



## Comparative Trend Of Poisoning Cases In Pratapgarh District

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### ABSTRACT

Acute poisoning is a common phenomenon for committing intentional suicide there are many ways where humans use various types of other measures to end up their life . The study of poisoning death reveals that there are millions of death happening per year and upgrading the graph of the mortality rate there are many ways that is used by the person to commit suicide but among them 32% of cases were of poisoning which is responsible for committing suicide either by accidental, homicidal or suicidal the aim of this study is to identify the occurrence of trend of poisoning in Pratapgarh district the demographic study of the patient were carried out from the year 2017-2021 five years study has been done to identify the trend of poisoning consumption in the market that is highly responsible for toxicity rating as well as various demographic hidden features were done mortality and morbidity rate various segmented features were taken into consideration so that bifurcation can help in understanding the exact concentrated ratio of poisoning aspect. This study covers the various demographic aspects of the entire pratapgarh district of recorded poisoning cases.

**Keywords:** Lethal dose, Toxicology, interpretation, Celphos, insecticide and pesticides, retrospective, prospective

### 1. Introduction

Forensic toxicology is a branch of forensic sciences that deals with the analysis of poisonous substances and the exposure of toxicants into the human body there are lots of illegal consumption of illicit narcotic drugs<sup>1</sup>. The practical application of toxicology in forensic is used to solve medico legal cases for resolving any unidentified cases of drugs and poison are considered as forensic toxicology<sup>5</sup>.The toxicity of any substance depends upon the therapeutic and lethal dose where the substance has the ability to cause poison or act effectively in the form of medicine depending upon the dose injected Poisoning can be said as epidemic nowadays which is counted as un-natural death majorly from the previous era to this coming era the death ratio graph is majorly increasing according to WHO 3 million people are committing suicide every year and the patent poison found among them were insecticides and pesticides<sup>7</sup>.Toxicology concerns for the analyzation of the biological visceral samples for the concentration of the expected ratio of the poison that is present inside the tissues and fluids of the body<sup>8</sup> .The study that is used to identify the analysis of poison which help in correlating with the case history of the pateint so that to explain how much harm that is caused by the detected poisonous substance inside the viscera have played which causes impairment or death to the patient and this correlation is known by the term called interpretation<sup>9</sup>.The demographic study was done on the basis on the basis of the statistical study of the organophosphorus the majour death reported in this poison is due to respiratory failure<sup>6</sup>.Death due to poisoning has been ruling from the time since immemorial as we are aware the toxicological analysis of poison is the prime key for understanding the substance persists in the particular target organs Any substance can be considered medicine or poison it all depends on the dose if it consumer intake any medicine under its therapeutic dose then it produces an effective result and if it exceeds the chronic dose then it becomes fatal to their life and can be called as poison<sup>10</sup>. Celphos is one of the largest reported poison that is used in the Indian subcontinent that is causing the mortality rate two years study was conducted on the patient admitted in the hospital and conclusion withdrawn that the toxicity level of Celphos is 60%<sup>2</sup>. Objective of this study is to analyze the demographic data of poisoning cases statistically in pratapgarh district.

### 2. Methodology

The data of the patients has been collected from the pratapgarh district hospital from 2017-2021 five years study of poisoning and demographic study of the cases were done. The bifurcation is done to study the demographic features that were taken under consideration and find out conclusive observation by using the simple percentage the five features were studied that are as follows the yearly distribution of poisoning cases, gender distribution area of incidences, and occupation of the victim and consumption of poison to find out the trend of poisoning in pratapgarh district from 2017-2021.

**3. RESULTS AND DISCUSSION**

**Table 1. Yearly distribution of poisoning cases from 2017-2021 .**

Year	No of cases	Percentage
2017	200	15.57%
2018	285	22.19%
2019	225	17.52%
2020	298	23.20%
2021	276	21.49%
<b>Total cases</b>	<b>1284</b>	<b>100%</b>

Shows year wise distribution of poisoning data of Pratapgarh district from the year 2017 to2021. There is total 1284 poisoning cases which was recorded from the consecutive year of2017 -2021 respectively. In the year 2017 there found 200 cases whose percentage attributed to hit (15.57%), whereas in the year 2018 there is 285 poisoning cases percentage to be calculated as (22.19%), where in 2019 the poisoning cases found to be 225 percentage value as (17.52%), during the year 2020 the percentage of poisoning case srecorded as 298 percentage valued as (23.20%), During the year 2021 there found a poisoning data which is recorded as 276 cases (21.49%) respectively. When 2021 poisoning cases is compared with 2020 poisoning cases then 2021 show demarcation of (7.38%) from 2020 and vice versa show increment in 2020 of (7.38%).When 2020 poisoning data is compared with 2019 poisoning cases then 2020 show increment of (32%) from 2020 and vice versa show decrement in 2019 of (32%).When 2019 is compared with 2018 then 2019 show decrement of (21.05%) from 2018 and vice versa show increment in 2018 of (21.10%).When 2018 poisoning cases is compared with 2017 poisoning data then 2018 show increment of (42.5%) from 2017 and vice versa show decrement in 2017 of(42.5%). When retrospective years(2017-2020) is compared with prospective year (2021) then four years data of poisoning cases show demarcation of (9.52%) and 2021 show incarnation of (9.52%) respectively.

**Table 2. Area wise distribution of poisoning cases from 2017-2021.**

Year	Rural cases	Rural percent	Urban	Urban%	Total	Percent
<b>2017</b>	149	20.58%	51	9.10%	200	15.57%
<b>2018</b>	196	27%	89	15.89%	285	22.19%
<b>2019</b>	161	22.23%	64	11.42%	225	17.52%
<b>2020</b>	113	15.6%	185	33.03%	298	23.20%
<b>2021</b>	105	14.50%	171	30.53%	276	21.49%
<b>Total</b>	<b>724</b>	<b>100%</b>	<b>560</b>	<b>100%</b>	<b>1284</b>	<b>100%</b>

Table describe occurrence of poisoning cases in the district of Pratapgarh from 2017 2021 of urban and rural areas there are 1284 total poisoning cases which were found in pratapgarh in which 560 were of urban areas and724 were of rural area. The year 2017 shows total poisoning case 200 (15.57%) the poisoning cases of urban area which is 51 whose percentage is (9.10%) whereas rural area has 149 cases whose percentage is (20.58%). The year 2018 has total poisoning case 285 (22.19%)in which 89 poisoning cases were in urban areas whose percentage is (15.89%) and rural area has 196cases whose percentage is (27%).The year 2019 has total poisoning 225(17.52%) in which urban area has 64poisoningcaseswhosepercentage is (11.42%) and rural has 161 cases whose percentage is (22.23%). The year 2020 which maximum number of cases of 298 (23.20%) in which urban area has 185 (33.03%)cases which is the maximum cases of data from the retrospective and prospective cases and rural has 113cases (15.6%).The year 2021 has total cases of 276 (21.49%)in which rural area has 105 cases (14.50%) and urban area has 171 case(30.53).

**Table 3.Shows distribution of poisoning cases according to gender from 2017-2021**

Year	Female case	Female %	Male cases	% Male	Total	percentage
2017	41	9.05%	159	19.13%	200	15.57%
2018	87	19.2%	198	23.82%	285	22.19%
2019	123	27.15%	102	12.27%	225	17.52%
2020	117	25.82%	181	21.7%	298	23.02%
2021	85	18.76%	191	22.9%	276	21.49%
<b>Total</b>	<b>453</b>	<b>100%</b>	<b>831</b>	<b>100%</b>	<b>1284</b>	<b>100%</b>

Shows the sex wise distribution of poisoning cases of Basti districts from 2017 to 2021 whose total number of poisoning cases is 1284. The table itself describe the briefing about the numerical values of no of bifurcated cases between male and female. The year 2017 to 2021 shows total number of 453 female predominant poisoning cases and 831 male predominant poisoning cases. The year 2017 has total poisoning case 200 (15.57%) which is distributed among male and female where female shows 41 predominant poisoning cases whose percentage is (9.05%) and male

have 159 poisoning case whose percentage variation (19.13%). The 2018 total poisoning case is 285 (22.19%) in which female has 87 poisoning case whose attributed percentage is (19.2%) and male have 198 poisoning case whose percentage is (23.82%).

The year 2019 has 225 (17.52%) poisoning cases where female dominant case of poison 123 whose percentage is (27.15%) whereas male recessive percentage of cases is 102 whose percentage is (12.27%). The consecutive year 2020 has total poisoning case 298 (23.02%) where female recessive case of 117 whose calculated percentage is (25.82%) and male has 181 cases percentage is (21.7%). Whereas the year 2021 has 276 (21.49%) where female numerical poisoning case is 85 case (18.76%) and male have numerical values of poisoning case is 191 whose percentage value is (22.9%). The concluded result can be obtained from this table as the male has highest consumption of poison compared with female.

**Table 4. Occupational distribution of poisoning cases from 2017-2021.**

Occupation	2017 cases	%2017	2018 cases	%2018 cases	2019 cases	%2019 Cases	2020 cases	%2020 cases	2021 cases	%2021 Cases	Total	%Total
Farmer	78	39%	105	36.8%	80	35.5%	98	32.8%	93	33.6%	454	35.3%
Labour	66	33%	98	34.3%	77	34.2%	111	37.2%	121	43.8%	473	36.8%
Student	20	10%	34	11.9%	29	12.8%	21	7.04%	18	6.52%	122	9.77%
Housewife	21	10.5%	32	11.2%	30	13.3%	39	13.08%	33	11.9%	155	12.07%
Unemployed	15	7.5%	16	5.6%	9	4%	29	9.73%	11	3.98%	80	6.23%
<b>Totalcases</b>	<b>200</b>	<b>100%</b>	<b>285</b>	<b>100%</b>	<b>225</b>	<b>100%</b>	<b>298</b>	<b>100%</b>	<b>276</b>	<b>100%</b>	<b>1284</b>	<b>100%</b>

Table shows the occupational distribution of poisoning cases from 2017- 2021 of Pratapgarh district. The different years shows occupational distribution of poisoning cases where different occupation is chosen to correlate the poisoning cases from highest to low estrecorded poisoning cases. The year 2017 has 200 poisoning cases in which farmer has 78(39%) have highest consumption of poisoning cases, labour has 66(33%) cases, student has 20 cases (10%), house wife has 21(10.5%) cases and unemployed 15(7.5%) which is least to be achieved poisoning cases. The year 2018 has total poisoning 285 in which farmer has 105(36.8%) cases highest attributed poisoning case, labour has 98 (34.3%) cases , student has 34(11.9%) cases, housewife has 32 (11.2%) cases and unemployed has 16 (5.6%) cases to be recorded minimum cases among all,. The year 2019 has total poisoning case 225 among which farmer has 80 (35.5%) cases top on the table in terms of consumption, labour has 77(34.2%)cases, student has 29(12.8%) cases ,unemployed has 9(4%) minimum cases among all and house wife has 30 (13.3%) poisoning cases. The year 2020 has total case of poisoning 298 has highest poisoning cases among all the years in which farmer has 98(32.8%) cases , labour has 111 (37.2%) cases highest to be recorded , student has 21 (7.04%) least to be recorded among all occupation, unemployed has 29 (9.73%) cases and housewife has 39 (13.08%) cases poisoning cases. The year 2021 has 276 poisoning cases among them farmer has 93 (33.6%) which shows second highest in terms of consumption , labour has 121(43.8%) cases to gain the highest, student has 18 (6.52%) cases, unemployed has 11(3.98%) least to be recorded , house wife has 33 (11.9%) cases. The five years data of farmer shows 454 cases(35.3%). Labour has 473 cases in which percentage to be found as (36.8%) which is high estamong all the occupation. The house wife has 155 (12.7%) which is third highest among all occupation .Student has total case 122 whose percentage is (9.77%) which is emerging and the refund increase in the cases day by day and the unemployed has total 80 case whose percentage is (6.23%). Therefore, from the above franchised table conclusion can be taken farmer has highest consumption of poisoning rate followed by the labour com and the lowest found in terms of consumption of poison is the unemployed person followed by the student.

**Table.5: Shows the consumption of type of posion in pratapgarh district from 2017-2021.**

Name of poison	2017	%	2018	%	2019	%	2020	%	2021	%	Total Case	Total%
Organophosphorus	42	21%	58	20.3%	40	17.7%	69	23.15%	70	25.36%	279	21.7%
Celphos	33	16.5%	66	23.1%	35	15.5%	60	20.13%	66	23.91%	260	20.24%
Phenyl	29	14.5%	32	11.2%	29	12.8%	33	11.07%	14	5.02%	137	10.66%
Rat killer	15	7.5%	14	4.91%	13	5.77%	10	3.35%	8	2.89%	60	4.67%
Insecticide & Pesticide	57	28.5%	79	27.7%	66	29.3%	82	27.51%	88	31.88%	372	28.97%
Sedative drugs	32	15%	30	10%	19	8.4%	25	8.3%	29	10.50%	135	10.5%
Arsenic	1	0.33%	5	1.75%	2	0.88%	5	1.3%	0	0	11	0.856%
Plant poison	2	1%	2	0.70%	1	0.4%	0	0	0	0	5	0.389%
Snake poison	4	2%	5	1.7%	6	2.6%	7	2.3%	3	1.8%	25	1.9%
<b>Total</b>	<b>200</b>	<b>100%</b>	<b>285</b>	<b>100%</b>	<b>225</b>	<b>100%</b>	<b>298</b>	<b>100%</b>	<b>276</b>	<b>100%</b>	<b>1284</b>	<b>100%</b>

Table shows the five year comparative study show the highest intake and lowest intake of poison the organophosphorus has total 279(21.7%) in which distributive year show that 2017 has 42 (21%) cases, 2018 have 58 (20.3%), 2019 have 40 (17.7%) that is the lowest number of poisoning case recorded , 2020 69 (23.15%) and 2021 have 70 (25.36%) show

highest cases. The Celphos has total poisoning case of five years 260 (20.24%) where as distributive year shows 2017 has 33 (16.5%) case , 2018 has 66 (23.1%) , 2019 has 35 (15.5%) lowest recorded poisoning year , 2020 has 60(20.13%) and 2021 has 66 (23.91%)chief percentage of poisoning case. The phenyl has total poisoning case 137 (10.66%) the year bifurcation show that in 2017 has 29 (14.5%) observed case, 2018 has 32 (11.2%) case , 2019 has 29(12.8%) , 2020 has 33 (11.07%) more cases received in this year , & 2021 has 14 (5.04%) very lowest case received in this year . The rat killer which is zinc phosphide poison has total case of 60 (4.67%) the year 2017 has 15 (7.5%) highest poisoning case , 2018 has 14 (4.91%) case , 2019 has 13 (5.77%) case , 2020 has 10 (3.35%) and 2021 has 8 (2.89%) least recorded poisoning case. The insecticide & pesticides have total poisoning case 372 (28.9%) where bifurcated year show that in 2017 has 57 (28.5%), 2018 has 79 (27.7%) least average case , 2019 has 66 (29.3%), 2020 has 82 (27.51%) highest poisoning case and 2021 has 88 (31.88%). The snake bite has total poisoning case 25 (1.9%) the year 2017 has 4 (2%) , 2018 has 5 (1.7%), 2019 has 6 (2.6%) lowest recorded year , 2020 has 7 (2.3%) highest poisoning case and 2021 has 3 (1.8%) lowest venom case. The sedative drugs has total poisoning case 135 (10.5%) the year 2017 has 32 (15%) highest achieved case , 2018 has 30 (10%) highest observed case ,2019 has 19 lowest achieved poisoning cases (8.4%) , 2020 has 25 (8.3%) & 2021 has 29 (10.50%). The arsenic poisoning which is known to be fatal nowadays leading to effect the population has total case 20 in which 2017 has 1 case (0.%) least observed poisoning case , 2018 has 5 (1.75%) , 2019 has 2 (0.88%), 2020 has 5 (1.3%) most of the cases received in this year & 2021 has zero. The plant poison has total case 5 (0.389%) very few cases received in this variety of vegetable poison where the year 2017 has 2 (1%) , 2018 has 2 (0.70%) from 2019 has 1 case (0.4%) 2020 &2021 no case has been received of plant poison in this area. So the conclusion from this table can be withdrawn that highest intake of poison insecticide and pesticides followed by organophosphorus and least to be recorded is plant poison followed by arsenic cases.

#### 4. Discussion

The geographic zone of pratapgarh that have a high crime rate of poisoning misuse irrespective of gender bias showed that 2020 have a marked history of poisoning case & 2017 have the lowest bias associated with poison. when the area of incidence is taken into consideration then marked results show that rural area has a major case and urban has a minor case the year 2020 shows a higher case in the urban area and the year 2018 leads to a rural area with respect to the occurrence of poison case lower to be found in the year 2021 in rural areas.The gender paradox shows that males are more likely to admit poisoning cases with respect to females. The year 2018 shows the highest number of poisoning cases in males & the year 2019 shows the lowest whereas for females the dedicated year is 2019 where the highest case is achieved and 2017 is the underground year of poisoning cases. The demographic study based on occupation shows that labour shows a high striation graph followed by the farmer and the least cases were of an unemployed. The trend of poisoning that can be illustrated from the segmented table given in the result section highest cases were of Celphos (aluminum phosphide) followed by insecticides & pesticides & least recorded cases were of plant poison that is found in the pratapgarh region of the five-year comparative study The study was done to access the intent and most common substances engaged in acute poisoning in geriatric patients The participants divided into two groups based on the intention of acute poisoning the patients with intentional (attempted suicide 45.7%) and unintentional abuse 26.1% and accidental 28.3% toxin exposure<sup>3</sup>. This study reported about the historical progress of clinical and forensic toxicology by exploring analytical techniques in drug analysis and explained the promise that involves the solventless sample preparation technique of solid phase micro extraction and capillary electrophoresis.

#### 5. Conclusion

The cases of intentional poisoning is uprsing in greater speed due to the availability of the poison at cheapest price and their lack of knowledge and awareness among person leads to the death as the person. The reason behind using these listed toxic substance that is trending from many years is the low cost availability, lack of awareness among people and the high lethal effect it cause when administered .This study also suggest that Counselling & awareness about the consequences of the specific nature of poisoning should be given to the people and also acknowledging them regarding the specific antidote can be given to the patient so the lag interval time period can be utilized during delay in the hospitalization.

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