JGPEMN
ISSN 2091-279X
eISSN 2362-1168

ORIGINAL ARTICLE

Suicidal death among autopsied cases in a tertiary care centre in Nepal: a descriptive cross-sectional study

Srijana Kunwar[1] Aashis Poudel[2], Salmalee Yadav[1], Aashish Giri[2], Aachal Barma[3], Manisha Mandal[4], Dinesh Bajgai[5]

[1]Dept. of Forensic Medicine, [2]MBBS Intern, Patan Academy of Health Sciences, Lalitpur, Nepal; [3]MBBS Intern, Gandaki Medical College Teaching Hospital & Research Center, Pokhara, Kaski, Nepal; [4]MBBS Intern, Shree Birendra Hospital, Kathmandu, Nepal; [5]Medical Officer, Tikapur Hospital, Tikapur, Kailali, Nepal

Date of submission: 23 Jun 2024

Date of acceptance: 29 Jun 2024

Date of Publication: 7 Jul 2024

Correspondence:
Dr. Aashis Poudel
Intern Doctor, Patan Hospital, Patan Academy of Health Sciences, Lalitpur, Nepal
Email: poudelaashis@gmail.com

How to cite:
Kunwar S, Poudel A, Yadav S, Giri A, Barma A, Mandal M, et al. Suicidal death among autopsied cases in a tertiary care centre in Nepal: a descriptive cross-sectional study. J Gen Pract Emerg Med Nepal. 2024 Jun;11(17):37-41.

Online information
DOI:
https://doi.org/10.59284/jgpeman277

OPEN ACCESS

Abstract

Introduction: Globally 10,58,746 suicides occurred in the year 2022. In Nepal, 6792 suicides occurred in the year 2022 according to the data from Nepal Police. Suicide is a public health problem that can be prevented however, the prevention has not been adequately addressed. Our study aimed to find out the prevalence of suicidal death among autopsied cases in the Department of Forensic Medicine and Toxicology of a tertiary care centre in Nepal.

Method: A descriptive cross-sectional study was conducted among autopsies in the Department of Forensic Medicine and Toxicology, Patan Hospital, Lalitpur, Nepal. Data from 1 January 2020 to 31 December 2022 was collected after receiving ethical approval from the ethical committee. The point estimate was calculated at a 95% Confidence Interval (CI).

Result: Among 665 medico-legal autopsies, the manner of death was found to be suicide in 354 (53.23%) (C.I= 53.19- 53.27, 95%). Hanging was the most common cause of suicidal death followed by poisoning. Suicidal death was increasing yearly with maximum death in the year 2022(37.01%).

Conclusion: The prevalence of suicidal death among autopsied cases was high and the trend was rising.

Keywords: Autopsy; Prevalence; Suicide

INTRODUCTION

World Health Organization (WHO) defines suicide as the act of deliberately killing oneself.[1] Globally 10,58,746 suicides occurred in the year 2022.[2] In Nepal, 6792 suicides had occurred in the year 2022 according to the data from Nepal Police.[3] The prevalence of suicide among children and young adults in Nepal was 3.75% and hanging was the most common cause of death in 58.8% of cases.[4] Suicide is a public health problem that can be prevented through timely identification of risk factors, systematic assessment, the application of management protocols, and follow-up for individuals with self-harming tendencies.[5,6] However, the prevention has not been adequately addressed.[7]

Our study aimed to find out the prevalence of suicidal death among autopsied cases in the Department of Forensic Medicine and Toxicology of a tertiary care centre in Nepal to provide information for improving suicide prevention strategies, reform public health policies, and addressing this public health issue.

METHOD

A descriptive cross-sectional study was conducted among autopsies in the Department of Forensic Medicine and Toxicology, Patan Hospital, Lalitpur, Nepal. Data from 1 January 2020 to 31 December 2022 was collected between 10 August 2023 to 30 August 2023 from records of autopsy from the department after receiving ethical approval from the Institutional Review Committee of Patan Academy of Health Sciences (Reference number: drs2308081792). All autopsied cases during the study period were included. Cases where manner of death was not determined, or found dead were excluded from the study.

All the autopsied cases of the three years were taken. The final sample size was 665 after applying the exclusion criteria. The details of the autopsied cases were recorded in a preformed proforma which included age, sex, manner of death, and cause of death. Manner of death was the circumstance of how the death came about. Cause of death was any injury or disease which caused physiological derangement that resulted in death.

Data were entered in Microsoft Excel 2016 and analyzed using IBM SPSS Statistics version 16.0. The point estimate was calculated at a 95% CI. We used descriptive statistics frequency to find the prevalence of suicide.

RESULT

Among 665 medico-legal autopsies, the manner of death was found to be suicide in 354 (53.23%) (53.19- 53.27, 95% CI) (Table 1). There were 213 (60.17%) males and 141 (39.83%) females. The mean age of suicide was 34.97 years. Suicidal death was increasing yearly (Figure 1). Hanging was the most common cause of suicidal death in 265 (74.86%) followed by poisoning in 89 (25.14%).

A majority of 193 (54.52%) suicidal deaths were in the age group of 20-39 years (Table 2). In both genders, this age group recorded the maximum number of suicidal deaths in which males were 116 (54.46%) and females were 77 (54.61%). The age group of 60 and above recorded the minimum number of suicidal deaths in both males and females, which was 18 (8.45%) and 14 (9.93%) respectively.

Table 1. Frequency of manner of deaths among autopsied cases (N=665)

Manner of death	Frequency (%)
Suicide	354 (53.23%)
Homicide	9 (1.35%)
Accident	302 (45.42%)

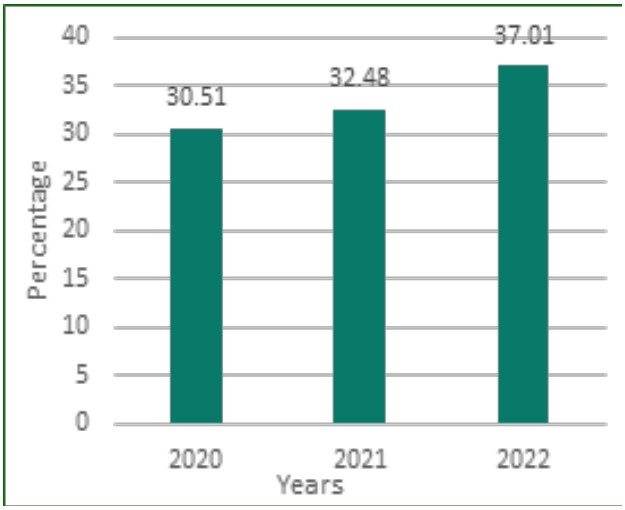

Figure 1. Year-wise prevalence of suicide.

Table 2. Age-wise distribution of the population who died of suicide (N= 354)

Age group in years	Frequency (%)
<20	45 (12.71%)
20-39	193 (54.52%)
40-59	84 (23.73%)
60 and above	32 (9.04%)

DISCUSSION

Our study found 53.23% prevalence of suicidal death among 665 medicolegal autopsies. This high prevalence of suicide indicates that suicide has emerged as a serious public health problem. Globally suicide remains a leading cause of death, particularly among young adults and adolescents.[2] According to the WHO 10,58,746 suicides had occurred in the year 2022. A study done by Zygo et.al found approximately 1 in 4 adolescents reported experiencing suicidal ideation, about 1 in 6 reported making suicidal plans, and roughly 1 in 23 reported attempting suicide.[8]

We found the majority (54.5%) of suicides occurring in the 20-39 age group which shows the need of public health initiatives targeting suicide prevention in this population. This population was particularly vulnerable, possibly due to the various stressors associated with this stage of life, including economic instability, relationship issues, unemployment and mental health challenges.[9] Our finding aligned with a study done by Mishra et.al. that adults were at a higher risk of suicide.[4] According to WHO, suicide is the fourth leading cause of death among 15–29-years-old.[10]

Our study showed prevalence of suicide higher among males (60.17%) compared to females (39.83%). Various factors may contribute to this discrepancy, including differences in methods used, social expectations, and help-seeking behaviors. Men may exhibit a higher risk of suicide due to adherence to rigid gender roles, diminished social support networks, a lower tendency to express emotional distress, and hesitation in seeking help.[11] Our findings aligned with the study done by Hagaman et. al. where 57% of suicidal deaths among autopsies were male.[12] However, a study done by Thapaliya et.al. found suicides more in females (68.1%).[13] It might be because women may try suicide as a way to communicate their need for support and attention. Females have high burden of household works which is unpaid, unseen and under-appreciated which may be one of the reasons for suicide ideation and act on that feeling.[14]

Hanging was identified as the predominant method of suicide in our study, accounting for 74.86% of the cases. Similar results were found in a study done by Hagaman et.al. which found hanging the most common method (62.9%) followed by poisoning (30.8%).[12] Hanging was seen as the quickest and easiest method with few barriers to completion due to easy access to household items such as clothes, belts and ropes to use as ligature material.[15] The next common method was poisoning which was 25.14%. Nepal is an agricultural country. Agricultural pesticides are easily available and cheap which makes it accessible to use as a method for suicide.[16]

The data in our study showed an increasing trend in the number of suicides over the three-year period, with the highest number recorded in 2023 (37.01% of suicides). There are various factors contributing to the rise of suicidal deaths. One of the factors is mental health disorders. Mental health disorders are common; 1 in every 8 people in the world live with a mental disorder.[17] These disorders involve significant disturbances in thinking, emotional regulation, or behavior. Consequently, individuals with this condition tend to experience more suicidal ideation and to be more likely to act on suicidal feeling.[18] A study conducted among individuals who attempted suicide found that 97.4% of the participants had experienced at least one stressor. The most prevalent stressor identified was interpersonal conflict, such as disputes or quarrels. This was followed by health-related stressors, including illness and the costs associated with treatment.[19] Another factor influencing the rise of suicidal death is substance abuse.[20] A study done by Isaacs found that alcohol use was associated with a 94% increase in the risk of death by suicide.[21] These factors were also common in our context. A recent study done by Choi et.al. found that greater media coverage of Korean celebrity suicides was associated with an increase in suicide rates which is also known as copycat suicides.[22] The media monitoring of inaccurate, inappropriate, simplistic or sensational portrayal of suicide should be done.[23]

Implementation of effective strategies can minimize the prevalence of suicide in which mental health education is one of the strategies for addressing the rising trend. This involves ensuring sufficient mental health coverage and expanding the availability of healthcare providers, especially in underserved regions. A study by Mann et al. found that educating youths about depression and suicidal behavior, along with proactive outreach to psychiatric patients following discharge or a suicidal crisis, effectively prevents suicidal behavior.[24] Another study by Pistone et.al. found that school-based education interventions significantly reduced suicidal ideation and suicide attempts in youths.[25] It is essential to strengthen economic supports and household financial stability to decrease suicide risks and enhance mental health outcomes. Engaging communities in shared activities, teaching coping mechanisms and problem-solving skills, and supporting social-emotional learning and resilience programs play a crucial role in suicide prevention.

Other strategies should include crisis response, follow-up care and therapeutic interventions to support affected individuals and mitigate future risks. Crisis response involves establishing 24/7 crisis hotlines, mobile crisis teams, and emergency psychiatric services that can provide rapid intervention and de-escalation. Follow-up care is equally vital, as it ensures continuity of support after an initial crisis has been addressed. Non-pharmacologic intervention; cognitive-behavioral therapy (CBT) and dialectical behavior therapy (DBT), help individuals develop healthier thought patterns and coping mechanisms.[26]

Nepal government has banned 24 pesticides since 2001 to reduce the potential hazard pesticide poisoning can cause.[16] The government should limit the access or completely ban the fatal pesticides which have been used as a method to commit suicide.

A study done by Thapaliya, et.al. found that most of the victims had stronger intent to die and most of the attempts were impulsive in nature i.e. decision was taken few hours before the attempt. This type of impulsive suicide is difficult to prevent.[13] However, suicide occurring secondary to mental health disorders, alcohol abuse and poisoning can be effectively reduced. The government should raise taxes

to reduce access to alcohol, regulate sales, reinforce strict advertising regulations and run public education campaigns on alcohol risks to mitigate the suicidal risks.[27]

WHO recommends a national suicide prevention strategy for the prevention of suicidal behaviors at national, regional and local levels. In general population, restriction on the access to means of self-harm and suicide can be an effective strategy. Government should consider implementing steps to restrict access to firearms, pesticides or other noxious substances that are used as a method for suicide.[22] National governments must focus on ways to use the available resources optimally and collaborate with local bodies for effective prevention of suicide.

While numerous initiatives have been implemented in Nepal at various levels, the country does not currently have a specific long-term national suicide prevention policy. Therefore, a multi-sectoral platform of stakeholders needs to be developed under government supervision to create and carry out creative, nationally relevant policies and programs.[5]

There were some limitations in our study. Firstly, the results of this study were based on the hospital records of medico-legal autopsies collected retrospectively which might have led to incomplete data. Our study used convenience sampling which might have resulted in sampling bias. Our study was conducted at a single centre which may limit the generalizability of the results to other hospitals.

CONCLUSION

A high prevalence of suicidal death among autopsied cases was observed in our study and the trend was increasing. Prevention strategies with a multi-sectoral approach can be crucial in addressing this rise. However, further studies are needed to elucidate the underlying etiological factors, evaluate the effectiveness of existing interventions, and develop targeted, evidence-based strategies to mitigate this growing public health problem.

DECLARATIONS

Acknowledgement

None

Conflict of Interest

None

Funding

None

Ethical Clearance

It was taken from IRC of Patan Academy of Health Sciences.

REFERENCES

1. World Health Organization. World suicide prevention day 2022 |Internet|. World Health Organization. |cited 2022 Dec 27|. |Weblink|
2. Worldometer. Real-time world statistics Suicide profile |Internet|. |cited 2022 Dec 28|. | Weblink |
3. EDCD Nepal. Suicide Prevention Brochure |internet|. Epidemiology & Disease Control Division (EDCD). Ministry of Health & Population, Dept. of Health Services, 2022. |cited 27 December 2022|. | Weblink |
4. Mishra N, Shrestha D, Poudyal RB, Mishra P. Retrospective study of suicide among children and young adults. J Nepal Paediatr Soc. 2013;33(2):110-6. | DOI |
5. Marahatta K, Samuel R, Sharma P, Dixit L, Shrestha BR. Suicide burden and prevention in Nepal: The need for a national strategy. WHO South-East Asia J Public Health. 2017;6(1):45. | PubMed | Full Text | DOI |
6. World Health Organization. Nepal's national suicide prevention helpline service helping save lives |Internet|. World Health Organization; 2022 Dec 9. |cited 2023 Oct 19|. | Weblink |
7. O'Rourke MC, Jamil RT, Siddiqui W. Suicide screening and prevention. In: StatPearls |Internet|. Treasure Island (FL): StatPearls Publishing; 2024 [cited 2024 Jun 22] | PubMed | Full Text |
8. Zygo M, Pawłowska B, Potembska E, Dreher P, Kapka-Skrzypczak L. Prevalence and selected risk factors of suicidal ideation, suicidal tendencies and suicide attempts in young people aged 13-19 years. Ann Agric Environ Med AAEM. 2019;26(2):329-36. | PubMed | Full Text | DOI |
9. Tasfi JT, Mostofa SM. Understanding complex causes of suicidal behaviour among graduates in Bangladesh. BMC Public Health. 2024;24(1):560. | PubMed | Full Text | DOI |
10. World Health Organization. Suicide |Internet|. World Health Organization. 2023 Aug 28. |cited 2024 Jun 22|. | Weblink |
11. Scourfield J, Evans R. Why might men be more at risk of suicide after a relationship breakdown? Sociological insights. Am J Mens Health. 2015;9(5):380-4. | PubMed | Full Text | DOI |
12. Hagaman A, Khadka S, Lohani S, Kohrt B. Suicide in Nepal: a modified psychological autopsy investigation from randomly selected police cases between 2013- 2015. Soc Psychiatry Psychiatr Epidemiol. 2017;52(12):1483-94. | PubMed | Full Text | DOI |
13. Thapaliya S, Gupta A, Tiwari S, Belbase M, Paudyal S. Pattern of suicide attempts in southern Nepal: a multi-centered retrospective study. Med Phoenix. 2018;3:41. | Full Text | DOI |
14. Lee SA, Park EC, Ju YJ, Han KT, Yoon HJ, Kim TH. The association between satisfaction with husband's participation in housework and suicidal ideation among married working women in Korea. Psychiatry Res. 2018;261:541-6. | Pubmed | DOI | Full Text |
15. Biddle L, Donovan J, Owen-Smith A, Potokar J, Longson D, Hawton K, et al. Factors influencing the decision to use hanging as a method of suicide: qualitative study. Br J Psychiatry. 2010;197(4):320- 5. | PubMed | DOI |
16. Utyasheva L, Sharma D, Ghimire R, Karunarathne A, Robertson G, Eddleston M. Suicide by pesticide ingestion in Nepal and the impact of pesticide regulation. BMC

Public Health. 2021;21:1136. | PubMed | Full Text | DOI |
17. World Health Organization. Mental disorders |Internet|. World Health Organization. |cited 2022 Dec 27|. | Weblink |
18. Brådvik L. Suicide risk and mental disorders. Int J Environ Res Public Health. 2018;15(9):2028. | PubMed | Full Text | DOI |
19. Shakya DR. Common Stressors among suicide attempters as revealed in a psychiatric service of Eastern Nepal. Trauma Stress Disord Treat. 2014;30;3. | DOI |
20. Rizk MM, Herzog S, Dugad S, Stanley B. Suicide risk and addiction: the impact of alcohol and opioid use disorders. Curr Addict Rep. 2021;8(2):194-207. | PubMed | Full Text | DOI |
21. Isaacs JY, Smith MM, Sherry SB, Seno M, Moore ML, Stewart SH. Alcohol use and death by suicide: a meta-analysis of 33 studies. Suicide Life Threat Behav. 2022;52(4):600-14. | PubMed | Full Text | DOI |
22. Choi YJ, Oh H. Does media coverage of a celebrity suicide trigger copycat suicides? Evidence from Korean cases. J Media Econ. 2016;29(2):92-105. | PubMed | DOI |
23. Public health action for the prevention of suicide: a framework |Internet|. Geneva: World Health Organization; 2012 |cited 2024 Jun 22|. 22 p. | Weblink |
24. Mann JJ, Michel CA, Auerbach RP. Improving suicide prevention through evidence-based strategies: a systematic review. Am J Psychiatry. 2021;178(7):611-24. | PubMed | Full Text | DOI |
25. Pistone I, Beckman U, Eriksson E, Lagerlöf H, Sager M. The effects of educational interventions on suicide: a systematic review and meta-analysis. Int J Soc Psychiatry. 2019;65(5):399-412. | PubMed | Full Text | DOI |
26. Centers for Disease Contol and Prevention. Preventing suicide |Internet|. Centers for Disease Contol and Prevention. 2024 Jan 23. |cited 2024 Jun 22|. | Weblink |
27. World Health Organization. 10 areas governments could work with to reduce the harmful use of alcohol |Internet|. World Health Organization; 2019 Jul 10. |cited 2024 Jun 23|. | Weblink |