

Socio-Demographic Characteristics and Other Correlates in Children Admitted to a Tertiary Care Hospital, in Northern India Due to Poisoning

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Abstract: Introduction: The spectrum and epidemiology of poisoning in children and their clinical outcome depend a lot on socioeconomic status & cultural practices. The present study was done to evaluate the Socio-demographic characteristics and other correlates in children admitted to Pediatric wards of Indira Gandhi Medical College, Shimla due to poisoning. Methods: A retrospective review of records of all the children admitted in the Pediatric wards of Indira Gandhi Medical College, Shimla due to poisoning from January to December 2021 was conducted. Data regarding age, gender & other Socio-demographic characteristics was retrieved. Results: In the present study, among the 168 children admitted due to poisoning, 67(39.9%) were males, and 101(60.1%) were female. 33(19.6%) were ≤ 5 years of age, 27 (16.1%) were between 6 to 10 years, 33(19.6%) were between 11 to 15 years and 75(44.6%) were between 16-18 years of age. Mean age was 11.95±5.532 years. 138(82.1%) belonged to Rural areas while 30(17.1%) belonged to urban areas. Majority, 98(58.3%) were from Shimla followed by 23(13.7%) from Mandi. Among the total cases, 77(45.8%) was accidental while 91(54.2%) were suicidal. Odor of poison was found in 62(36.9%) of cases. 72(42.9%) cases presented to the Pediatric department of IGMC in less than 6 hours, 87(51.8%) in 7-24 hours, 7(4.2%) cases in 24-48 hours, and 2(1.2%) cases in >48 hours. 155(92.3%) had GCS Score >13 at the time of admission while 13(7.7%) had GCS Score <13. Among the total, 81(48.2%) cases were admitted in IGMC for 1-2 days, 75(44.6%) for 3-7 days and 12(7.1%) for more than 7 days. We found that 152 (90.5%) cases were discharged after full recovery, 12(7.1%) died during treatment, 3(1.8%) cases left against medical advice and 1(0.6%) case was referred to PGI Chandigarh for further treatment. Conclusion: Most affected children were females, from the adolescent age group, had a rural background and, were suicidal. Most of the children presented in the pediatric department within 24 hours, had GCS Score >13 at admission and were discharged within 1-2 days.

Keywords: Socio-demographic characteristics, Correlates, poisoning, accidental, intentional

1. Introduction

Although a global phenomenon, childhood poisoning has unique epidemiological attributes depending on the socio-economic demographics. The spectrum & epidemiology of poisoning in children as well as their outcome depend a lot on socioeconomic status & cultural practices. But for effective prevention strategies to develop, healthcare planners need a better understanding & information on socio-demographic characteristics.^{1,2}

Childhood poisoning cases may vary according to the geographical & seasonal characteristics of the area, sociocultural structure of the population, life index & age groups. Poisoning can occur accidentally or intentionally. In preschool children poisoning is mostly accidental, due to domestic cleaning products, pesticides & other medicinal products while adolescent poisoning is usually suicidal through the use of various drugs.^{3,4}

The etiology & demographics of pediatric poisoning may change over time according to age group and they differ from country to country. Therefore, it is always a challenge for Pediatricians. Regular surveillance is required to recognize socio-demographic trends and other variables related to childhood poisoning. This information helps in

creating prevention strategies and helps to effectively identify and manage childhood poisoning according to age and time.⁴⁻⁶

Relatively little research has been published concerning socio-demographic trends and other variables of Poisoning in children in Himachal Pradesh. Therefore, this study aimed to evaluate the Socio-demographic characteristics and other correlates in children admitted to Pediatric wards of Indira Gandhi Medical College, Shimla due to poisoning

2. Objectives

To evaluate the Socio-demographic characteristics and other correlates in children admitted to the Department of Pediatrics ward of Indira Gandhi Medical College, Shimla due to poisoning

3. Methodology

We conducted a retrospective, descriptive study from January 2021 to December 2021 at Indira Gandhi Medical College, Shimla a tertiary referral institute, on children admitted to the pediatric ward due to poisoning.

Sample size

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All the children up to 18 years of age, admitted to the Pediatric wards of Indira Gandhi Medical College, Shimla due to poisoning were included.

Data collection & analysis

A Pre-test semi-structured questionnaire containing questions regarding Socio-demographic characteristics and other correlates was created and used for data collection. Data regarding age, gender & other Socio-demographic characteristics was retrieved, from the record files. Collected data was entered in Microsoft Excel, and analyzed with Epi Info V7 Software with appropriate statistical tests in terms of frequencies, percentages, mean standard deviation, etc. Permission was obtained from the concerned authorities of Indira Gandhi Medical College & Hospital, Shimla

Ethical Considerations

Participant's confidentiality and anonymity were maintained.

4. Results

A retrospective review of records of all the children, up to 18 years of age, admitted in the Pediatric wards of Indira Gandhi Medical College, Shimla due to poisoning from January to December 2021 was cond.

A total of 168 children were admitted to the pediatric wards of Indira Gandhi Medical College, Shimla due to poisoning. Among them 67(39.9%) were males while 101(60.1%) were females. Among the total, 33(19.6%) were ≤ 5 years of age, 27 (16.1%) were between 6 to 10 years, 33(19.6%) were between 11 to 15 years and 75(44.6%) were between 16-18 years of age. The mean age was 11.95 ± 5.532 years. (Table-1)

Table 1: Age and Gender Distribution of Study Participants

	Frequency	Percent
Age groups		
≤ 5 years	33	19.6
6-10 years	27	16.1
11-15 years	33	19.6
16-18 years	75	44.6
Gender		
Males	67	39.9
Females	101	60.1
Total	168	100.0

138(82.1%) belonged to Rural area while 30(17.1%) belonged to urban areas. When analyzed according to the district, the majority 98(58.3%) were from Shimla followed by 23(13.7%) from Mandi 18(10.7%) from Sirmaur, 15(8.9%) from Solan, 10(6.0%) from Bilaspur and 1(0.6%) each from Bilaspur, Hamirpur, Kullu, Sirmaur, Kinnaur & Una.

Table 2: Distribution of study Participants according to Area and Districts

	Frequency	Percent
Area		
Rural	138	82.1
Urban	30	17.9
Districts		
Shimla	98	58.3
Mandi	23	13.7

Sirmaur	18	10.7
Solan	15	8.9
Bilaspur	10	6.0
Hamirpur	1	0.6
Kullu	1	0.6
Kinnaur	1	0.6
Una	1	0.6
Total	168	100.0

Among the total cases, 77(45.8%) were accidental while 91(54.2%) were suicidal. The odor of poison could be found in 62(36.9%) cases.

Table 3: Distribution of study Participants according to Nature and odor of poisoning

	Frequency	Percent
Nature of Poisoning		
Accidental	77	45.8
Suicidal	91	54.2
Odor of poison		
Present	62	36.9
Absent	106	63.1
Total	168	100.0

Among the total, 72(42.9%) cases, were admitted to the Pediatric department of IGMC within less than 6 hours, 87(51.8%) in 7-24 hours, 7(4.2%) cases in 24-48 hours while 2(1.2%) cases in >48 hours. 155(92.3%) cases had GCS Score >13 at the time of admission while 13(7.7%) cases had GCS Score <13 . A total of 81 (48.2%) cases remained admitted for 1-2 days, 75(44.6%) for 3-7 days and 12(7.1%) for more than 7 days. We found that 152 (90.5%) cases were discharged after full recovery, 12(7.1%) died during treatment, 3(1.8%) left against medical advice, and 1(0.6%) was referred to PGI Chandigarh for further treatment.

Table 4: Distribution of study Participants according to time of presentation, duration of stay & outcome

	Frequency	Percent
Time of Presentation		
<6 hours	72	42.9
7-24 hours	87	51.8
24-48 hours	7	4.2
>48 hours	2	1.2
GCS Score		
>13	155	92.3
<13	13	7.7
Duration of stay		
1-2 days	81	48.2
3-7 days	75	44.6
>7 days	12	7.1
Outcome		
Discharged	152	90.5
Death	12	7.1
LAMA	3	1.8
Referred	1	.6
Total	168	100.0

5. Discussion

The association between socio-demographic factors and childhood poisoning could be used for improvement to prevent and reduce such harms. In the present study, among the 168 children admitted due to poisoning, 67(39.9%) were

males while 101(60.1%) were females. Similar to our findings, a study done by Sabiha Sahin et al⁷, among the total children who were referred to the emergency department due to acute poisoning, 48.4% of patients were boys and 51.6% were girls. In a study by Halil Kazanasmaz et al³, when gender distribution was observed, 49.6% of the patients were male and 50.4% were female. Contrary to our findings, in the Diganta Saikia et al⁴ study, majority 65.4% were males while 34.6% were females. In the study by Sharma J et al⁸, the Male: female ratio was 1.17:1. Also in the study by Nowneet Kumar Bhat et al⁹, the boys outnumbered girls with a male to female ratio of 1.4:1.

In the present study, 33(19.6%) were ≤ 5 years of age, 27 were between 6 to 10 years, 33(19.6%) were between 11 to 15 years and 75(44.6%) were between 16-18 years of age. Mean age was 11.95 ± 5.532 years. In a similar study by Sharma J et al⁸, the commonest age group affected was between 11-18 years. In the study by Nowneet Kumar Bhat et al⁹, the majority of children., 60.68% were in the 0- 6 year age group, while 6 - 12 year and 12 - 18-year-old comprised 3.42% and 35.9% respectively. In the study by Halil Kazanasmaz et al³, the mean age of all cases was found to be 6.60 ± 5.70 (min-max, 0–17) years. More than half of the cases (% 56.1) were between 0 and 4 years of age.

In our study, 138(82.1%) belonged to Rural areas while 30(17.1%) were from urban areas. Similar to our finding, in the study done by Zhu Li et al¹⁰, the number of children from rural areas was much higher than in urban areas. In the study by Sharma J et al⁸, 18.8% were from urban population and 81.2% from rural areas. In the study by Nowneet Kumar Bhat et al⁹, the majority, i.e., 63.2% of patients resided in rural areas, whereas 36.8% patients resided in urban areas

In our study, of the total cases, 77(45.8%) were accidental while 91(54.2%) were suicidal. Though poisoning in children below 5 years of age tends to be accidental, it is more often suicidal or intentional in older children and adolescents. Stress has been implicated as a major factor responsible for the increased incidence of intentional poisoning in adolescents. It maybe in the form of parental expectations, academic stressors or peer pressure. This finding also suggested that Suicide is not only a major problem in developed countries but also in developing countries. Contrary to our findings, in the study by Sharma J et al⁸, Poisoning was accidental in 92.8% patients whereas suicidal intent was elicited in only 7.8% patients. In the Diganta Saikia et al⁴ study, in 94.1% cases, the child accidentally ingested poisonous substance. Another study by Sabiha Sahin et al⁷ also reported that the majority of cases 73.3% were due to accidental poisoning. In another study by Halil Kazanasmaz et al³, 85.1% of the cases were exposed to the factor accidentally, while 14.9% cases had attempted suicide. Nowneet Kumar Bhat et al⁹, reported that in 68.38% the poisoning was accidental, whereas it was suicidal in 29.91% and homicidal in 1.71% cases.

In our study, 72(42.9%) cases presented to the Pediatric department of IGMC in less than 6 hours, 87(51.8%) in 7-24 hours, 7(4.2%) in 24-48 hours and 2(1.2%) in >48 hours. The delay in reporting to the hospital could be due to ignorance, poverty, insufficient knowledge regarding the

poisonous agent, hilly topography and lack of easy modes of transportation. In the study by Sharma J et al⁸, Only 0.6% presented within an hour of exposure, whereas 13.9% presented within 1-2 hours, 25.5% in 2-5 hours and 60% presented after 5 hours of poisoning. Sabiha Sahin et al⁷ reported that among all cases referred to the emergency unit 70.8% arrived within the first two hours and 95.7% in the first six hours following poisoning. Study by Jung Lee et al¹¹, of all cases presenting at the Emergency department, 68.4% of cases were brought within 4 h of poisoning. In a Study by Ahmed, A et al¹², most of the poisoning cases, the time of exposure before visiting the emergency department is less than 1 h. (54.2 %).

In the present study, 155(92.3%) cases had GCS Score >13 at the time of admission while 13(7.7%) cases had GCS Score <13. Similar to our findings, in the study by Jung Lee et al¹¹, 6.6% cases presented with a Glasgow Coma Scale (GCS) score < 15.

In the current study, 81(48.2%) remained admitted in IGMC for 1-2 days, 75(44.6%) for 3-7 days and 12(7.1%) for more than 7 days. In the study by Sharma J et al⁸, 58.1% had a hospital stay of 1-2 days, 38.8% of 3-7 days, 3.1% for more than 7 days.

We observed that 152 (90.5%) were discharged after fully recovery, 12(7.1%) died during the treatment, 3(1.8%) left against medical advice and 1(0.6%) case was referred to PGI Chandigarh for further treatment. This relatively good prognosis might be attributed to the fact that majority were admitted at IGMC Shimla within 2 to 6 hours following poisoning. Similarly, in the study by Sharma J et al⁸, 6.1% died due to insecticide and pesticide poisoning Another study by Sabiha Sahin et al⁷ reported that 262 patients of 281 were discharged from the hospital within 48 hours, Only 10 children had a hospital stay of more than 72 hours, and none of the patients died. Study by Halil Kazanasmaz et al³, all cases were discharged, and no mortality was observed the mortality rate due to poisoning is 3–5% in other studies.¹³⁻¹⁴

6. Conclusion

Most commonly affected children were females, from the adolescent age group, having rural backgrounds, and who were suicidal in nature. Most of the children presented in the pediatric department within 24 hours, had a GCS Score >13 at the time of admission and were discharged within 1-2 days. Thus, adolescent age group is the most vulnerable age group in our study for poisoning and younger age group is mostly accidental in nature.

Creating health education, at the society, school and general awareness, and prevention programs for children and parents might help prevent such serious preventable problems. Also access to child psychologist or counsellors should be available either within the school, or at primary health care level.

References

- [1] Ahmed B, Fatmi Z, Siddiqui AR. Population attributable risk of unintentional childhood poisoning in Karachi Pakistan. PLoS One. 2011;6(10):e26881

- [2] Alhaboob AA. Sociodemographic Characteristics and Risk Factors for Childhood Poisoning Reported by Parents at a Tertiary Care Teaching Hospital. *Cureus*. 2021;13(2):e13313.
- [3] Halil Kazanasmaz, Özlem Kazanasmaz, Mustafa Çalık. Epidemiological and sociocultural assessment of childhood poisonings. *Turkish Journal of Emergency Medicine*,2019;19(4): 127-131.
- [4] Saikia D, Sharma RK, Janardhan KV. Clinical profile of poisoning due to various poisons in children of age 0-12 years. *J Family Med Prim Care*. 2020;9(5):2291-2296.
- [5] Schmertmann, M., Williamson, A., Black, D. et al. Risk factors for unintentional poisoning in children aged 1–3 years in NSW Australia: a case–control study. *BMC Pediatr* ,2013;88 .
- [6] Li Zhu, Xiao Li, Yang Lin, Li Shaojun, Tan Liping. Characterization of Acute Poisoning in Hospitalized Children in Southwest China .*Frontiers in Pediatrics*.2021;9 (10):33.
- [7] Sahin S, Carman KB, Dinleyici EC. Acute poisoning in children; data of a pediatric emergency unit. *Iran J Pediatr*. 2011; 21(4):479-484.
- [8] Sharma J, Kaushal R. Profile of Poisoning in Children. *Pediatr Oncall J*. 2014;11: 40-42.
- [9] Nowneet Kumar Bhat, Minakshi Dhar, Sohaib Ahmad, Vipran Chandar. Profile of poisoning in children and adolescents at a North Indian tertiary care centre. *JACM* 2011; 13(1): 37-42
- [10] Jung Lee, Nai-Chia Fan, Tsung-Chieh Yao, Shao-Hsuan Hsia, En-Pei Lee, Jing-Long Huang, Han-Ping Wu. Clinical spectrum of acute poisoning in children admitted to the pediatric emergency department,*Pediatrics & Neonatology*, 2019; 60(1): 59-67.
- [11] Ahmed, A., AlJamal, A.N., Mohamed Ibrahim, M.I. et al. Poisoning emergency visits among children: a 3-year retrospective study in Qatar. *BMC Pediatr* 2015; 104.
- [12] Agarwal V, Gupta A. Accidental poisoning in children. *Indian Padiatr*. 1984;11(9):617–21.
- [13] Buch NA, Ahmed K, Sethi AS. Poisoning in children. *Indian Padiatr*. 1991;28(5):521–434.
- [14] Mutlu M, Cansu A, Karakas T, et al. Pattern of pediatric poisoning in the east Karadeniz region between 2002–2006: increased suicide poisoning. *Hum Exp Toxicol*. 2010;29(2):131.