Original Article

Socio-Demographic Profile of Suicidal Death at Manikganj District, Bangladesh: A One Year Autopsy Based Study.

Laila Yesmin[1], Md Rafiqul Islam[2], Md Zubaidur Rahman[3], Nazmun Nahar Nahida[4], Md Kamrul Hassan Sardar[5].

Abstract

Background: Suicide is one of the leading causes of death in many countries and also a major public health concern. When a person dies by suicide the effects are felt by Family, Friends, and communities. The number of suicidal deaths is increasing worldwide day by day and Bangladesh is also facing this situation alarmingly.

Objective: To evaluate the Socio-demographic profile of suicidal deaths.

Materials and Methods: This cross-sectional study was carried out at Manikganj sadar hospital mortuary, from January 2019 to December 2019.Total 133 suicidal death cases were collected by using a pre-designed format from mortuary register book. The inquest report provided comprehensive information about the deceased. Postmortem examinations documented the method of suspension used and in cases of poisoning, chemical analysis was conducted to determine the type of poison.

Results: During this study majority of the deceased were Female (50.38%). The age distribution of the deceased from 01 year to above 51 years, the highest occurrence observed in the age group 11-20 years (33.08%). Most of the deceased were House wife (40.00%). Majority of deceased were Muslims (88.72%). Total 30.08% cases were reported under Manikganj sadar Thana. The most prevalent technique observed for suicide were by Hanging (65.41%) and common consumption of poison is Organo-phosphorous compound (OPC) (65%).

Conclusion: The collected data has the potential to facilitate the identification of individuals who are at an elevated risk of engaging in suicidal behaviors. Moreover, this information can be effectively used to support individuals through the implementation of a comprehensive nationwide suicide prevention initiative that adopts a collaborative and interdisciplinary approach.

Key words: Suicide, Hanging, Autopsy.

Introduction

Suicide means self-murder or it may be defined as the act of deliberately killing one-self. Attempted suicide is an unlawful act.[1] Suicide is a significant public health issue in developing nations, presenting a formidable challenge for public health authorities in terms of prevention. Suicide is recognized as one of the top 10 causes of mortality on a global scale.[2] Every year 70,3000 people take their own life and there are many more people who attempt suicide. Every suicide has a tragedy that affects families, communities and entire countries and has long lasting effects on the people left behind. Suicide occurs throughout the life time and was the fourth leading cause of death among 15 to 29 years old, globally in 2019. Over 77% of global suicide occurs in low- & middle-income countries in 2019. Suicide is a public health problem, around 20% of global suicides are due to pesticides self-poisoning, other common method of suicide are Hanging & Firearms.[3] Suicide in Bangla

1. Associate Professor and HOD of Forensic Medicine and Toxicology, Khwaja Yunus Ali Medical College, Sirajganj, Bangladesh.
2. Associate Professor, Department of Anesthesiology, Khwaja Yunus Ali Medical College and Hospital, Sirajganj, Bangladesh.
3. Associate Professor, Department of Forensic Medicine and Toxicology, Khwaja Yunus Ali Medical College, Sirajganj, Bangladesh.
4. Assistant Professor, Department of Forensic Medicine and Toxicology, Monno Medical College, Manikganj, Bangladesh.
5. Professor and HOD of Forensic Medicine and Toxicology, Dhaka Central International Medical College, Shamoly, Dhaka, Bangladesh.

Corresponding author: Laila Yesmin, Associate Professor and HOD of Forensic Medicine and Toxicology, KhwajaYunus Ali Medical College, Enayetpur, Sirajgonj, Bangladesh. **Cell**: +8801790352725, **E-mail:** lailayesmin2019@gmail.com

desh is a common cause of unnatural death and a long-term social issue. Every year among the people reported dead due to suicide worldwide 2.06% are Bangladeshi. According to the report by the world Health Organization 19,697 people died by suicide in Bangladesh in 2011.[4] According to Police Headquarters 11,095 people died by suicide in Bangladesh in 2017.[5] Around 73,389 people died by suicide in Bangladesh from 2002 to 2009. Among them 31,857 people Hanged and 41,532 swallowed poison to kill themselves.[6] Suicidal tendency among Bangladeshi women is higher, because they have inferior status in society. Another factor is a higher rate of illiteracy and their economic dependence on men.[7] According to a recent scholarly analysis, there is evidence suggesting that Asia exhibits comparatively higher average suicide rates when compared to high-income nations.[8] Bangladesh is ranked 97th globally in terms of its age-adjusted death rate, which is at 7.63 per 100,000 individuals.[9]

Materials and Methods

This Retrospective cross-sectional study was carried out at the mortuary of Manikganj sadar hospital, Bangladesh, from January 2019 to December 2019.Total 133 suicidal death cases were collected by using a pre-designed format from mortuary register book / records for the study. The inquest report provided comprehensive information about the 133 deceased individuals, including their identities, ages, and death locations. Postmortem examinations documented the method of suspension used and in suspected cases of poisoning comprehensive investigation was conducted by chemical analysis to determine the type of poison involved. The ethical clearance was approved by the ethical committee of the institute. Statistical analysis was done by manually. The data were summarized by using percentages and frequency.

Results

A total 191 medico-legal autopsies were conducted during January, 2019 to December, 2019 out of which 133 cases were death due to suicide that is (69.63%), among them female cases were 67 (50.38%) and Male cases were 66 (49.62%).The age distribution of the victims with the highest occurrence observed in the age group of 11 years to 20 years, (33.08%) followed by a little lower incidence in the age group of 21 years to 30 years, (29.32%) and lowest percentage shown in the age group of 1 to 10 years (2.26%). The majority of cases were identifying as Muslims (88.72%) among individuals, while Hindus accounted for a smaller proportion (11.28%) of the total cases. Occupation of deceased observed highest percentage in Housewife (40.00%) followed by Students (21.04%), Farmers (15.79%), Service & Business (5.26%), Driver (3.76%) and others (9.08%) of the death cases. Total 30.08% of the cases has been reported under Manikganj sadarThana, followed by Singair thana (20.27%), Shibaloy thana (14.26%), Gheor thana (12.60%), Saturia and Daulatpur thana (9.16%) and lowest at Harirumpur thana (4.50%) (Shown in Table-I).

Table I: Socio-Demographic Profile (n=133)

Variables	Frequency	Percentage (%)
Sex		
Male	66	49.62%
Female	67	50.38%
Age		
01 to 10 years	03	02.26%
11 to 20 years	44	33.08%
21 to 30 years	39	29.32%
31 to 40 years	17	12.78%
41 to 50 years	11	08.27%
Above 51 years	19	14.29%
Religion		
Muslims	118	88.72 %
Hindus	15	11.28 %
Occupation		
Housewife	52	40.00 %
Students	28	21.0 4%
Farmer	21	15. 60 %
Driver	05	3.76 %
Service	07	5.26 %
Business	07	5.26 %
Others	13	9.08%
Name of the Thana	40	30 .08 %
Manikganj	27	20.27 %
Sadar	19	14.2 6%
Singair	17	12.60 %
Shibaloy	12	9.16%
Gheor	12	9.16%
Saturia	06	4.50%
Daulatpur		
Harirampur		

Table-II shows age distribution of the deceased according to gender where in both group majority were belonged to 11-20 years of age group, where 32 (24.03%) were female and 12 (9.09%) were male and slightly lower in the age group of 21 to 30 years where 20 (15.09%) were female and 19 (14.26%) were male.

Table-II: Age distribution of the Deceased according to gender.

Age Group	Male	Female	Total
1 to 10 years	3 (2.26%)	00	3 (2.26%)
11 to 20 years	12 (9.09%)	32 (24.03%)	44 (33.08%)
21 to 30 years	19 (14.26%)	20 (15.09%)	39 (29.32%)
31 to 40 years	10 (7.51%)	07 (5.25 %)	17 (12.78%)
41 to 50 years	6 (4.50%)	05 (03.75%)	11 (8.27%)
Above 51 years	16 (12.01%)	03 (2.25%)	19 (14.29%)
Total cases	**66 (49.62%)**	**67 (50.38%)**	**100%**

Figure 1 shows common methods used for suicide were mostly Hanging 87 (65.41%) and Poisoning 46 (34.59%). The following figure is given below in detail:
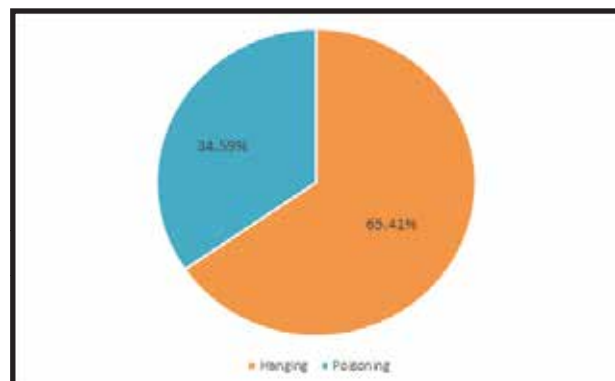

Figure 1: Common Methods used for suicide.

Table-III Shows Types of Poison detected by Chemical analysis revealing that a significant proportion of poisoning cases were due consumption of Organo-phosphorous compound (OPC) (65%), No opinion (26.04%), Rat killer (6.52%) and Unknown poison (2.17%).

Table III: Types of Poison detected by Chemical Analysis (n=46)

Types of poison	Frequency	Percentage (%)
Organo phosphorous compound (OPC)	30	65 %
Rat killer	03	6.52 %
No opinion	12	26.04 %
Unknown	01	02.17 %
Total	**46**	**100 %**

Figure -2 shows the number of suicidal deaths reached its highest point during the summer season (27.82%) followed by Rainy season (23.31%), Autumn (18.04%), Spring (17.29%) and lowest at Winter season (13.53%). The following figure is given below in detail:
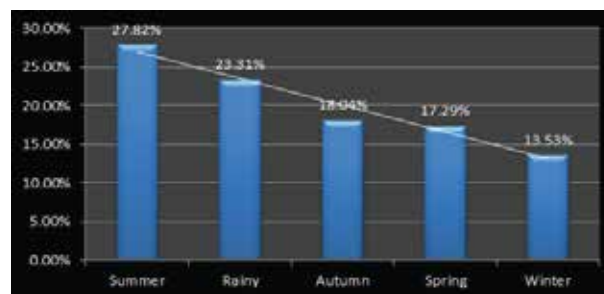

Figure 2: Seasonal Variation of Suicidal Death (n=133)

Discussion

Various racial groups and geographical regions exhibit diverse patterns in the use of suicide methods.[10] The influence of values stemming from tradition, faith, and civilization seems to be significant.[11] The increasing incidence of suicide fatalities can be linked to a complex interplay of many risk variables.[12]

In our study, we observed that majority of the deceased were Female (50.38%) with slightly lower in Male (49.62%). Whereas among the 133 deceased the common age group was found 11 to 20 years (33.08%) where 24.03% were female and 9.09% were male and lowest percentage shown in the age group of 1 to 10 years (2.26%) Which is consistent with the study done by Jotirmoy Roy et al & Md. Mohsin Ali Sha et al, where Female cases were 53% & 58.30% respectively and Male cases were 47% & 41.70% respectively and common age group were 11 -20 years (42% & 33.58%).[13,14] Another study done by Paresh Chandegara et al at India which is inconsistent with our study where Male cases were highest in number than Female cases (62.84% & 37.15% respectively) and common age group was 21 to 30 years (37.7%).[15]

In our study the majority of cases were identifying as Muslims (88.72%) while Hindus accounted for a smaller proportion (11.28%). Which is Inco-relates with the study done by Paresh Chandegara et al, where Hindu (93.29%), followed by Muslim (4.18%) but correlates with the study done by Al-Azad MAS et al, where Muslims were (94.19%) and Hindu (4.84%). This may be due to Bangladesh is a Muslim dominant country, where most of the population of India belongs to Hindu religion.[15,16] Girish Gutte et al and Shashmira B. Tonse et al in their study observed that majority of the deceased were Housewife (55% & 80.21% respectively) followed by labourers & employed (19.5% &10.98%) & students were (14.5%).[17,18] Which is coherent with our study where highest percentage observed in Housewife (40.00%) followed by Students (21.04%), Farmers (15.79%), Service & Business (5.26%) respectively, Driver (3.76%) and others (9.08%) of the death cases.

Our study revealed that suicidal Hanging (65.41%) was the commonest method for suicide followed by Poisoning (34.59%). This study correlates with three others studies done by Md. Mohsin Ali Sha et al, Shashmira B. Tonse et al and Vikas Vaibhav et al where Hanging were 82.29%, 83.51% & 49.59% respectively and Poisoning were 7.75%,8.79% & 37.39% respectively.[14,18,19] In our study chemical analysis was undertaken to examine instances of poisoning which unveiled that a notable percentage of fatalities, precisely 65% were associated with the ingestion of Organo-phosphorous compound (OPC) followed by No opinion (26.04%), Rat Killer (6.52%) and unknown poison (2.17%). This study was consistent with the study done by Shashmira B. Tonse et al and Vikas Vaibhav et al where the percentages of OPC were (62.50% & 43.47%).[18,19]

The issue of seasonal variance in suicide has been well acknowledged, suggesting a potential association between the seasonal patterns and occurrences of suicidal deaths. In our study the incidence of suicidal deaths exhibited a peak during the summer season, constituting 27.82% of the cases followed by Rainy season (23.31%), Autumn (18.04%), Spring (17.29%) and lowest at Winter season (13.53%). Which is consistent with the study conducted by Nirmal Nagar and Binaya K Bastia in India, that the incidence of suicidal fatalities reached its peak during the summer season (32.3%) and lowest level at the autumn (12.3%).[20] But in Paresh Chandegara et al study was shown that Monsoon was the peak season for suicide (38.25%) followed by Summer & winter (30.98% & 30.7%) respectively.[15]

Manikganj district has jurisdiction of 7 police stations where most of the cases were reported under Manikganj sadarThana (30.08%) followed by Singair thana (20.27%), Shibaloy thana (14.26%), Gheor thana (12.60%), Saturia and Daulatpur thana (9.16%) and lowest Harirumpur thana (4.50%).

Conclusion

Among the autopsied cases examined, 65.41%, were found to involve suicide by hanging. Notably, both genders male and female, appeared to be equally susceptible to becoming victims

of this particular method of suicide. Among the individuals the more susceptible age group for suicide were 11 to 20 years and 21 to 30 years which is common in female and in House wife as well as students. Both genders exhibit seasonal asymmetry, where the season of summer was associated with the highest overall death rates.

Acknowledgement

References

1. Parikh CK. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology for classrooms & courtrooms. 6th ed.CBS Publishers & Distributors pvt.ltd,24 Ansari Road Daryaganj, New Delhi-110002, India;1999.

2. Chen IM, Liao SC, Lee MB, Wu CY, Lin PH, Chen WJ. Risk factors of suicide mortality among multiple attempters: A national registry study in Taiwan. J Formos Med Assoc. 2016; 115:364–371.

3. World Health Organization (WHO).28th August 2023. (https://www.who.int/news-room/fact-sheets/detail/suicide)

4. "Bangladesh Suicide" (http://www.worldlifeexpectancy.com/bangladesh-suicide).worldlifeexpectancy.com Retrieved 15 November2012.

5. "Suicide on the rise in Bangladesh" (https://www.dhakatribune.com/bangladesh/nation/2018/03/27/-suicide-rise-bangladesh). Dhaka Tribune.2018-03-27. Retrieved 2019-02-01.

6. "10,000 commit suicide a year" (http://www.thedailystar.net/newDesign/news-details.php?nid=232009). The Daily Star. Retrieved 15 November 2012.

7. "Bangladeshi women 'at risk of suicide'" (http://news.bbc.co.uk/2hi/south_asia/706487.stm). BBC News. Retrieved 16 November 2012.

8. World Health Organization. The Global Burden of Disease: 2004 Update. Geneva: WHO Press;2008.

9. World Health Organization. Suicide Data. Geneva: World Health Organization;2016.

10. Elfawal MA. Cultural influence on the incidence and choice of method of suicide in Saudi Arabia. Am J Forensic Med Pathol. 1999; 20:163–168.

11. Ojima T, Nakamura Y and Detels R. Comparative study about methods of suicide between Japan and the United States. J Epidemiol. 2004;14(6):187–192.

12. Höfer P, Rockett IRH, Värnik P, Etzersdorfer E and Kapusta ND. Forty years of increasing suicide mortality in Poland: undercounting amidst a hanging epidemic? BMC Public Health. 2012; 12:644:2-9.

13. Roy J, Adiluzzaman MAFA, Hasan MT, Roy DD, Qusar MMAS,Shah MMA et al Socio-demographic profile and psychiatric morbidities of suicide attempters: across-sectional observation in a tertiary care hospital of Bangladesh. Bang J Psychiatry.2016;30(2):36-40.

14. Shah MMA, Ahmed S and Arafat S.M.Y. Demography and Risk Factors of suicide in Bangladesh: A Six-Month Paper Content Analysis. Psychiatry Journal.2017 October; 2017:1-5.

15. Chandegara P, Govekar G, Patel J, Zanzrukiya K. Trend of suicidal autopsy cases at Government Medical College & New Civil Hospital, Surat. International Journal of Medical Science and Public Health.2015;4(10):1334-1337.

16. Al-Azad MAS, Rahman MS, Ahmad M, Tabassum T, Rahman Z. Medico-legal Issues and Socio-demographic Profile of suicidal Deaths in People of Dhaka City- A Study of 827 Cases. JAFMC Bangladesh. 2017 June;13(1):33-36.

17. Gutte G, Mane S, Dode C. A Study of socio demographic profile of suicidal deaths in women of reproductive age group. International Journal of Forensic Medicine.2017 September;3(3):31-35.

18. Tonse SB, Sonawane S, Haris VR. Suicide in Married Women: An Autopsy Study.Cureus.2023 July;15(7):1-9: e41510. DOI:10.7759/cureus.41510

19. Vaibhav V, Shukla PK, Jain S, Meshram R. Socio-Demographic Profile of Suicidal Cases Autopsied at Tertiary Care Center in Uttarakhand: A Retrospective Study. Medico-legal Update.2021 January- March;21(1):1191-1195.

20. Nagar N and Bastia BK. The Demographic Profile of Suicidal Hanging Deaths in North India. Cureus. 2022 October:14(10): e30409. DOI:107759/cureus.30409