ORIGINAL ARTICLE (APMC – 505) DOI: 10.29054/APMC/18.505

Changing Trends in Suicidal Deaths over the Past Decade – An Autopsy Based Study at Bahawalpur

Talha Naeem Cheema, Altaf Pervez Qasim, Ummara Munir, Faisal Naeem Cheema

ABSTRACT

Objectives: This study was conducted to analyze the trends in suicidal pattern with regard to socio-demographic profile and methods of suicides evolved over the past decade to develop and target future prevention efforts. **Study Design:** Retrospective study. **Settings:** This study was carried out at the Autopsy Section of Forensic Medicine Department, Quaid e Azam Medical College, Bahawalpur, Punjab, Pakistan **Duration:** Ten years i.e. 1st January 2008 to 31st December 2017. **Methodology:** To observe changes in trends, the study was divided in to two groups. One group covered autopsies from 1st January 2008 to 31st December 2012 (32 in nos.), while the other covered the period from 1st January 2013 to 31st December 2017(34 in nos.) The study comprised of the cases in which police papers revealed the history of suicidal death and socio-demographic profile of the deceased was noted. After thorough autopsy examination, appropriate sampling was done (where needed), method of suicidal death was framed after perusal of the autopsy findings and reports from Punjab Forensic Science Agency Lahore. **Results:** Mean age of the cases was 32.50±10.54 years (2008-2012) and 29.62±12.99 (2013-2017). 21 (65.6%) males and 11(34.4%) females during 2008-2012 were studied while 12 (35.3%) females and 22 (64.7%) males were examined during 2013-2017 period. Stratification with regard to age group, socio-economic status, settlement area and method of suicide was carried out. **Conclusion:** In conclusion, present study identified various changes in socio-demographic profile and methods of suicide. Keeping these changes into consideration, future planning to apply restrictions to this menace should be sought.

Keywords: Trends, Methods of Suicide, Autopsy, Time Period, Socio-demographic profile

Corresponding Author
Dr. Altaf Pervez Qasim
Professor / HOD Forensic Medicine
Faisalabad Medical University, Faisalabad
Contact: +92 300-9651475
Email: drapq95@yahoo.com

Submitted for Publication: 22-05-2018 *Accepted for Publication: 13-06-2018*

Article Citation: Cheema TN, Qasim AP, Munir U, Cheema FN. Changing Trends in Suicidal Deaths over the Past Decade – An Autopsy Based Study at Bahawalpur. APMC 2018;12(2):154-7.

INTRODUCTION

Mortality associated with suicide amounts to8,00,000 deaths per annum across the globe [WHO-2017].[1] In 2015, suicidal deaths were placed at 10th number in United States, taking lives of 44,193 individuals.[2] The figures are erroneous with questioned reliability when it comes to South Asia. Here the rates vary widely from 0.43/100,000 to 331.0/100,000.[3]A few plausible explanations to this wide range are underscoring, social taboos, religious forbidding, and unavailability of digital database system and non-issuance of cause of death certificate in each case.[4]

Pakistan being located in the same region, the factors responsible for erroneous data are identical. Khan MM et al[4] recognized suicidal rate from a range of 0.43/100,000 in Peshawar to 2.86/100,000 in Rawalpindi, these figures still underscore the original ones. There is no official data available on suicide and suicidal deaths are not included in the Pakistan National Annual Mortality statistics.[4] According to WHO estimates in 2013, age-adjusted rate of suicide in Pakistan is 9.3/100,000population.[5]

Over the past few years, suicidal trends are changing worldwide not only with regard to socio-demographic profiling but also method of suicide. In USA, an increase in suicidal was noted in 2014 (9.8/1,00,000) between the ages of 45-65 years as compared to 1999 (6.0/1,00,000). For both the genders, about 7% increase in suicidal death was attributed to suffocation during 1999-2014, while a fall of approximately 6% was noticed in firearm related suicidal death in males during the same timeframe.[6]In Europe, widening gap of socio-economic inequality was attributed towards increased frequency in suicide among lowest educational group. Lorant Vet al[7] observed in their study that there was a rise in suicidal rate in lowest educated class from 1.82 to 2.12 in European population during 1991-2001.

In India, an overall increase in male to female ratio of suicide was noted from 1.8 to 2, during a period of ten years (2004-2013). It was further revealed that hanging surpassed poisoning as a cause of death during the said decade [8].A study at Chitral Pakistan concluded that during a period of 2007 to 2011 an increase in female tendency of suicide was observed (62%; n=104),while drowning emerged as commonest method of suicide (52%;n=87) [9].

Present study was conducted to provide reliable autopsy-based data with regard to prevalence of suicide in different age groups, gender and socio-economic classes in the population of Bahawalpur city. The study focused on methods of suicide adopted by these individuals at a given incidence. This study also established a comparison between two study periods i.e. from 2008-2012 to 2013-2017, regarding socio-demographic changes and common methods of suicide in both the era. In this

way this study provides quintessential statistical data to frame future planning for the targeted risk groups by anticipating variability in the prevalent methods of suicide in order to minimize the suicidal rates.

METHODOLOGY

Study Design: Retrospective study.

Place of Study: Forensic Medicine Department Quaid-e-Azam Medical College Bahawalpur

Duration of Study: Ten years i.e. from 1stJanuary 2008 to 31st December 2017

Methods:

A total number of 66 cases of suicide were studied. To observe changes in suicidal trends, the study was divided into two time periods. From 2008-2012 (32 cases) and from 2013-2017(34 cases). All those cases were included in the study in which police docket and inquest report revealed history of suicide and confirmed by complete autopsy report (autopsy finding along with histopathology/toxicology report, where applicable). All those cases, in which either autopsy findings or reports of toxicologist and/or Histopathologist raised a suspicion of homicidal death, were excluded from the study. Socio-economic status was divided into two categories; those having income less than 40,000/month were acclaimed as lower-lower middle class while those having income more than 40,000/month were accepted as upper middle – upper class. A Performa was prepared and method of suicide along with socio-demographic profiling was recorded for both the time periods.

Data was analyzed on SPSS v 20.0. Frequency and percentage was calculated for age groups, gender, settlement area (urban/rural), socio-economic class and method of suicide. Effect modifiers like age, gender, settlement area and socio-economic status were controlled through stratification. P-value <0.05 was considered as significant.

RESULTS

A total of 66 cases were selected during the two study periods i.e. 2008-2012 (N=32) and 2013-2017 (N=34) from 01-01-2008 to 31-12-2017.

The reported cases ranged between 16-61 years of age. Mean age of the cases were32.50±10.54 years (2008-2012) and29.62±12.99 (2013-2017). 21 (65.6%) males and 11(34.4%) females during 2008-2012 were studied while 12 (35.3%) females and 22 (64.7%) males were examined during 2013-2017 period. Stratification with regard to age with comparison of two periods (2008-2012 and 2013-2017) was presented in Chart -1, for socio-economic status and settlement area with the stipulated time comparison was shown in Chart – 2, graphical presentation for method of suicide, considering the same comparative time period was portrayed in Chart -3. A specially designed pie chart (Chart – 4) was devised for easy understanding of changing preferences of poison selection by the study population was noted considering the two above defined time periods.

Table1: Mean age and gender distribution

Period	Mean Age ± SD	Gender	
		Female	Male
2008-2012	32.50±10.54	11(34.4%)	21(65.6%)
2013-2017	29.62±12.99	12(35.3%)	22(64.7%)

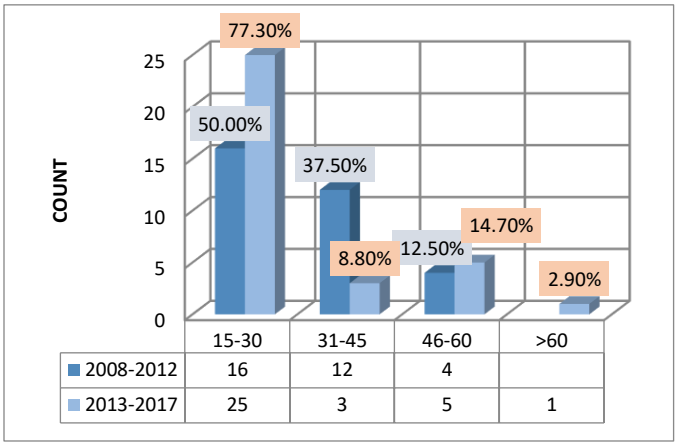


Figure 1: Age distribution

Chi-Square = 8.434 df = 3 P value = 0.038

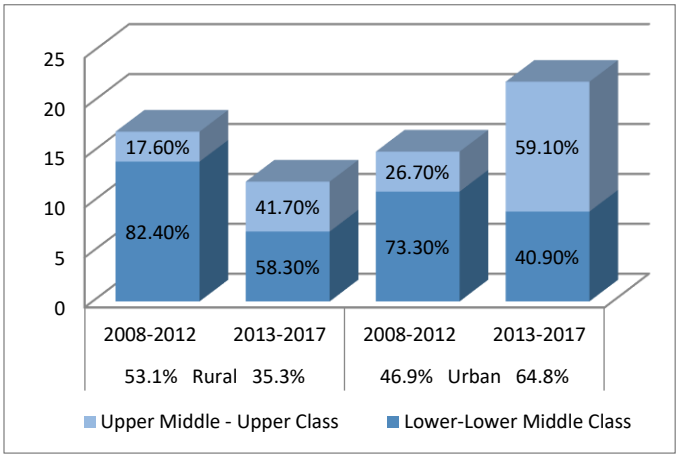


Figure 2: Settlement area & socio-economic distribution

Chi-Square = 6.761 df = 1 P value = 0.009

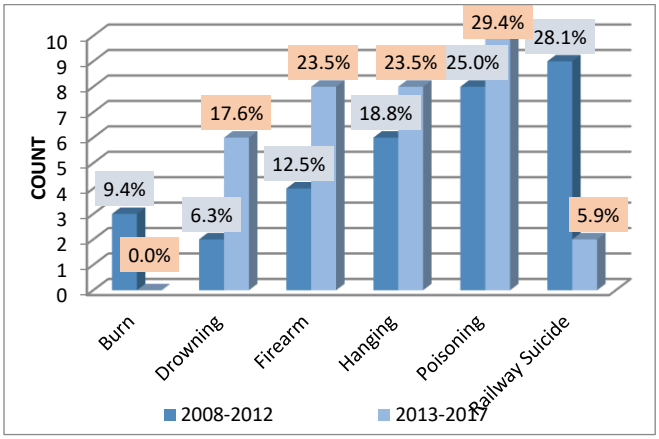


Figure 3: Method of suicide

Chi-Square=11.246 df=5 P value=0.047

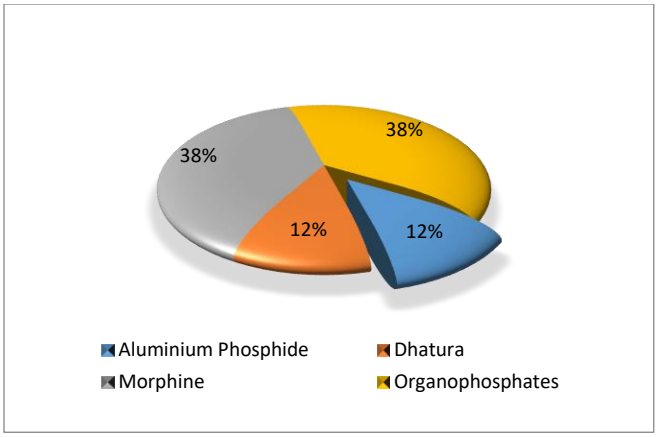


Figure 4: Poisoning cases(2008-2012) n=08 (25.0%)

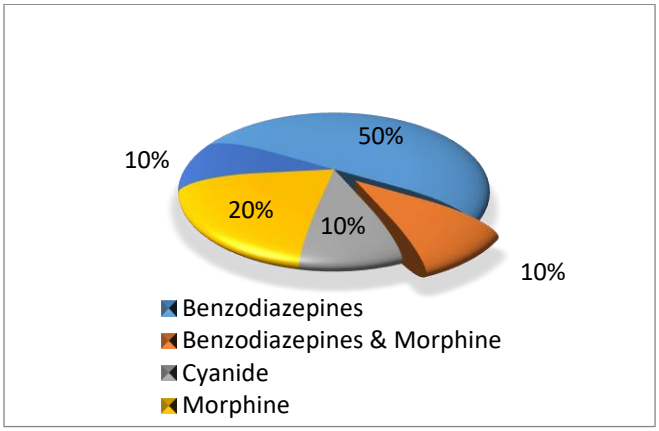


Figure 5: Poisoning cases (2013-2017) n=10 (29.4%)

DISCUSSION

Table1 reflects the mean ages of both the time periods. Mean age of committing suicide is approximately 3 years lower during recent years (2013/17). This shift of tendency towards younger side is attributed to educational stresses, increased rate of depression, family disputes and occupation related work burden in this age group.[10] An insignificant male –male (65.6%-64.7%) and female – female (34.4%-35.3%) change over a period of ten years was also appreciated in Table 1 with a male predominance. Naz F also provided consistent findings of male predominance (57.5%) in her study.[11]

Figure 1 maintained that in both the time periods, age between 15-30 years was the most affected age group, with 27.3% increase during the recent years(2013-2017). This finding is consistent with the results of Naz F[11] where she had noticed 20-29 years as the most affected age group (29.9%).

Figure 2 revealed some striking results. A change in trend from rural to urban inclination (approx. 18%), towards suicidal tendency was noted (2008/12 – 2013/17). Similar acclivity towards upper middle – upper class (approx. 32.4%) was also observed between the two-time spans (from 2008/12 to 2013/17) in Bahawalpur city. These trends are ought to be due to rapid urbanization (census 2017)[12], increased prevalence of depression and stress among the upper middle – upper class in recent years.[13]

Figure 3 illustrated change in trends regarding methods of suicide. Drowning related suicidal death emerged as most important tool of trade which showed a stride of 11.3% rise from 2008/12 to 2013/17 period. Ahmed et al [9] also found drowning as most frequent method of suicide (52%) in Chitral District. In the present study, an overwhelming increase towards firearm preference (11%) was noted at second place during the last five years (2013/17) with total mounts to 23.5%. This trend is also recognized globally owing to ease of access during the recent past, illegal – non licensed captivity of weapons and mental health disorder alongwith psychological motivation adapted from electronic media for the use of guns.[14]In case of hanging an increase of about 9% was found in the present study causing the total figure to culminate at 23.5%, this is comparable to the study conducted by Rajeev et al[15] where he had observed a rise of 30% cases of hanging from 2000 to 2015. Aziz pour et al [16] studied physical methods of suicide in am province, Iran during a span of twenty years (1993-2013) and found that hanging had caused death to 26.1% males and 6.5% females. Incidence of death by railway suicide had fallen abruptly from 28.1% in 2008/12 to 5.9% in 2013/17 period. This observation is comparable with the results of Rajeev et al where they had calculated about fifty percent fall of railway suicide from 2.0% in 2000 to 1.1% in 2015.[15]They also demonstrated a decline of burn cases from 10.9% in year 2000 to 7.6% in year 2015. These figures are comparable to the present study where no case of death due to self-immolation was gleaned during 2013/17 period, while 9.4% of the cases took their lives by way of self-conflagration during 2008/12 time period.

Notwithstanding the suicidal deaths due to poisoning raised only by 4% during the recent years (2013/17), this method of suicide is the most frequent cause of mortality amongst suicide attempters in both the time periods (2008/12 – 25.0%; 2013/17 – 29.4%). Numerous studies had also acknowledged this method of self-destruction to be most common and frequent in various regions.[17,18,19,20] ironically, the preference of substance/poison used for the purpose of suicide had changed dramatically. Chart -4 elucidated that Aluminum Phosphide (rat pills) and Morphine overdose were the two commonly used substances for poisoning during 2008-2012 period (38% each). In contrast, Benzodiazepines alone comprised of 50% cases while its combination with morphine added another 10%. In a study at Brazil, Almeida et al[19] documented that Benzodiazepines were the most commonly used drugs for the suicidal purposes (24.2%), during 2010-2013 timeframe. Present study is also consistent with the findings of Khan et al, who had described Benzodiazepines as most commonly found substance during toxicological analysis of dead bodies in North – West Pakistan.[20]

CONCLUSION

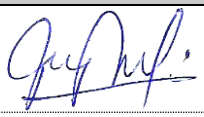
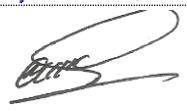
Present study significantly recognized various changes in predominant age group, socio-economic class, settlement areas and methods of suicides during the past decade. It is quite essential to objectively identify these factors to apply restriction

to this menace. Mass level public awareness especially aiming towards risk group should be invoked. Proper licensing of the weaponry with strict punitive action, in cases of non-compliance, is the need of the day to curb illegal use of firearm weapons.

REFERENCES

1. Cha CB, Franz PJ, Guzmán EM, Glenn CR, Kleiman EM, Nock MK. Annual Research Review: Suicide among youth - epidemiology, (potential) etiology, and treatment. J Child Psychol & Psychiatry 2018;59(4):460-82.
2. Ivey-Stephenson AZ, Crosby AE, Jack SPD, Haileyesus T, Kresnow-Sedacca MJ. Suicide Trends Among and Within Urbanization Levels by Sex, Race/Ethnicity, Age Group, and Mechanism of Death — United States, 2001–2015.MMWR Surveill Summ. 2017;66(18):1-16.
3. Jordans MJD, Kaufman A, Brenman NF, Adhikari RP, Luitel NP, TolWA, et al. Suicide in South Asia: a scoping review.BMC Psychiatry.2014;14:358.
4. Khan MM, Naqvi H, Thaver D, Prince M. Epidemiology of suicide in Pakistan: determining rates in six cities. Arch Suicide Res. 2008;12(2):155-60.
5. World Health Organization. 2013: Preventing suicide; a global imperative. Geneva: WHO; 2015.
6. Curtin SC, Warner M, Hedegaard H. Increase in Suicide in the United States, 1999-2014.NCHS Data Brief. 2016;241:1-8.
7. Lorant V, de Gelder R, Kapadia D, Borrell C, Kalediene R, KovácsK, et al. Socioeconomic inequalities in suicide in Europe: the widening gap. Br J Psychiatry. 2018;212(6):356-61.
8. Aggarwal S.Suicide in India.Br Med Bull. 2015;114(1):127-34.
9. Ahmed Z, Nisa Q, Yousufzai AW, Khoja S, Chaudhry J.Trends and patterns of suicide in people of Chitral, Khyber Pakhtunkhwa, Pakistan. KMUJ 2016;8(2):72-7.
10. Chaudhary R, Javed M, Abid KJ. Epidemiological study of road traffic accidents attending orthopedic OPD of Ch. Rahmat Memorial Trust Hospital. P J M H S 2017;11(1):168-71.
11. Gill UN. Epidemiology of orthopaedics fractures in under-developed country due to trauma, a retrospective study. JPOA 2016;28(2):64-6.
12. Victor R, Sengupta C, Naskar S, Boro B, Saxena K. Suicide menace in North-Eastern India: a hospital-based study on the clinical aspects of suicide attempters. Open J Psychiatry Allied Sci 2017;9;(1):26-32.
13. Naz F. Risk factors of successful suicide attempts in Punjab. J Postgrad Med Inst 2016; 30(3):277-81.
14. Census 2017. District and tehsil level population summary with region breakup (Bahawalpur). Islamabad: Pakistan Bureau of Statistics; 2017. Available from: http://www.pbscensus.gov.pk/sites/default/files/bwpsr/punjab
15. Altaf A, Khan M, Shah SR, Fatima K, Tunio SA, Hussain M, et al. Sociodemographic Pattern of Depression in Urban Settlement of Karachi, Pakistan. J Clin Diagn Res 2015;9(6):9-13.
16. Simonetti JA, Mackelprang JL, Rowhani-Rahbar A, Zatzick D, Rivara FP. Psychiatric comorbidity, suicidality, and in-home firearm access among a nationally representative sample of adolescents.JAMA Psychiatry. 2015;72(2):152-9.
17. Rajeev VM, Jinesh PS, Ravikumar K. Comparative analysis of fatal deliberate self-harm in the year 2000 and 2015- an autopsy study. J Evolution Med. Dent Sci. 2017;6(94):6898-904.
18. Azizpour Y, Sayehmiri K, Asadollahi K, Kaikhavani S, Bagheri M. Epidemiological study of suicide by physical methods between 1993 and 2013 in Ilam province, Iran.BMC Psychiatry. 2017;17(1):304.
19. Finkelstein Y, Macdonald EM, Hollands S, Sivilotti ML, Hutson JR, Mamdani MM, Koren G, et al. Risk of Suicide Following Deliberate Self-poisoning.JAMA Psychiatry. 2015;72(6):570-5.
20. Page A, Liu S, Gunnell D,Astell-Burt T, Feng X, Wang L, et al. Suicide by pesticide poisoning remains a priority for suicide prevention in China: Analysis of national mortality trends 2006-2013.J Affect Disord. 2017;208:418-23.
21. Almeida TSO, Fook SML, Mariz SR, Camêlo ELS, Gomes LCF.Suicide attempts: epidemiologic trends towards geoprocessing. CienSaude Colet. 2018;23(4):1183-92.
22. Jan A, Khan MJ, Khan MTH, Khan MTM, Fatima S. Poisons implicated in homicidal, suicidal and accidental cases in North-West Pakistan. J Ayub Med Coll Abbottabad 2016;28(2):308–11.

AUTHORSHIP AND CONTRIBUTION DECLARATION

AUTHORS	Contribution to The Paper	Signatures
Dr. Talha Naeem Cheema Assistant Professor of Forensic Medicine Quaid-e-Azam Medical College, Bahawalpur	Study Designing, Data Collection Manuscript writing, References Writing	
Dr. Altaf Pervez Qasim Professor / HOD Forensic Medicine Faisalabad Medical University, Faisalabad	Review of literature, Proof reading, Authentication of References	
Dr. Ummara Munir Assistant Professor, Forensic Medicine Sheikh Zayed Medical College, Rahim Yar Khan	Discussion Writing, Proof Reading	
Dr. Faisal Naeem Cheema Medical Officer, BHU Chak Loharan, Tehsil Ahmadpur East, District Bahawalpur	Comparison of Results