Check for updates

OPEN ACCESS

DOI: 10.46903/gjms/18.02.850

ORIGINAL ARTICLE

DISTRIBUTION OF DELIBERATE SELF-POISONING BY SOCIO-DEMOGRAPHIC FACTORS, PRECIPITATING EVENTS, TYPE OF SUBSTANCE AND MORTALITY IN POPULATION OF HAZARA DIVISION, PAKISTAN

Adnan[1], Abdul Rauf[1], Saqib Malik[1], Imran Ullah[2], Abdul Majid Khan[3], Haidar Zaman[1], Saleem Awan[4]

Departments of Medicine, [1]Ayub Medical College, Abbottabad & [2]Lady Reading Hospital, Peshawar, Departments of [3]Emergency and Accident & [4]Cardiology, Ayub Medical College, Abbottabad

ABSTRACT

Background: Deliberate self-poisoning is important cause of deaths in younger population. The objectives of this study were to determine the distribution of deliberate self-poisoning by 12 socio-demographic factors, precipitating events, type of substance and mortality in population of Hazara Division, Pakistan.

Materials & Methods: This cross-sectional study was conducted in the Department of Medicine, Ayub Medical College, Abbottabad, Pakistan from October 9, 2017 to December 28, 2018. 102 deliberate self-poisoning patients were selected consecutively from population at risk. Variables were 12 socio-demographic factors, precipitating events, type of substance and mortality. All variables being categorical were described by count and percentage for sample and by confidence intervals for proportion for population at 95% confidence level.

RESULTS: Deliberate self-poisoning cases (n=102) were higher in women 80.39%, in age group 18-25 years 54.90%, similar in urban 49.02% and rural 50.98%, higher in non-Pathan 74.51%, in married 57.84%, in joint family 79.41%, in up to matric education 85.29% and in housewives 52.94%, 4.90% with previous history of self-harm, 1.96% with family history of self-harm and higher in lower socioeconomic group 81.37%. The most common precipitating event was interpersonal difficulties with spouse, family members or friends 56.86%, while the most common type of substance was organophosphate 62.75%. Mortality was 3.92%.

Conclusion: Deliberate self-poisoning was more prevalent in women, younger age group, married, joint family, educated up to matric, housewives and lower socioeconomic status. Family conflict was most common precipitating factor. Organophosphate was most common type of substance and mortality was high 3.92%.

KEYWORDS: Poisoning; Self-harm; Organophosphate; Distribution; Population; Demographic Factor; Socioeconomic Status; Precipitating; Substance; Mortality.

Cite as: Adnan, Rauf A, Malik S, Ullah I, Khan AM, Zaman H, et al. Distribution of deliberate self-poisoning by socio-demographic factors, precipitating events, type of substance and mortality in population of Hazara Division, Pakistan. Gomal J Med Sci 2020 Apr-Jun; 18 (2):68-74. http://doi.org/10.46903/gjms/18.02.850

1. INTRODUCTION

1.1 Background: Acute poisoning is responsible for about 1% of hospital admissions in UK. In developed countries deliberate self-poisoning (DSP) is the most common cause of acute poisoning and it usually involves prescribed or over-the-counter medications. Deliberate self-poisoning is an important cause of deaths in younger population. Most deaths occur before patients reach hospital and mortality is less than 1% in admitted patients. In developing countries, pesticides and herbicides are common causes of deliberate self-poisoning and cause much higher fatality.[1] Up to 30% of psychiatric admissions are reported due to deliberate self- poisoning. About 1-2% mortality is reported in hospitalized patients of deliberate self-poisoning in United States.[2]

Bateman, et al.[3] from Scotland during the period from 1990-1999 reported hospital discharge rate of deliberate self-poisoning about 379.3 (379.3*100/100,000=0.38%) and 331.5 (331.5*100/100,000=0.33%) (average discharge rate= 0.38+0.33/2=0.36%) per 100,000 population per year in women and men respectively.

Corresponding Author:

Dr. Abdul Rauf
Associate Professor, Department of Medicine
Ayub Medical College, Abbottabad, Pakistan
E-mail: abdulraufa646@gmail.com

Date Submitted: 10-08-2019
Date Revised: 12-12-2020
Date Accepted: 22-04-2020

Eddleston, et al.[4] reported that agrochemicals and herbal mixtures, over-the-counter medication, drugs of abuse and household chemicals are the common substances often used in cases of deliberate self-poisoning.

Karmaker, et al.[5] from Dhaka, Bangladesh reported 100 cases of DSP, including 37 (37%) men and 63 (63%) women; 33 (33%) in age group <20 years, 41 (41%) in ≥20-29, 15 (15%) in ≥30-39, 8 (8%) in ≥40-49 and 3 (3%) in ≥50 years, 14 (14%) in primary education level, 28 (28%) in secondary, 31 (31%) in higher secondary, 9 (9%) in graduate, 3 (3%) in above graduate and 15 (15%) others, 21 (21%) housewives, 37 (37%) students, 14 (14%) employed and 12 (12%) workers, 55 (55%) due to interpersonal difficulties with spouse, family members, friends and parents, 7 (7%) due to failure in examination/ educated related and 27 (27%) due to broken love affairs/ romantic disappointment, 20 (20%) took organophosphate, 42 (42%) antidepressants and anxiolytic, 8 (8%) rat killing pills, 11 (11%) corrosives/ Harpic and 12 (12%) took unknown substance/ multiple/ mixed drugs. Mortality was 3/90 (3.33%).

Ahmad, et al.[6] from Rahim Yar Khan, Pakistan from 1st April 2009 to 30 September 2009 reported 50 cases of organophosphosphate pesticide poisoning, including 39 (78%) men and 11 (22%) women, 18 (36%) in age groups 12-24 years and 32 (64%) in 25-32 years. Mortality was 3/50 (6%).

Khurram, et al.[7] from Rawalpindi, Pakistan from January 2006 Dec. 2006 reported 80 cases of DSP, including 33 (41.25%) men and 47 (58.75%) women, 66 (82.50%) urban and 14 (17.50%) rural, 50 (62.50%) married and 30 (37.50%) unmarried, 24 (30%) uneducated, 36 (45%) up to matric and 20 (25%) college/ university level, 36 (55%) housewives, 14 (17.50%) students and 9 (11.30%) unemployed, 22 (27.50%) in lower, 57 (71.25%) in middle and 1 (1.25%) in higher socioeconomic status, 17 (21.30%) took organophosphate, 25 (31.30%) benzodiazepines, 8 (10%) corrosives, 8 (10%) unknown substance, 2 (2.50%) mixed drugs and 1 (1.3%) copper sulphate. Mortality was 2/80 (2.50%).

Khan, et al.[8] from Rawalpindi, Pakistan from June 2016 to June 2017 observed 180 cases of DSP, including 98 (54.45%) men and 82 (45.56%) women, 98 (54.45%) urban and 82 (45.56%) rural, 109 (60.60%) married and 71 (39.40%) unmarried, 68 (37.78%) took wheat pills, 29 (16.11%) organophosphate, 29 (16.11%) corrosives and 12 (6.67%) unknown substances. Mortality was 34/180 (18.89%).

Suliman, et al.[9] from Bahawalpur, Pakistan from April 2000 to March 2003 reported 143 cases of DSP, including 78 (54.55%) men and 65 (45.45%) women, 5 (3.50%) in <14 years age group, 73 (51.05%) in 15-24, 35 (24.48%) in 25-34, 21 (14.69%) in 35-44 and 9 (6.29%) in 45-51 years, 94 (65.73%) uneducated, 15 (10.49%) in primary, 20 (13.99%) in secondary & higher secondary and 14 (9.79%) in graduate level, 111 (76.62%) suicidal attempts were precipitated in 32 (22.38%) by marital friction, in 27 (18.88%) by strained social relation, in 16 (11.19%) by financial stress, in 15 (10.49%) by unemployment, in 15 (10.49%) by broken love affairs, in 2 (1.40%) by failure in examination and in 2 (1.40%) by chronic illness. Mortality was 10 (6.99%).

Zadran, et al.[10] from Peshawar, Pakistan from May 2018 to May 2019 (n=312 of which 156 were cases of deliberate self poisoning) showed higher prevalence of DSP in women 110/156 (70.51%) than men 46/156 (29.49%). This study shows 26.28% (41*100/156=26.28%) mortality in DSP cases.

1.2 Research Problems (RPs), Knowledge Gaps (KGs), Research Questions (RQs) & Rationale: Unawareness about the distribution of deliberate self-poisoning (by 12 socio demographic factors, precipitating events, type of substance and mortality) in population of Hazara Division, Pakistan are our 15 RPs. Absence of data regarding these 15 RPs are our 15 knowledge gaps and rationale for our project. What will be the distribution of deliberate self-poisoning by socio-demographic factors, precipitating events, type of substance and mortality in population of Hazara Division, Pakistan are our 15 research questions.

1.3 Research Objectives (ROs)

RO 1-12: To determine the distribution of deliberate self-poisoning by 12 socio-demographic factors in population of Hazara Division, Pakistan.

RO 13: To determine the distribution of deliberate self-poisoning by precipitating events in population of Hazara Division, Pakistan.

RO 14: To determine the distribution of deliberate self-poisoning by type of substance in population of Hazara Division, Pakistan.

RO 15: To determine the distribution of deliberate self-poisoning by mortality in population of Hazara Division, Pakistan.

1.4 Significance: Our study will identify socio-demographic groups with higher prevalence of deliberate self-poisoning. It will also explore its common precipitating events, common types of substances and mortality. This will help in diagnosis of deliberate self-poisoning. This study will also provide baseline data for further studies on this title.

1.5 Operational Definitions

Deliberate self-poisoning: It is voluntary self-ingestion of a substance above any prescribed or generally recognized therapeutic dose, irrespective of the apparent purpose of the act.[11]

2. MATERIALS AND METHODS

2.1 Study Design, Settings & Duration: This

cross-sectional study was conducted in the Department of Medicine, Ayub Medical College, Abbottabad, Pakistan from October 9, 2017 to December 28, 2018. The sample data was collected from the three medical units of Ayub Teaching Hospital, Abbottabad.

2.2 Population, Sample Size & Technique and Sample Selection: Hazara Division is 3rd populous division in the northeastern part of the Khyber Pakhtunkhwa; a province in the northwest of Pakistan. It is located east of the Indus River and comprised of six districts; Abbottabad, Mansehra, Haripur, Battagram, Kohistan and Torghar. Its population was 5,325,121 as per 2017 Census. Above 10 years population (population at risk/ eligible population) was assumed to contribute its 75%, hence 3,993,841. With this population count, expected prevalence rate of 0.36%[3] of DSP in this population, margin of error 1.168% and confidence interval of 95%, sample size was calculated as 102 using online calculator Raosoft®.[12]

Consecutive non-probability sampling technique was used. All patients with DSP with age above 10 years were eligible for inclusion. Accidental, homicidal and travel related poisoning were excluded from the study.

2.3 Conduct of Procedure: Prior approval of the project was sought from the Hospital Ethical Review Committee. The consent of patients/ attendants was also taken before inclusion in the study. All these patients were examined for vitals. They were stabilized and admitted when needed. Detailed history, examination and relevant/ necessary investigations were undertaken. Medical management was given as per hospital protocols. Psychiatry consultation was taken where indicated.

2.4 Data Collection Plan: There were 15 variables; 12 socio-demographic factors, one each precipitating events, type of substance and presence of mortality. All these variables had two or more attributes. The data type was nominal for all variables except ordinal for age groups, level of education and socioeconomic status.

2.5 Data Analysis Plan

2.5.1 Descriptive Statistics and Estimation of Parameters: All 15 variables were described by count and percentage. The estimated parameters of these variables for the population were described as C.I (confidence interval) for proportion at 95% C.L (confidence level) using the Wilson score interval for binomial distribution using online statistical calculator.[13]

3. RESULTS

3.1 Distribution of deliberate self-poisoning (DSP) by 12 socio demographic factors: Out of 102 deliberate self-poisoning cases, 20 (19.61%) were men and 82 (80.39%) women, 16 (15.69%) in age group 11-17 years, 56 (54.90%) in 18-25 and 30 (29.41%) in ≥26 years. Most cases 52 (50.98%) were from district Abbottabad. Fifty (49.02%) were urban and 52 (50.98%) rural, 26 (25.49%) Pathan and 76 (74.51%) non-Pathan, 41 (40.19%) unmarried, 59 (57.84%) married and two (1.96%) divorced, 15 (14.71%) nuclear family, 81 (79.41%) joint family and six (5.88%) extended family, 87 (85.29%) up to matric and 15 (14.71%) above matric education level, 54 (52.94%) housewives, 21 (20.59%) students, 13 (12.75%) unemployed and 14 (13.73%) employed, five (4.90%) with and 97 (95.10%) without history of self-harm, two (1.96%) with and 100 (98.04%) without family history of self-harm, 83 (81.37%) in lower, 18 (17.65%) in middle and one (0.98%) in higher socioeconomic class. (Table 3.1)

3.2 Distribution of DSP by precipitating events: Out of 102 cases, 35 (34.31%) were precipitated by bullying by someone, 58 (56.86%) by interpersonal difficulties with spouse, family members or friends, three (2.94%) by failure in examination, two (1.96%) by insufferable physical or mental trauma, three (2.94%) by broken love affairs and one (0.98%) by divorce. (Table 3.2)

3.3 Distribution of DSP by type of substance: Out of 102, 64 (62.75%) took organophosphate, seven (6.86%) benzodiazepine, nine (8.82%) paracetamol, five (4.90%) rat killing pills, two (1.96%) corrosives, one (0.98%) iron and copper sulphate and 14 (13.73%) multiple drugs/ unknown substance. (Table 3.3)

3.4 Distribution of DSP by mortality

Out of 102 cases, mortality was four (3.92%). (Table 3.4)

4. DISCUSSION

4.1 Distribution of deliberate self-poisoning (DSP) by socio-demographic factors: Our study showed deliberate self-poisoning (DSP) cases more prevalent in women 80.39% (95% CI 71.64-86.93) than men 19.61% (95% CI 13.07-28.36). Similarly Zadran, et al.[10], Khurram, et al.[7] and Karmaker, et al.[5] showed DSP more prevalent in women than men.

In contrast to our study, Khan, et al.[8], Suliman, et al.[9] and Ahmad, et al.[6] showed DSP more prevalent in men than women.

Our study showed highest prevalence of DSP 54.90% (95% CI 45.24 -64.20) for age group 18-25 years, while Karmaker, et al.[5] showed highest prevalence of 41% for age group ≥ 20-29 years, Ahmad, et al.[6] 64% for age group 25-32 years and Suliman, et al.[9] 51.05% for age group 15-24 years.

Our study showed DSP cases similar in urban 49.02% (95% CI 39.53-58.58) and rural 50.98% (95% CI 41.42-60.47) populations. Dissimilar to our study were results by Khurram, et al.[7] reporting higher prevalence in urban population as 82.50%.

Table 3.1 Distribution of deliberate self-poisoning by 12 socio-demographic factors in population of Hazara Division, Pakistan (n=102)

S. No.	Variables	Attributes	Sample statistics		95% CI for proportion	
			Count	Percentage	Lower	Upper
1	Sex	Men	20	19.61	13.07	28.36
		Women	82	80.39	71.64	86.93
2	Age groups	11-17 years	16	15.69	9.90	23.98
		18-25 years	56	54.90	45.24	64.20
		≥ 26 years	30	29.41	21.44	38.87
3	District	Abbottabad	52	50.98	41.42	60.47
		Mansehra	27	26.47	18.88	35.77
		Haripur	8	7.84	4.03	14.71
		Battagram	8	7.84	4.03	14.71
		Kohistan	6	5.88	2.72	12.24
		Torghar	1	0.98	0.17	5.35
4	Residence	Urban	50	49.02	39.53	58.58
		Rural	52	50.98	41.42	60.47
5	Ethnicity	Pathan	26	25.49	18.03	34.73
		Non-Pathan	76	74.51	65.27	81.97
6	Marital status	Unmarried	41	40.19	31.20	49.89
		Married	59	57.84	48.14	66.97
		Divorced	2	1.96	0.54	6.87
7	Type of family	Nuclear	15	14.71	9.12	86.12
		Joint family	81	79.41	70.57	86.12
		Extended family	6	5.88	2.72	12.24
8	Level of education	Up to matric	87	85.29	77.14	99.88
		Above matric	15	14.71	9.12	22.96
9	Employment status	Housewives	54	52.94	43.32	62.34
		Students	21	20.59	13.88	29.43
		Unemployed	13	12.75	7.61	20.60
		Employed	14	13.73	8.36	21.73
10	History of self-harm	Yes	5	4.90	2.11	10.96
		No	97	95.10	89.04	97.89
11	Family history of self-harm	Yes	2	1.96	0.54	6.87
		No	100	98.04	93.13	99.46
12	Socioeconomic status	Lower	83	81.37	72.73	87.74
		Middle	18	17.65	11.47	26.18
		Higher	1	0.98	0.17	5.35
Total			102	100%	Population parameters	

Table 3.2 Distribution of deliberate self-poisoning by precipitating events in Hazara Division, Pakistan (n=102)

S. No.	Attributes	Sample statistics		95% CI for proportion	
		Count	Percentage	Lower	Upper
1	Bullying by someone	35	34.31	25.82	43.94
2	Interpersonal difficulties with spouse, family members or friends	58	56.86	47.17	66.05
3	Failure in examination	3	2.94	1.01	8.29
4	Insufferable physical or mental trauma	2	1.96	0.54	6.87
5	Broken love affairs	3	2.94	1.01	8.29
6	Divorce	1	0.98	0.17	5.35
Total		102	100 %	Population parameters	

Tables 3.3 Distribution of deliberate self-poisoning by type of substance in Hazara Division, Pakistan (n=102)

S. No.	Attributes	Sample statistics		95% CI for proportion	
		Count	Percentage	Lower	Upper
1	Organophosphate	64	62.75	53.06	71.51
2	Benzodiazepines	7	6.86	3.36	13.49
3	Paracetamol	9	8.82	4.71	15.92
4	Rat killing pills	5	4.90	2.11	10.96
5	Corrosives	2	1.96	0.54	6.87
6	Iron and copper sulphate	1	0.98	0.17	5.35
7	Multiple drugs/unknown substance	14	13.73	8.36	21.73
Total		102	100%	Population parameters	

Table 3.4 Distribution of deliberate self-poisoning by mortality in population of Hazara Division, Pakistan (n=102)

Variables	Attributes	Sample statistics		95% CI for proportion	
		Count	Percentage	Lower	Upper
Mortality	Yes	4	3.92	1.54	9.65
	No	98	96.08	90.35	98.47
Total		102	100%	Population parameters	

Our study showed DSP cases more in non-Pathan 74.51% (95% CI 65.27-81.97) than Pathan 25.49% (95% CI 18.03-34.73). No study could be found for comparison.

Our study showed DSP cases most prevalent in married population 57.84% (95% CI 48.14-66.97). Similarly Khurram, et al.[7] and Khan, et al.[8] showed highest prevalence in married population as 62.50% and 60.60% respectively.

Our study showed DSP most prevalent in joint family 79.41% (95% CI 70.57-86.12). No study could be found for comparison.

Our study showed DSP more prevalent in up to matric education category population 85.29% (95% CI 77.14-90.88). Similarly Khurram, et al.[7] showed higher prevalence in uneducated and up to matric education category population 75% (30%+45%=75%) and Suliman, et al.[9] in uneducated population as 65.73%. In contrast Karmaker, et al.[5] showed higher prevalence in secondary and higher secondary education population as 59% (28%+31%=59%).

Our study showed DSP most prevalent in housewives 52.94% (95% CI 43.32-62.34). Similar results were shown by Khurram, et al.[7] as 55%. Dissimilar report

was by Karmaker, et al.[5] showing highest prevalence in students as 37%.

In our study 4.90% patients (95% CI 2.11-10.96) had previous history of self-harm and 1.96% (95% CI 0.54-6.87) had family history of self-harm. No study could be retrieved for comparison.

We had highest prevalence in lower socioeconomic population as 81.37% (95% CI 72.73-87.74) while Khurram, et al.[7] showed highest prevalence in middle socioeconomic population as 71.25%.

4.2 Distribution of DSP by precipitating events: Interpersonal difficulties with spouse, family members or friends were most prevalent 58 (56.86%) in our study. Similar to our study were results by Suliman, et al.[9] showing marital friction in 22.38% and strained social relation in 18.88% cases. Karmaker, et al.[5] also reported interpersonal difficulties with spouse, family members, friends and parents as the most prevalent 55% precipitating event.

4.3 Distribution of DSP by type of substance: Organophosphate pesticide poisoning was most prevalent 64 (62.75%), while iron and copper sulphate was least prevalent as one case (0.98%) in our study.

Dissimilar reports were by Khan, et al.[8] showing wheat pill 37.78%, Khurram, et al.[7] benzodiazepines 31.30% and Karmaker, et al.[5] antidepressants and anxiolytics 42% as most prevalent substances.

4.4 Distribution of DSP by mortality: Our study showed 3.92% mortality (Table 3.4). Almost similar results of 2.5% were reported by Khurram, et al.[7] from Rawalpindi, Pakistan from January 2006 Dec 2006 (n=80), 6.99% by Suliman, et al.[9] from Bahawalpur, Pakistan from April 2000 to March 2003 (n=143), 6% by Ahmad, et al.[6] from Rahim Yar Khan, Pakistan from 1st April 2009 to 30 September 2009 (n=50) and 3.33% (3*100/90=3.33%) by Karmaker, et al.[5] from Dhaka, Bangladesh, published in 2020 (n=100). Although these mortality percentages are somewhat lower or higher to our study but as these percentages fall within our study confidence interval (1.54%-9.65%), so we take them as similar to our study.

Higher mortality to our study was described by Zadran, et al.[10] 26.28% (41*100/156= 26.28%) from Peshawar, Pakistan from May 2018 to May 2019 (n=312, of which 156 were cases of deliberate self-poisoning) and by Khan, et al.[8] as 18.89% from Rawalpindi, Pakistan from June 2016 to June 2017 (n=180).

No study of lower mortality than ours could be retrieved from literature.

4.5 Strengths/ weaknesses of the study

4.5.1 Innovative strengths of our study: Research solves problem for a population through a sample. We have taken sample from our identified population/ population at risk. Data was taken from this sample and analyzed (descriptive statistics) and the population parameter were inferred from the sample results (estimation of parameter; inferential statistics). In this way population characteristics were estimated through sample, the ultimate purpose of research. Most global literature has no mention of their population.

In discussion, one has to make comparison between population data, not between the samples data. As estimated data for populations are not inferred by these cited six studies, so we have compared these samples data (sample statistics) to our population data (population parameters) given as confidence intervals (CI) at given confidence levels (CL). Any study/ sample data which falls within our CI is taken as similar to our study, otherwise higher or lower to our study as the situation may be. We have arranged/ made our study as per design/ style/ structure/ plan/ scheme/ configuration of "Marwat's Logical Trajectory for Research Process",[14-18] giving this project/ task/ effort a conceptual/ rational flow and including to point out/ pick out our research problems, knowledge gaps, putting research problems into research questions, research objectives and performing collection, analysis and interpretation of relavent data. Research hypotheses were not included.

4.5.2 Weakness of our study: Our sample size was small i.e. 102. As we did not compare our observed data from our sample with expected data from our population or similar other population through chi-square goodness of fit test, so we cannot say how much our observed data was similar/ different from expected data from our/ similar other populations.

5. CONCLUSIONS & RECOMMENDATIONS

1. Deliberate self-poisoning was more prevalent in women, younger age group, married, joint family, uneducated, housewives and lower socioeconomic status.

2. Interpersonal difficulties with spouse, family members or friends were most prevalent precipitating events in our study.

3. Organophosphosphate pesticide poisoning was most prevalent type of substance in our study.

4. There was 3.92% mortality in our study.

Deliberate self poisoing could be prevented if education, socioeconomic status and family system are improved. Family conflicts should be rightly addressed. Mortality can be prevented through establishment of proper poisoning management units in hospitals.

Acknowledgement: We are grateful to Dr. Muhammad Marwat from Gomal Medical College, D.I.Khan for allowing us to use his "Marwat Logical Trajectory of Research Process" and for sample size calculation and critical review of this manuscript.

REFERENCES

1. Thomas S.H.L, White J. Poisoning. In: Walker BR, Colledge NR, Ralston SH, Penman ID, editors. Davidson's Principles and Practice of Medicine. 22nd ed. New Delhi: Elsevier; 2014.p.205-30.

2. Mycyk MB. Poisoning and drug overdose. In: Kasper DL, Hauser SL, Jameson JL, Fauci AS, Longo DL, Loscalzo J, editors. Harrison's Principles of Internal Medicine. 19th ed. New York: McGraw-Hill; 2015. p. 473e1-13.
3. Bateman DN, Bain M, Gorman D, Murphy D. Changes in paracetamol, antidepressants and opioid poisoning in Scotland during the 1990s. QJM 2003 Feb; 96(2):125-32. https://doi.org/10.1093/qjmed/hcg015
4. Eddleston M, Phillips MR. Self-poisoning with pesticides. BMJ 2004 Jan 3; 328(7430): 42-4. https://doi.org/10.1136/bmj.328.7430.42
5. Karmaker M, Azad KAK, Sarker PS., Tabassum N, Mohanta D. Pattern and outcome of self- poisoning among adult population admitted in a tertiary care hospital. J Medicine 2020; 21(1): 20-25. https://doi.org/10.3329/jom.v21i1.44096 https://doi.org/10.3329/jom.v21i1.44096
6. Ahmad I, Rehman HU, Iqbal J. Clinical profile and impact of proper treatment in acute organophosphate pesticide poisoning. J Sheikh Zayed Med Coll 2010 Jul-Sep; 1(3): 91-3.
7. Khurram M, Mahmood N. Deliberate self-poisoning: experience at a medical unit. J Pak Med Assoc 2008; 58: 455-7.
8. Khan M, Khurram M, Raza S. Gender based differences in patients of poisoning managed at a Medical Unit. J Pak Med Assoc 2010 July; 69(7): 1025-8.
9. Suliman MI, Jibran R, Rai M. The analysis of organophosphosphate poisoning cases treated at Bahawal Victoria Hospital, Bahawalpur in 2000-2003. Pak J Med Sci 2006; 22: 244-9.
10. Zadran N, Kumar J, Ibrar A, Khan AW, Khan A, Ishaq, M, et al. Sociodemographic and clinical features in patients presented with accidental and deliberate self-poisoning: a comparative study from Lady Reading Hospital, Peshawar, Pakistan. Cureus 2020; 12(10): e10935. https://doi.org/10.7759/cureus.10935
11. Hawton K, Rodham K, Evans E, Weatherall R. Deliberate self-harm in adolescents: self report survey in schools in England. BMJ 2002 Nov 23; 325(7374):1207-11. https://doi.org/10.1136/bmj.325.7374.1207
12. Raosoft® sample size calculator [internet]. Seattle, WA, USA: Raosoft Inc.; 2004. [accessed 2017 Aug 02]. Available at: http://www. raosoft.com/samplesize.html
13. Statistics Kingdom. Proportion confidence interval calculator [internet]. Statistics Kingdom; Melbourne, Australia 2007. [accessed 2019 May 07]. Available at: http://www.statskingdom.com/41_proportion_confidence_interval.html
14. Ghori MR, Khan H, Marwat M. Distribution of non-malignant hematological disorders by sex, age groups and type of disease based on bone marrow aspiration in population of Khyber Pakhtunkhwa, Pakistan. Gomal J Med Sci 2019 Apr-Jun; 17 (2): 29-36. https://doi.org/10.46903/gjms/17.02.1926
15. Butt M, Rehman MU, Khan AR, Abrar A. Frequency of triple-vessel coronary artery disease in adult type 2 diabetics versus non-diabetics in coronary artery disease population of Islamabad, Pakistan. Gomal J Med Sci 2019 Apr-Jun; 17(4).37-41. https://doi.org/10.46903/gjms/17.02.2029
16. Ain N, Khan S, Marwat M, Khan N, Ahmad I, Ramzan F, et al. Frequency, distribution and determinants of hypertension in adult stroke population of D.I.Khan Division, Pakistan. Gomal J Med Sci 2019 Jul-Sep; 17 (3):81-9. https://doi.org/10.46903/gjms/17.03.2076
17. Akhtar A, Ali SM, Naqi SA, Aziz T, Shinwari W, Shah SFH. Efficacy of acetic acid versus ciprofloxacin ear drops in achieving dry ears in chronic suppurative otitis media in adult population of Islamabad, Pakistan: a non-randomized control trial. Gomal J Med Sci 2019 Jul-Sep; 17 (3): 90-94. https://doi.org/10.46903/gjms/17.03.2007
18. Marwat M, Ahmad I, Ashiq F, Ali S, Zamir S, Rehman MU, et al. Frequency, distribution and determinants of diabetes mellitus in adult acute coronary syndrome population of D.I.Khan Division, Pakistan. Gomal J Med Sci 2019 Oct-Dec; 17 (4):131-43. https://doi.org/10.46903/gjms/17.04.2106

CONFLICT OF INTEREST
Authors declare no conflict of interest.
GRANT SUPPORT AND FINANCIAL DISCLOSURE
None declared.

AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	A, AR
Acquisition, Analysis or Interpretation of Data:	A, AR, SM, IU, AMK, HZ, SA
Manuscript Writing & Approval:	A, AR, SM, IU, AMK, HZ, SA

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.