contribute to imitation. A systematic review and meta-analysis found an increase in suicide following media reports of celebrity suicide, with greater concern when reports included specific method details.[5]

Responsible reporting does not require silence. Reporting can improve public understanding when it avoids sensational headlines, explicit descriptions, simplistic explanations and language that normalizes or glorifies suicide. Stories should emphasize that suicidal crises are preventable, recovery is possible and help is available.

The digital environment creates additional challenges. Social media may provide peer support and opportunities for outreach, but it can also amplify harmful content, harassment and graphic material. Automated detection may assist human moderation, although false positives, missed cases, privacy intrusion and inappropriate emergency escalation remain unresolved concerns.

Digital platforms should provide accessible crisis pathways, reduce recommendation of harmful content and involve suicide-prevention specialists and people with lived experience in product design. Artificial-intelligence systems should not be presented as substitutes for crisis services or qualified clinical care.

Early Identification and Clinical Assessment

Asking directly about suicidal thoughts does not create suicidal behaviour. Clear, compassionate questioning can reduce ambiguity and enable disclosure. Assessment should explore current thoughts, intent, planning, access to means, previous attempts, psychiatric symptoms, substance use, recent stressors, physical illness, protective factors and the person's ability to remain safe.

Risk-assessment scales may support structured enquiry but have insufficient predictive accuracy to determine discharge or treatment by themselves. Categorizing a person as "low risk" can create false reassurance because suicide is a low-frequency outcome arising from changing circumstances. Clinical formulation should explain why the crisis has occurred, what may intensify it and which interventions are immediately required.

The immediate priorities are safety, engagement and treatment of underlying causes. Emergency hospitalization may be necessary when there is imminent danger, severe mental illness, intoxication, inability to collaborate with safety measures or an unsafe environment. Admission should not be automatic for every expression of suicidal ideation; unnecessary coercion may discourage future disclosure.

Emergency departments are critical prevention settings. Individuals presenting after self-harm should receive psychosocial assessment, respectful medical treatment, involvement in discharge planning and rapid follow-up. Punitive, dismissive or stigmatizing care can increase distress and reduce future help-seeking.

Safety Planning and Brief Follow-up

A safety plan is a collaboratively developed, written sequence of actions for use during a suicidal crisis. It usually includes recognition of warning signs, internal coping strategies, supportive people or places, contacts who can assist, professional services and steps to reduce access to lethal means.

Safety planning should not be confused with a "no-suicide contract," in which a person simply promises not to harm themselves. Such contracts do not provide practical coping steps and should not substitute for assessment or treatment.

A meta-analysis found that safety-planning-type interventions were associated with a reduction in subsequent suicidal behaviour, although they did not consistently reduce suicidal ideation.[6] This distinction is important: an intervention may prevent action during a crisis even when distressing thoughts persist.

Brief contact interventions—such as scheduled telephone calls, messages, letters or postcards after discharge—are inexpensive strategies intended to communicate continuing care and facilitate re-engagement. A 2023 meta-analysis of randomized trials found that brief contacts reduced repeat suicide attempts, although intervention types and study settings varied.[7] Caring contacts are most credible when linked to accessible clinical services rather than used as a substitute for follow-up.

The transition after hospital discharge requires particular attention. Appointments should be arranged rather than merely advised, responsibility for follow-up should be explicit, and missed appointments should trigger supportive outreach where feasible.

Treatment of Mental and Substance-Use Disorders

Effective treatment of depression, bipolar disorder, psychosis, substance-use disorders and other psychiatric conditions is an essential component of suicide prevention. Treatment may include psychotherapy, medication, social interventions and, in selected severe conditions, electroconvulsive therapy or other specialist treatments.

Psychotherapies that directly address suicidal behaviour, such as cognitive behavioural approaches and dialectical behaviour therapy, can reduce repeat self-harm in selected populations. Treatment should focus not only on symptom reduction but also on coping, problem solving, emotional regulation, interpersonal conflict and reasons for living.

Alcohol deserves population-level attention because intoxication may increase impulsivity, aggression and the lethality of attempts. Policies reducing harmful alcohol use—including taxation, regulation of availability and treatment access—can contribute to suicide prevention.

Medication management requires balance. Appropriate pharmacological treatment can reduce psychiatric symptoms and longer-term risk, but some medicines are toxic in overdose. Prescribers may need to limit quantities, coordinate dispensing and involve trusted family members with consent during high-risk periods.

Public Health Significance

Suicide prevention is a marker of how societies respond to distress, inequality and exclusion. The mortality burden alone understates the wider effects on bereaved families, witnesses, emergency personnel, schools and workplaces.

The economic impact includes lost productivity, emergency treatment, long-term disability and disruption of households. However, prevention should not be justified solely in financial terms. It is fundamentally concerned with preserving life, dignity and social participation.

Table 1. Evidence-Based Components of a Comprehensive Suicide-Prevention Strategy

Intervention level	Intervention	Principal mechanism	Evidence and limitations	Priority implementation requirements
Universal	Restriction of access to lethal means	Delays action during acute crises and reduces lethality	Among the strongest population-level evidence; substitution is generally incomplete	Regulation, enforcement, surveillance and safer alternatives
Universal	Responsible media reporting	Reduces imitation and promotes help-seeking and recovery narratives	Harmful associations are strongest after prominent celebrity reporting; implementation is voluntary in many settings	Journalist training, editorial standards, monitoring and inclusion of support information
Universal	Alcohol-control policies	Reduces intoxication, impulsivity and social harm	Population evidence supports alcohol policy, but suicide-specific effects vary by context	Taxation, availability regulation and treatment for harmful use
Universal	School-based socioemotional learning	Improves coping, problem solving and help-seeking	Some programmes reduce suicidal thoughts and attempts; quality and cultural fit vary	Whole-school approach, trained staff, anti-bullying systems and referral pathways
Selective	Support for high-risk occupational and social groups	Addresses debt, isolation, discrimination and restricted access to care	Context-specific evidence; programmes may fail if structural causes remain unchanged	Social protection, legal and financial support, community participation and targeted outreach
Indicated	Psychosocial assessment after self-harm	Identifies drivers, immediate risks and treatment needs	Essential for care planning, but risk scales alone predict poorly	Skilled staff, privacy, respectful care and collateral information when appropriate
Indicated	Collaborative safety planning	Provides practical actions during escalating crisis	Meta-analysis suggests reduced suicidal behaviour; effect on ideation is less consistent	Individualized plan, means safety, accessible contacts and regular revision
Indicated	Brief and caring follow-up contacts	Maintains connection and facilitates re-entry to care	Low-cost and promising for reducing repeat attempts; results vary across programmes	Scheduled contacts, escalation pathways and linkage with continuing care
Indicated	Evidence-based treatment of mental disorders	Reduces psychiatric symptoms and recurrent crises	Effect depends on diagnosis, adherence, continuity and access	Integrated pharmacological, psychological and social care
Health-system	Rapid follow-up after discharge	Addresses a period of markedly elevated risk	Strong rationale; implementation evidence is affected by service availability	Appointments before discharge, outreach after missed visits and shared responsibility
Postvention	Support after a suicide death	Reduces traumatic grief,	Evidence remains developing; needs vary	Proactive, culturally appropriate support

		stigma and possible subsequent risk	among bereaved people	without pathologizing normal grief
Surveillance	Timely suicide and self-harm data	Identifies clusters, methods, inequalities and emerging risks	Routine mortality data are delayed and affected by misclassification	Linked data systems, rapid review, confidentiality and local response capacity

Suicide prevention also illustrates the limitations of an exclusively health-sector response. Labour, agriculture, education, social welfare, justice, media, transport and digital-platform policies all influence risk. National strategies require defined responsibilities and budgets across these sectors rather than assuming that mental-health services alone will implement prevention.

Indian Perspective

India bears a substantial share of the global suicide burden. The National Crime Records Bureau documented 170,924 suicide deaths in 2022, corresponding to a recorded rate of 12.4 per 100,000 population.[9] These police-based data are indispensable for monitoring but are affected by under-reporting, variation in investigation and possible misclassification. They should not be treated as directly equivalent to WHO modelled estimates.

Family problems and illness are commonly recorded circumstances, while daily-wage earners, self-employed workers, farmers, students and homemakers represent important groups in national statistics. Such administrative categories should be interpreted cautiously: they may oversimplify complex causal pathways and do not prove that one reported circumstance caused the death.

India launched its National Suicide Prevention Strategy in 2022, aiming to reduce suicide mortality by 10% by 2030.[8] The strategy calls for effective surveillance, mental-health outpatient clinics, crisis services, restriction of access to means, responsible media reporting and multisectoral action.

The Mental Healthcare Act 2017 created a presumption that a person who attempts suicide is under severe stress and requires care rather than punishment. This was an important shift away from criminalization. Practical implementation remains uneven, and fear of police involvement, stigma and financial costs may still deter families from seeking help.

Tele-MANAS provides 24-hour tele-mental-health support and referral across states and union territories. Helplines can improve access, particularly where specialist services are scarce, but they cannot compensate for absent emergency response, district mental-health teams or affordable continuing care.

Pesticide regulation is especially important in rural India. Safer agricultural policy, withdrawal of highly hazardous compounds, secure supply chains and training of vendors may prevent deaths while supporting farming needs. Household-level safe storage may provide additional protection but should not replace regulatory action.

Student suicides require more than counselling helplines. Educational institutions should address bullying, discrimination, excessive academic pressure, punitive attendance systems, harassment and inaccessible grievance mechanisms. Campus services require confidentiality, adequate staffing and clear pathways for urgent care.

India also needs stronger post-attempt systems. Many people treated for poisoning or injury leave medical facilities without structured psychosocial assessment or follow-up. Integrating suicide-prevention protocols within emergency departments, medical colleges, district hospitals and Ayushman Arogya Mandirs could close this gap.

Recent Advances

Recent suicide-prevention thinking has shifted from narrowly predicting individual risk towards designing safer systems. Zero-suicide approaches emphasize leadership, workforce training, identification, evidence-based care, safe transitions and learning from adverse events. Their principles are useful, although the term “zero” should not be used to blame clinicians or families when deaths occur.

Real-time suicide surveillance is increasingly used to identify local clusters and emerging methods. Rapid data can support timely community responses, but small-number reporting requires confidentiality safeguards to avoid identification or harmful publicity.

Digital interventions can provide psychoeducation, self-monitoring and safety-planning support. Evidence is developing, but engagement is often low and crisis-management capacity varies. Automated systems should not make autonomous high-stakes decisions based solely on language or online behaviour.

Lived-experience participation is another important advance. People who have experienced suicidal crises and those bereaved by suicide can improve the relevance and acceptability of policies, research and services. Participation must be voluntary, supported and appropriately compensated.

Challenges and Limitations

Suicide research is difficult because suicide is statistically uncommon even in high-risk groups. Randomized trials require large samples, while deaths cannot ethically be treated as ordinary endpoints without intensive safety procedures. Many studies therefore rely on suicidal ideation or repeat attempts, which are important but not interchangeable with mortality.

Definitions of self-harm, suicide attempt and suicidal ideation vary across studies. Cultural and linguistic differences further complicate measurement. Screening tools validated in one population may perform poorly elsewhere.

Prediction remains limited. Machine-learning models may show high discrimination in retrospective datasets yet generate many false positives when deployed in practice. Their usefulness depends on whether identification leads to an effective, acceptable intervention.

Another limitation is the tendency to focus on individual resilience while neglecting structural adversity. Teaching coping skills cannot resolve domestic violence, unemployment, caste discrimination, debt or unsafe working conditions. Psychological and structural interventions must operate together.

Finally, suicide-prevention programmes may be implemented as short projects without stable financing or outcome evaluation. National strategies require accountable leadership, measurable indicators and sustained investment beyond awareness days.

Future Directions

Countries should establish timely, disaggregated surveillance of suicide deaths and non-fatal self-harm. Data should include age, sex, occupation, geography and broad method categories while protecting confidentiality.

Research should prioritize implementation of interventions already supported by evidence, particularly means restriction, safety planning, rapid follow-up and responsible media practice. The central question is increasingly how to deliver these measures reliably and equitably.

India requires prospective multicentre studies of emergency-department pathways, repeat self-harm and post-discharge follow-up. Suicide audits should identify preventable system failures without assigning simplistic blame.

Primary-care workers need competency-based training in asking about suicidal thoughts, responding without judgement, assessing urgency and arranging follow-up. Training should be accompanied by supervision and referral capacity; identification without available care may increase frustration for patients and providers.

National and state plans should include measurable targets for pesticide regulation, psychosocial assessment after self-harm, rapid outpatient follow-up, crisis-service availability, school and workplace prevention, and adherence to media guidelines.

Interventions must be co-designed with communities and people with lived experience. Suicide prevention is most effective when people are not treated merely as risk profiles but as partners whose social circumstances, values and reasons for living shape care.

CONCLUSION

Suicide is preventable, but no single intervention is sufficient. It arises through dynamic interactions among psychological vulnerability, social adversity, acute crises and access to lethal means.

The strongest response combines population-level prevention with compassionate individual care. Restricting access to lethal means, responsible communication, alcohol policy, youth socioemotional development, effective treatment, collaborative safety planning and reliable follow-up should operate as parts of one system.

India's National Suicide Prevention Strategy provides an important policy foundation. Its impact will depend on implementation across sectors, adequate financing, better surveillance and stronger continuity between emergency, mental-health and primary-care services.

Suicide prevention should ultimately be judged not only by whether deaths decline, but by whether people in distress can obtain timely, respectful and effective support. A society capable of preventing suicide is one that reduces avoidable adversity, recognizes suffering early and ensures that a temporary crisis does not become an irreversible loss.

REFERENCES

1. World Health Organization. *Suicide worldwide in 2021: global health estimates* [Internet]. Geneva: World Health Organization; 2025 [cited 2026 Aug 8]. Available from: WHO publication page
2. World Health Organization. *LIVE LIFE: an implementation guide for suicide prevention in countries* [Internet]. Geneva: World Health Organization; 2021 [cited 2026 Aug 8]. Available from: WHO publication page
3. Pirkis J, Dandona R, Silverman M, Khan MM, Hawton K. Preventing suicide: a public health approach to a global problem. Lancet Public Health. 2024;9(10):e787-e795. doi:10.1016/S2468-2667(24)00149-X.
4. Hawton K, Knipe D, Pirkis J. Restriction of access to means used for suicide. Lancet Public Health. 2024;9(10):e796-e801. doi:10.1016/S2468-2667(24)00157-9.
5. Niederkrotenthaler T, Braun M, Pirkis J, Till B, Stack S, Sinyor M, et al. Association between suicide reporting in the media and suicide: systematic review and meta-analysis. BMJ. 2020;368:m575. doi:10.1136/bmj.m575.
6. Nuij C, van Ballegooijen W, de Beurs D, Juniar D, Erlangsen A, Portzky G, et al. Safety planning-type interventions for suicide prevention: meta-analysis. Br J Psychiatry. 2021;219(2):419-426. doi:10.1192/bjp.2021.50.
7. Azizi H, Fakhari A, Farahbakhsh M, Davtalab Esmaeili E, Chattu VK, Ali Asghari N, et al. Prevention of re-attempt suicide through brief contact interventions: a systematic review, meta-analysis, and meta-regression of randomized controlled trials. J Prev (2022). 2023;44(6):777-794. doi:10.1007/s10935-023-00747-x.
8. Ministry of Health and Family Welfare, Government of India. *National Suicide Prevention Strategy* [Internet]. New Delhi: Ministry of Health and Family Welfare, Government of India; 2022 [cited 2026 Aug 8]. Available from: National Suicide Prevention Strategy PDF
9. National Crime Records Bureau. *Accidental deaths & suicides in India 2022* [Internet]. New Delhi: Ministry of Home Affairs, Government of India; 2023 [cited 2026 Aug 8]. Available from: National Crime Records Bureau
10. Vijayakumar L, Chandra PS, Kumar MS, Pathare S, Banerjee D, Goswami T, et al. The national suicide prevention strategy in India: context and considerations for urgent action. Lancet Psychiatry. 2022;9(2):160-168. doi:10.1016/S2215-0366(21)00152-8.