



Original Research Article

Psychosocial Determinants and Toxicological Profile of Deliberate Self-Poisoning: A Hospital-Based Study from Western India.

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Abstract: Background: Deliberate self-poisoning is one of the commonest forms of self-harm presenting to emergency and forensic services in India, and pesticide self-poisoning alone accounts for a large share of suicide deaths. Effective prevention requires an understanding of both the agents used and the psychosocial context of the act. Data combining these dimensions from Western India are scarce. **Aim:** To describe the sociodemographic and toxicological profile, psychosocial determinants, intent and impulsivity, and hospital outcome of deliberate self-poisoning at a tertiary care centre in Western India. **Materials and Methods:** A prospective, hospital-based observational study was conducted from 1 May 2025 to 31 May 2026 in the Departments of Forensic Medicine and Toxicology and Emergency Medicine of a tertiary care teaching hospital. All consecutive patients aged ≥ 10 years with deliberate self-poisoning were included after informed consent. A pre-tested structured proforma recorded sociodemographic details, agent category, psychosocial stressors, intent/impulsivity and outcome. Proportions are reported with Wilson 95% confidence intervals (CI); associations were tested with the chi-square or Fisher's exact test ($p < 0.05$). **Results:** Of 222 patients (mean age 28.6 years; range 12–72), 77.9% were younger than 40 years and the largest group was 20–29 years (36.0%). Males comprised 52.3% and females 47.7%. Pesticides were the commonest agents (44.1%; 95% CI 37.8–50.7), followed by pharmaceutical agents (32.4%), corrosives (12.6%) and household chemicals (6.8%). Agent choice differed significantly by sex ($\chi^2 = 14.99$, $df = 3$, $p = 0.002$): pesticides predominated in males and pharmaceuticals and corrosives in females. Family/marital conflict (38.7%) and financial stress (28.8%) were the leading determinants; 16.7% had known psychiatric illness. On assessment, 41.4% of acts were clearly impulsive and 21.6% showed clear suicidal intent. Overall case fatality was 12.6% (95% CI 8.9–17.6), highest for pesticides (19.4%) and lowest for pharmaceuticals (4.2%); pesticide ingestion carried three times the odds of death compared with other agents (OR 3.07; 95% CI 1.32–7.14; $p = 0.008$). **Conclusion:** Deliberate self-poisoning in this setting mainly affected young adults, was frequently impulsive, and was precipitated chiefly by family conflict and financial stress. Pesticides remained the leading and most lethal agents. Routine psychosocial assessment at presentation, restriction of access to highly hazardous pesticides and corrosives, and family- and community-level interventions are recommended.

Keywords: Deliberate self-poisoning; Pesticides; Organophosphorus compounds; Corrosives; Psychosocial determinants; Impulsivity; Case fatality; Suicide prevention; Western India.

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INTRODUCTION

Suicide and self-harm are major global public-health problems. The World Health Organization (WHO) estimates that more than 720,000 people die by suicide each year, most of them in low- and middle-income countries [1]. India records the highest number of suicides of any country: the National Crime Records Bureau (NCRB) reported 171,418 suicides in 2023, a rate of 12.3 per 100,000 population [2,3]. Poisoning, particularly with agricultural pesticides, is one of the two leading methods, and nationally representative data suggest that official statistics under-report suicide deaths, especially from poisoning in rural areas [4].

Pesticide self-poisoning is estimated to cause about 110,000 deaths globally each year, around one in seven of all suicides; when under-reporting in India is taken into account, the figure rises to about one in five [5]. Case fatality varies greatly between agents, and the availability of highly toxic pesticides in rural households is a major reason why suicide attempts in agrarian Asia are more often fatal than in high-income countries [6]. In India, pesticides were involved in an estimated 441,918 suicides between 1995 and 2015, and national bans on highly hazardous pesticides such as endosulfan were followed by substantial falls in pesticide suicides [7]. At the same time, the growing availability of prescription and over-the-counter medicines, corrosive acids and household chemicals has broadened the range of agents seen in hospital practice, especially in urban and semi-urban areas [8–10].

The agent determines acute management and prognosis, but the decision to self-poison is shaped by psychosocial factors. Indian hospital- and autopsy-based studies have repeatedly identified family and marital conflict, financial difficulties, interpersonal problems, academic pressure, alcohol misuse and untreated psychiatric illness as precipitants, with important differences between men and women [9–12]. A substantial proportion of self-poisoning acts in Asia are impulsive, occurring within minutes to hours of an acute interpersonal crisis and with little premeditation [13,14]. In such cases, the lethality of the agent at hand — rather than the strength of suicidal intent — often decides whether the person lives or dies [6,8].

India has taken important policy steps: Section 115 of the Mental Healthcare Act, 2017 presumes severe stress in anyone who attempts suicide and directs that they receive care rather than punishment, and the National Suicide Prevention Strategy (2022) identifies restriction of access to means, including highly hazardous pesticides, as a key action [15,16]. Evidence to guide these measures locally remains limited. Few studies from Western India have examined the toxicological agents and the detailed psychosocial context of deliberate self-poisoning together, including a structured assessment of intent and impulsivity and their relationship with outcome.

The present prospective study was therefore undertaken at a tertiary care centre serving a mixed urban–rural population in Western India to characterise the sociodemographic and toxicological profile of deliberate self-poisoning, to quantify its principal psychosocial determinants, and to examine the relationship between agent category, intent and hospital outcome.

Aims and Objectives

1. To describe the sociodemographic profile (age, sex, education, occupation, marital status and residence) of patients presenting with deliberate self-poisoning.
2. To determine the relative frequency of the major toxicological categories (pesticides, pharmaceutical agents, corrosives, household chemicals and others).
3. To identify the predominant psychosocial determinants, with particular attention to family/marital conflict, financial stress, interpersonal problems and psychiatric history.
4. To assess impulsivity versus clear suicidal intent and to explore their associations with agent category and outcome.
5. To record hospital outcome (survival, death, referral, absconding) and identify factors associated with mortality.

MATERIALS AND METHODS

Study design and setting

A prospective, observational, hospital-based study was conducted jointly by the Departments of Forensic Medicine and Toxicology and Emergency Medicine at [Name of Institution], a tertiary care teaching hospital in [City, State], Western India. The hospital serves a mixed urban and rural catchment with a substantial agricultural population and receives both direct emergency presentations and referrals from peripheral health facilities. The study is reported in accordance with the STROBE guidelines [17].

Study period and participants

All consecutive patients presenting with deliberate self-poisoning between 1 May 2025 and 31 May 2026 were screened.

Inclusion criteria: (a) clinical or historical evidence of intentional ingestion of, or exposure to, a toxic substance for the purpose of self-harm; (b) age ≥ 10 years; and (c) informed consent from the patient, or from the legally authorised representative where the patient lacked capacity or was a minor.

Exclusion criteria: accidental poisoning, occupational exposure, homicidal poisoning, and cases in which intent could not reasonably be established.

During the study period, [N] poisoning cases presented

to the hospital; [n] were excluded (accidental: [n]; occupational: [n]; homicidal: [n]; intent not established: [n]; consent refused: [n]), leaving 222 cases for analysis.

Sample size

All eligible cases during the study period were included (total enumerative sampling). With 222 cases, a proportion of 50% can be estimated with an absolute precision of about $\pm 6.6\%$ at 95% confidence.

Data collection

A structured, pre-tested proforma was administered by trained investigators after initial resuscitation and medical stabilisation. Collateral information was obtained from accompanying relatives wherever possible, and case records were reviewed until discharge or death. The following were recorded:

- Sociodemographic data: age, sex, education, occupation, marital status, residence (urban/rural) and socioeconomic status ([modified Kuppaswamy / B.G. Prasad scale — specify]).
- Toxicological category: pesticides (agricultural chemicals), pharmaceutical agents (prescription or over-the-counter medicines), corrosives (acids and alkalis), household chemicals, or other/unidentified agents, classified from history, container labels, clinical toxidrome and, where available, laboratory or Regional Forensic Science Laboratory reports.
- Psychosocial determinants: family or marital conflict, financial stress or indebtedness, interpersonal or romantic relationship problems, academic or occupational failure, chronic physical illness, known psychiatric illness and substance use. More than one determinant could be recorded for each patient.
- Intent and impulsivity: after interview, each act was categorised as (i) clearly impulsive — a sudden act with minimal premeditation, typically within a short time of a precipitating event [14]; (ii) mixed/ambivalent; (iii) clear suicidal intent — evidence of planning, precautions against discovery or an explicit wish to die; or (iv) undetermined.
- Clinical course and outcome: survival to discharge, death during hospitalisation, referral to a higher centre, or absconding/leaving against medical advice.

All surviving patients were referred for psychiatric liaison assessment according to institutional protocol, in line with recommendations that every person presenting with self-harm should receive a psychosocial assessment [18].

RESULTS

Sociodemographic profile

A total of 222 patients were included. The mean age was $28.6 \pm [\text{SD}]$ years (range 12–72 years). The largest age group was 20–29 years (80 patients, 36.0%; 95% CI 30.0–42.5), followed by 30–39 years (53, 23.9%) and 10–19 years (40, 18.0%); in all, 173 patients (77.9%) were younger than 40 years. Males constituted 116 (52.3%) and females 106 (47.7%) patients (M:F = 1.09:1). Females outnumbered males only among adolescents aged 10–19 years (M:F 0.82), while the male proportion rose steadily with age, reaching 1.67:1 in those aged 60 years or more. However, the overall age distribution did not differ significantly between the sexes ($\chi^2 = 1.32$, $df = 3$, $p = 0.72$; age ≥ 40 years combined) (Table 1,

Medicolegal aspects

All cases of self-poisoning were registered as medicolegal cases and the police were informed as required by law. In accordance with Section 115 of the Mental Healthcare Act, 2017, patients were managed as persons in need of care and rehabilitation [15]. Where death occurred, the body was subjected to medicolegal autopsy and viscera were preserved for chemical analysis as per standard procedure.

Ethical considerations

Approval was obtained from the Institutional Ethics Committee before the study began. The study followed the ICMR National Ethical Guidelines (2017) and the Declaration of Helsinki [19,20]. Written informed consent was obtained from patients with capacity or from their legally authorised representatives; for participants younger than 18 years, consent was obtained from a parent or guardian together with the minor's assent [confirm]. Interviews were conducted only after medical stabilisation, in privacy, and did not delay treatment. Data were anonymised before analysis. Patients at continuing risk received psychiatric referral and safety planning in accordance with standard clinical practice, and all were given information about the national tele-mental-health helpline (Tele-MANAS, 14416).

Statistical analysis

Data were entered in Microsoft Excel and analysed using [software, version]. Continuous variables are presented as mean $\pm$ standard deviation or median (interquartile range), and categorical variables as frequencies and percentages with 95% CI calculated by the Wilson score method [21]. Because psychosocial categories were not mutually exclusive, their percentages were calculated against the total sample. Associations between categorical variables (sex and agent category; agent category and death) were tested with the chi-square test, or Fisher's exact test where expected cell counts were below 5; for the sex–agent comparison, household chemicals and other agents were combined to ensure adequate expected counts. The odds ratio (OR) for death with pesticides compared with all other agents was calculated with its 95% CI (Woolf method). Case fatality was calculated as deaths divided by all cases in each category; a sensitivity analysis excluding patients who absconded or were referred was also performed. A two-sided p -value < 0.05 was considered statistically significant.

Figure 1).

Table 1. Age and sex distribution (N = 222)

Age group (years)	Male n	Female n	Total n	% of total	M:F ratio
10–19	18	22	40	18.0	0.82
20–29	42	38	80	36.0	1.11
30–39	28	25	53	23.9	1.12
40–49	15	12	27	12.2	1.25
50–59	8	6	14	6.3	1.33
≥60	5	3	8	3.6	1.67
Total	116 (52.3%)	106 (47.7%)	222	100.0	1.09

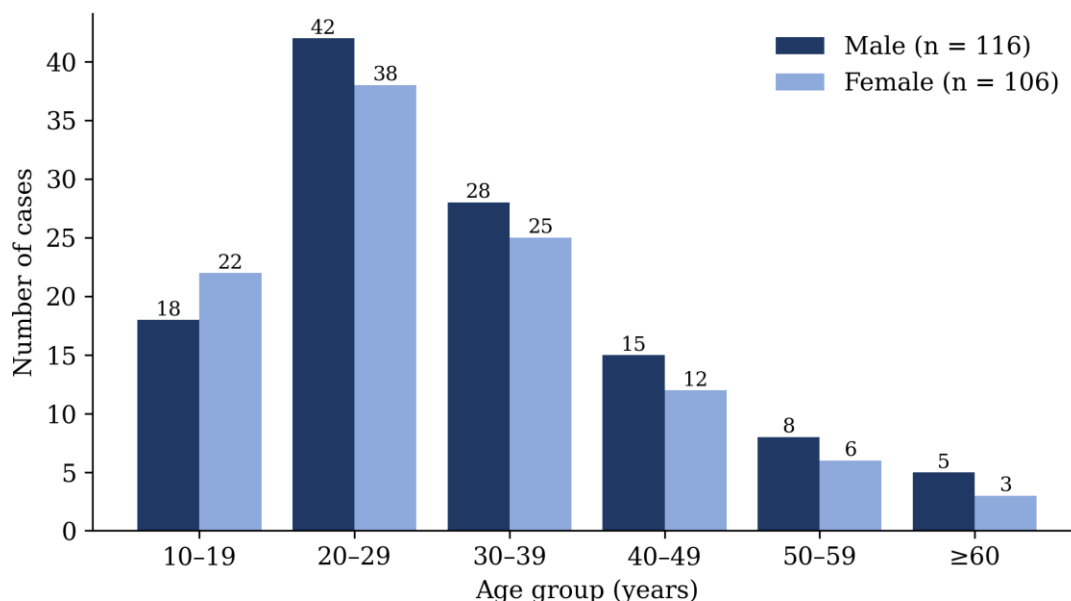


Figure 1. Age and sex distribution of deliberate self-poisoning cases (N = 222).

Approximately 54% of patients were married ([n]), 38% unmarried ([n]) and the remainder ([n]) widowed, separated or divorced. Rural residence was recorded in 58% ([n]). Educational attainment was predominantly at or below secondary-school level. Occupations included students, homemakers, agricultural workers, daily-wage labourers and unemployed persons, and most patients came from lower- and middle-income households.

Toxicological profile

Pesticides formed the largest category (98 cases, 44.1%; 95% CI 37.8–50.7), followed by pharmaceutical agents (72, 32.4%; 95% CI 26.6–38.8), corrosives (28, 12.6%), household chemicals (15, 6.8%) and other or unidentified agents (9, 4.1%) (Table 2, Figure 2). The choice of agent differed significantly between the sexes ($\chi^2 = 14.99$, $df = 3$, $p = 0.002$). Pesticides were used by 53.4% of males but 34.0% of females, and males accounted for 63.3% of pesticide cases. Conversely, females accounted for 61.1% of pharmaceutical and 64.3% of corrosive ingestions. Pesticide use was more frequent among rural residents and pharmaceutical agents among urban residents and younger females.

Table 2. Toxicological categories by sex (N = 222)

Agent category	Male n (%)	Female n (%)	Total n (%)	95 % CI (total)
Pesticides (agricultural chemicals)	62 (53.4)	36 (34.0)	98 (44.1)	37.8–50.7
Pharmaceutical agents	28 (24.1)	44 (41.5)	72 (32.4)	26.6–38.8
Corrosives	10 (8.6)	18 (17.0)	28 (12.6)	8.9–17.6
Household chemicals	9 (7.8)	6 (5.7)	15 (6.8)	4.1–10.8
Other / unidentified	7 (6.0)	2 (1.9)	9 (4.1)	2.1–7.5
Total	116 (100)	106 (100)	222 (100)	

Column percentages. $\chi^2 = 14.99$, $df = 3$, $p = 0.002$ (household chemicals and other agents combined). CI, confidence interval (Wilson).

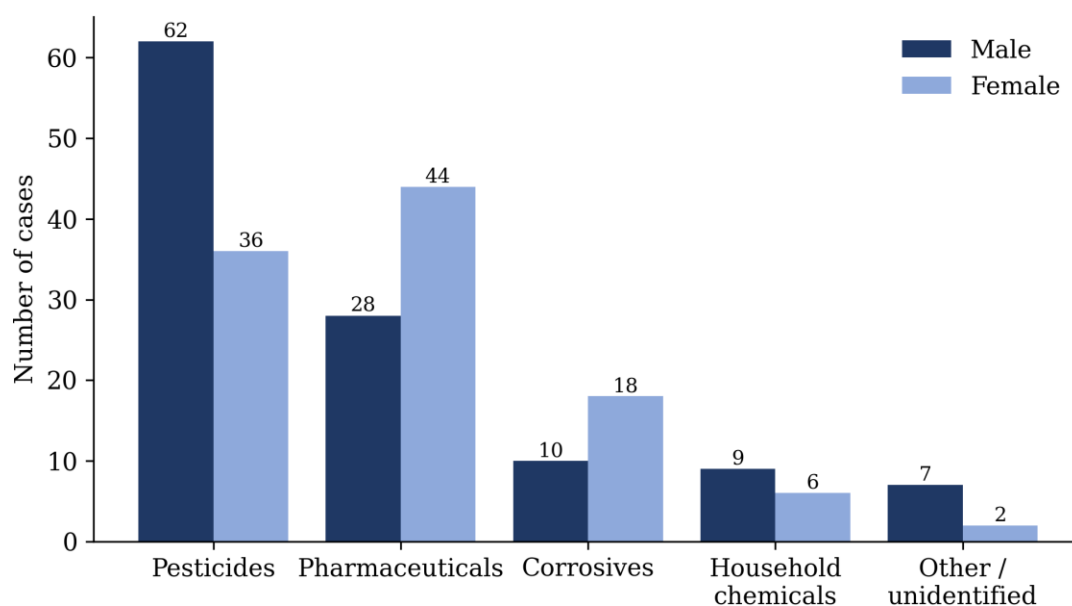


Figure 2. Toxicological categories of agents by sex (N = 222).

Psychosocial determinants

More than one psychosocial factor was frequently reported. Family or marital conflict was the most common determinant (86 cases, 38.7%; 95% CI 32.6–45.3), followed by financial stress or indebtedness (64, 28.8%; 95% CI 23.3–35.1). An impulsive character was recorded as the primary descriptor of the act in 58 cases (26.1%). Interpersonal or romantic relationship problems were reported in 42 (18.9%), known psychiatric illness in 37 (16.7%), substance-use-related problems in 31 (14.0%), academic or occupational failure in 28 (12.6%) and chronic physical illness in 19 (8.6%) cases; no clear determinant was identified in 21 (9.5%) (Table 4, Figure 3). Family conflict and financial pressure often coexisted, particularly among married adults aged 20–39 years.

Table 4. Psychosocial determinants (N = 222; multiple factors possible)

Psychosocial factor	n	%	95% CI
Family / marital conflict	86	38.7	32.6–45.3
Financial stress / indebtedness	64	28.8	23.3–35.1
Impulsive act (primary descriptor)†	58	26.1	20.8–32.3
Interpersonal / romantic relationship problems	42	18.9	14.3–24.6
Known psychiatric illness	37	16.7	12.3–22.1
Substance-use-related problems	31	14.0	10.0–19.1
Academic or occupational failure	28	12.6	8.9–17.6
Chronic physical illness	19	8.6	5.5–13.0
Other / not clearly identified	21	9.5	6.3–14.0

Percentages calculated against N = 222; categories are not mutually exclusive. †Impulsivity recorded as the principal descriptor of the act in the psychosocial history; the separate structured assessment of intent (Section 4.4) classified 92 acts as clearly impulsive.

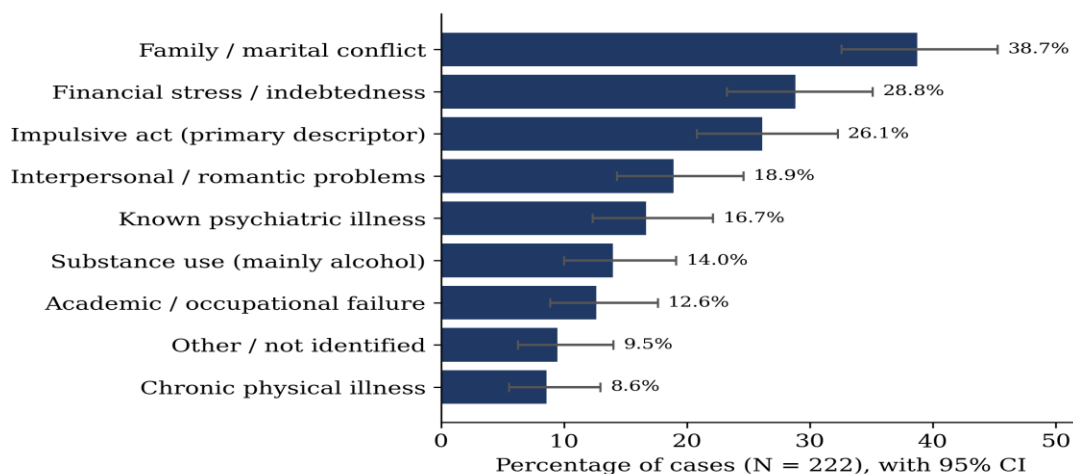


Figure 3. Psychosocial determinants of deliberate self-poisoning, with 95% confidence intervals (N = 222; multiple factors possible).

Intent and impulsivity

On structured clinical assessment, 92 acts (41.4%; 95% CI 35.2–48.0) were judged clearly impulsive, 68 (30.6%) showed mixed or ambivalent features, 48 (21.6%; 95% CI 16.7–27.5) showed clear suicidal intent with evidence of planning or an explicit wish to die, and 14 (6.3%) remained undetermined (Table 5, Figure 4). Impulsive acts were more common among adolescents and young adults and were more often associated with pharmaceutical agents and household chemicals, whereas clear suicidal intent was more often associated with pesticide ingestion and pre-existing psychiatric illness.

Table 5. Assessment of intent and impulsivity (N = 222)

Category	n	%	95% CI
Clearly impulsive	92	41.4	35.2–48.0
Mixed / ambivalent	68	30.6	24.9–37.0
Clear suicidal intent	48	21.6	16.7–27.5
Undetermined	14	6.3	3.8–10.3
Total	222	100.0	

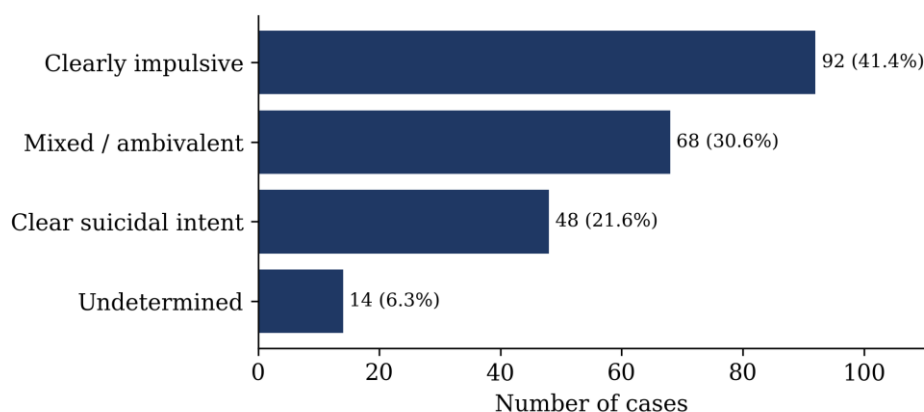


Figure 4. Assessment of intent and impulsivity (N = 222).

Clinical outcome

Of the 222 patients, 178 (80.2%) survived to discharge, 28 died during admission, 9 (4.1%) absconded or left against medical advice and 7 (3.2%) were referred to other centres. The overall case fatality was 12.6% (95% CI 8.9–17.6); excluding patients who absconded or were referred, it was 13.6% (28/206; 95% CI 9.6–18.9) (Table 6, Figure 5).

Case fatality was highest for pesticides (19/98, 19.4%), followed by corrosives (14.3%), other/unknown agents (11.1%), household chemicals (6.7%) and pharmaceutical agents (4.2%). Pesticides accounted for 19 of the 28 deaths (67.9%). Patients who had ingested pesticides had three times the odds of death compared with those who had ingested any other

agent (19.4% vs 7.3%; OR 3.07, 95% CI 1.32–7.14; Fisher's exact $p = 0.008$), and more than five times the odds compared with pharmaceutical agents (OR 5.53; $p = 0.005$) (Table 7). Case fatality was also higher among patients assessed as having clear suicidal intent. Delayed presentation and co-ingestion of alcohol were associated with poorer outcome in exploratory analyses.

Table 6. Outcome by toxicological category (N = 222)

Agent category	Survived	Died	Absconded / LAMA	Referred	Case fatality % (95 % CI)
Pesticides (n = 98)	72	19	4	3	19.4 (12.8–28.3)
Pharmaceuticals (n = 72)	65	3	3	1	4.2 (1.4–11.5)
Corrosives (n = 28)	22	4	1	1	14.3 (5.7–31.5)
Household chemicals (n = 15)	13	1	1	0	6.7 (1.2–29.8)
Other / unknown (n = 9)	6	1	0	2	11.1 (2.0–43.5)
Total (N = 222)	178	28	9	7	12.6 (8.9–17.6)

LAMA, left against medical advice. Case fatality = deaths / all cases in the category; CI by Wilson method.

Table 7. Association of pesticide ingestion with death

Agent	Died n (%)	Did not die n (%)	OR (95% CI)	p value
Pesticides (n = 98)	19 (19.4)	79 (80.6)	3.07 (1.32–7.14)	0.008*
All other agents (n = 124)	9 (7.3)	115 (92.7)	Reference	—

*Fisher's exact test. "Did not die" includes survived, absconded and referred.

Table 8. Outcome by intent category — [authors to complete]

Intent category	Survived	Died	Absconded / referred	Case fatality %
Clearly impulsive (n = 92)	[]	[]	[]	[]
Mixed / ambivalent (n = 68)	[]	[]	[]	[]
Clear suicidal intent (n = 48)	[]	[]	[]	[]
Undetermined (n = 14)	[]	[]	[]	[]

Needed to support the statement that clear suicidal intent was associated with higher case fatality; add χ^2 /Fisher p value.

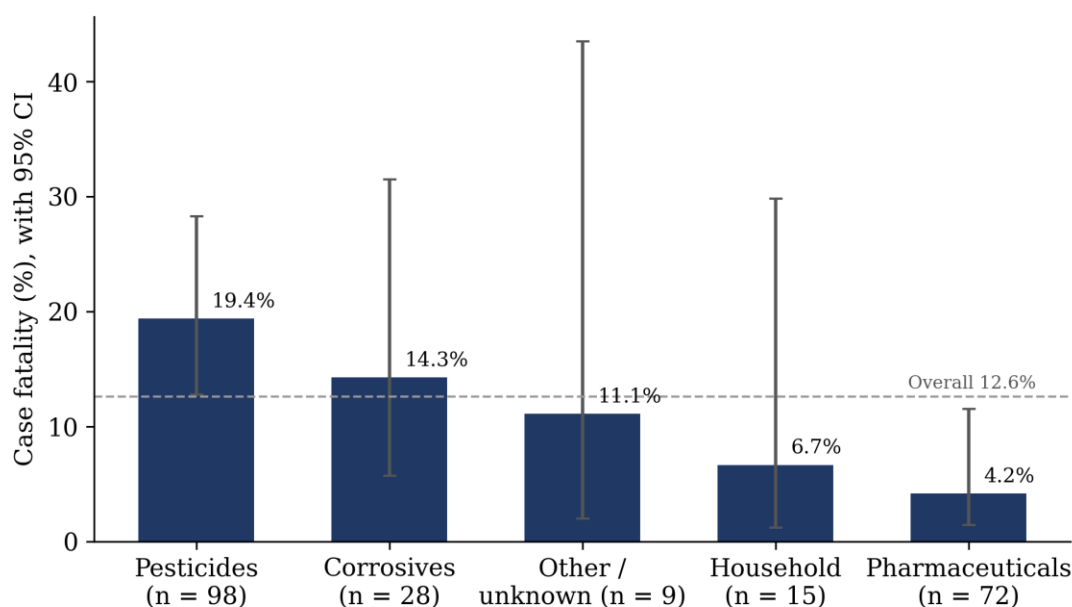


Figure 5. Case fatality by toxicological category, with 95% confidence intervals. Dashed line: overall case fatality (12.6%).

DISCUSSION

This prospective study of 222 patients from a tertiary care centre in Western India shows that deliberate self-poisoning mainly affected young adults, that pesticides were both the commonest and the most lethal agents,

that two in five acts were clearly impulsive, and that family conflict and financial stress were the leading precipitants.

Sociodemographic profile

More than three-quarters of patients were younger than 40 years, with a peak at 20–29 years. This is consistent with national data showing that most suicides occur in the 18–45-year age group [3] and with hospital series from southern India [8,9]. The near-equal sex distribution (1.09:1) contrasts with the male excess among completed suicides nationally [2] and reflects the well-recognised pattern that women are over-represented among non-fatal self-harm while men predominate among deaths [10,22]. Females outnumbered males only in adolescence, an age at which academic pressure, relationship difficulties and family conflict converge and at which self-harm is a leading cause of hospital presentation worldwide [13].

Toxicological profile and gender differences

Pesticides were used in 44.1% of cases, reflecting the agrarian character of much of the catchment and the ready availability of agrochemicals in rural homes [6,7]. Pharmaceutical agents formed a substantial second category (32.4%), in keeping with the rising availability of prescription and over-the-counter medicines described in other Indian series [8,9]. Corrosives accounted for 12.6% of cases — a notable proportion given their capacity to cause severe and lasting injury to the upper gastrointestinal tract [23]. Agent choice differed significantly by sex: men more often used pesticides, while women more often used medicines and corrosives. Similar gender differences in the choice of poison have been reported from southern India [10] and from autopsy data on female suicides in South Gujarat [11]. These differences probably reflect access — men handle pesticides in agricultural work, while medicines and household acids are more accessible within the home — rather than differences in intent.

Psychosocial determinants and impulsivity

Family or marital conflict (38.7%) and financial stress (28.8%) were the most common determinants and often coexisted in married adults. These findings agree with Indian clinical and psychological-autopsy studies that have repeatedly identified interpersonal discord and economic hardship as central precipitants of self-harm [9,12,24]. Known psychiatric illness was recorded in 16.7% of patients, which is lower than the prevalence usually found with structured diagnostic assessment; mental illness is likely to be under-detected when it relies on history and initial clinical assessment, and the results of formal psychiatric liaison assessment should be reported where available.

The high proportion of clearly impulsive acts (41.4%) is an important finding. Impulsive suicide attempts are characterised by a short interval between the decision and the act and by the use of whatever means are readily available [14]. When the agent at hand is a highly toxic pesticide, an impulsive act in response to a transient crisis can easily become fatal [6]. This underlines the importance of means restriction, which is

effective precisely because many acts are impulsive and are not simply displaced to other methods [7,25].

Outcome

The overall case fatality of 12.6% was driven mainly by pesticides, which accounted for two-thirds of all deaths and carried a case fatality nearly five times that of medicines. Pesticide ingestion was independently associated with three times the odds of death compared with other agents. This is consistent with international evidence that the high lethality of self-poisoning in rural Asia is explained largely by the toxicity of the pesticides available [5,6], particularly organophosphorus compounds and aluminium phosphide, for which effective antidotes are limited and intensive-care support is often required [26]. Corrosives also had a high case fatality (14.3%) despite their smaller numbers. By contrast, the low case fatality of medicine overdoses (4.2%) reflects both their lower intrinsic toxicity and the availability of effective treatment.

Implications for prevention and practice

The findings support a dual approach. At the clinical level, early recognition of high-lethality agents, rapid resuscitation and access to critical care are essential, together with a structured psychosocial assessment of every patient before discharge [18]. At the population level, restriction of access to highly hazardous pesticides — through national bans, safer community storage and regulation of sales — is one of the most effective suicide-prevention measures available, and India's experience after the endosulfan ban shows substantial benefits without loss of agricultural output [7,25,27]. The Supreme Court of India has directed the regulation of over-the-counter sale of acids [28], and stricter enforcement would reduce corrosive self-poisoning. Family counselling services, financial-stress support, and the District Mental Health Programme and Tele-MANAS should be linked with emergency departments to provide follow-up after discharge [16,29]. These measures are in line with the National Suicide Prevention Strategy and WHO's LIVE LIFE approach [16,29].

Strengths and limitations

The strengths of this study include its prospective design, consecutive recruitment over more than a year, the simultaneous recording of toxicological, psychosocial and outcome data, and the structured assessment of intent. The following limitations should be noted:

1. This was a single-centre study; findings may not be generalisable to regions with different agricultural practices or levels of urbanisation.
2. Psychosocial variables relied on self-report and collateral information and are subject to recall and social-desirability bias; stigma may have led to under-reporting of family conflict, substance use and mental illness.

3. Toxicological classification was based mainly on history, container labels and clinical features; laboratory confirmation was not available for all agents.
4. Assessment of intent and impulsivity, although structured, involved clinical judgement, and a validated instrument such as the Beck Suicide Intent Scale was not used [confirm].
5. Patients who died before arrival at hospital were not included, so the study underestimates the true lethality of self-poisoning in the community; outcomes after discharge, referral or absconding were not followed up.
6. Associations were examined with bivariate tests only; no multivariable analysis was performed, so confounding (for example by age, sex, delay in presentation or intent) cannot be excluded.

CONCLUSION

In this prospective hospital-based study from Western India, deliberate self-poisoning predominantly affected young adults and was most often precipitated by family/marital conflict and financial pressure. Two in five acts were impulsive. Pesticides were the leading toxicological category and accounted for two-thirds of deaths, with a case fatality of 19.4%, followed by corrosives; overall case fatality was 12.6%. These findings call for integrated medical and psychosocial care at presentation and for community interventions that reduce access to highly lethal agents while addressing the interpersonal and economic stressors behind self-poisoning.

Recommendations

1. Implement routine structured psychosocial assessment — covering family conflict, financial stress, impulsivity and intent — for every patient presenting with deliberate self-poisoning.
2. Strengthen liaison psychiatry services to ensure timely assessment, safety planning and follow-up after discharge, with linkage to the District Mental Health Programme and Tele-MANAS.
3. Support the withdrawal of highly hazardous pesticides and promote safer storage of agricultural chemicals at household and community level.
4. Enforce regulation of over-the-counter sale of acids and encourage responsible prescribing and dispensing of medicines.
5. Develop accessible family-counselling and financial-stress support services targeted at young adults and married couples.
6. Establish multicentre poisoning registries in Western India to monitor trends in agents, psychosocial precipitants and outcomes.

Declarations

Authors' contributions: TP – conception, design, data collection, manuscript preparation; DKM – study design, statistical analysis, critical revision; MP – data analysis, literature review, manuscript editing. All

authors approved the final manuscript.

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Data availability: De-identified data are available from the corresponding author on reasonable request, subject to Institutional Ethics Committee approval.

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