



Suicide and Suicide Attempts among Patients Attending a District Hospital in Ghana: a Retrospective Study

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Abstract: Suicide and suicidal attempts have become of public health concern worldwide as it is the second leading cause of death among the youth. Despite its impact on public health, there are few studies on this menace in low- and middle-income countries like Ghana. This study sought to review the data of patients who have been involved in suicide and suicidal attempts in a district hospital in the Upper East Region of Ghana. This is a retrospective review of the records of patients (outpatient and inpatients) who attempted or completed suicide. The study was conducted in the War Memorial hospital from April to May 2023. Data extraction covered January 2016 to December 2021. The study identified 162 cases of suicide (attempted and completed) with 80 (49.4%) males and 82 (50.6%) females. The mean age of culprits was 32.0±16.1. Even though more females attempted suicide, more males completed it. The commonest method used in suicidal attempts was chemical ingestion (poisoning). Also, the year 2020 recorded the highest number of suicidal attempts and completed suicide (24.7%). People between the ages of 18-25 were found to attempt suicide the most (38.9%). There is a need for urgent education among the youth about suicide. Also, using less poisonous mechanisms for agricultural practices such as adopting organic methods of agriculture may help reduce accessibility of the pesticides used in suicide attempts.

Keywords: Attempted suicide, Suicide, prevalence, attempted suicide

1. Introduction

Suicidal attempts are common phenomena among patients with mental disorders (Rahme et al., 2016). People with mental disorders may attempt

suicide for various reasons including experiencing mood symptoms, psychotic symptoms, anxiety and etc. (Fitzpatrick et al., 2021). In Nepal, out of 25.5% of suicide cases among young people where

reasons could be identified, 24% of them were found to be due to mental illnesses (Mishra, Shrestha, 2013). Depression has been found to be associated with over 90% of suicide/ suicidal attempts (Arsenault-Lapierre et al., 2004). Suicide is ranked among the leading causes of mortality worldwide particularly ranking second among causes of death among people aged of 15-24 years (Brent et al., 1993; Nock et al., 2013b). It is also common among the elderly especially those over 65 years (Fitzpatrick et al., 2021). About 800,000 people lose their lives through suicide annually (Harmer et al., 2020) which is a worrying trend. Equally worrying is the fact that 75% of these deaths occur in low-and-middle-income countries (Renaud et al., 2022). It has been established that each completed suicide represents a 20-fold increase in the number of attempted suicide cases (WHO, 2014). Also, previous suicidal attempts are strong predictors of future suicide (Large et al., 2021). This notwithstanding, it has been estimated that the ratio of the number of attempted suicides to completed suicide is 400:1 among adolescent males compared with 3000:1 among adolescent females of the same age group (Vasiljevaitė et al., 2019). This implies that more adolescent males are likely to complete suicide with fewer attempts compared with their female counterparts.

All over the world, pesticide poisoning (organophosphates) makes up about 20% of all methods used in attempting or completing suicide. Other common methods are hanging and fire arms (Mew et al., 2017). In Africa, suicides among mental health service users are quite common. In Nigeria, rates among young people aging from 15 to 24 was about 12% (Omigbodun et al., 2008) while in Benin the rate was found to be 28.3% (Randall et al., 2014). The overall numbers of suicide may be particularly higher in Africa but for under reporting of cases because of the cultural implications of such acts (Mars et al., 2014). In Ghana, over 1,500 people die from suicide annually and for every single reported case, there are 4 unreported ones making 6000 deaths from suicide annually (Assan et al., 2019).

Several factors have been identified to be associated with suicidal ideations/attempts among mental health service users. In Malaysia, it was reported that previous suicidal attempts, educational level, depression and comorbid physical illness increased the odds of a schizophrenia patient's suicidal attempt (Chong et al., 2020). Also in Tunisia, suicidal attempts and behaviors among adolescents who are non-mental health service users were associated with tobacco

smoking, female gender, depression, non-suicidal injurious behavior and low self-esteem (Guedria-Tekari et al., 2019). According to a qualitative study done in Ghana to assess the reasons why people attempt suicide, previous "attempters" reported that factors such as "lack of support, abandonment, shame, existential struggles and supernatural reasons" were the driving forces which lead them to attempt suicide (Akotia et al., 2019).

In August 2021, the Ghana health Service in an unpublished document reported that the spate of attempted suicide cases in the country in the first half of 2021 was alarming. In its ranking, out of the 417 attempted suicide cases recorded, the Upper East Region was ranked third with 47 attempted cases after Ashanti Region and Eastern Region (Ghanaweb, 2021). This finding by the Ghana Health Service is a worry for the Upper East region with a relatively lower population compared to most other regions in Ghana. Non-fatal suicide has always been a crime (Adinkrah, 2012; Hjelmeland et al., 2014) until recently when the Parliament of Ghana amended the criminal offenses Act which criminalized suicidal attempts and now, such victims are required to be referred for mental health assessment instead of jail sentence (Yire, 2023).

There have been few studies on the subject especially in the Upper East Region. One of such conducted recently was a retrospective review of coroners' reports within the northern part of Ghana, but this focused mainly on completed suicide and not non-fatal suicidal attempts creating a gap as far as the studies on non-fatal suicides are concerned in the Upper East Region. This study sought to retrospectively review the data on suicide and suicidal attempts among patients attending the War Memorial Hospital in the Kassena-Nankana district of the Upper East Region of Ghana from 2016 to 2021.

2. Methods

Study Design

This was a retrospective review of the records of patients (outpatient and inpatients) who attempted or completed suicide from 2016 to 2021.

Study Area

The War Memorial hospital in Navrongo is the major referral hospital in the Kassena-Nankana District of the Upper East Region. The hospital provides general medical services including mental health services. As a district hospital, it is run by four Medical Officers, with 60 nurses among other paramedical staff. It serves both people in the

municipality and those from the southern part of Burkina Faso. The people in this community are predominantly peasant farmers with a few of them engaged in white color jobs.

Inclusion Criteria and Exclusion Criteria

All clients registered in the electronic database of the hospital with records showing attempted or completed suicide. Clients whose records showed that attempts were accidental instead of intentional were excluded.

Data Collection

We identified all patients on the electronic database of the Health Information Management System of the hospital whose records showed either non-fatal suicide attempt or completed suicide. The authors designed an excel spread sheet which recorded data on the socio-demographics (age, gender), method used, outcome (completed or non-fatal suicide attempts), and diagnosis. All controversies regarding any case (record) were discussed with the biostatistician for resolution. The authors also collected data on the total number of patients attending the hospital per year (2016-2021).

Data Processing and Analysis

All data entered onto the excel spread sheet were cleaned and checked for completeness before analysis. Categorical variables were presented as proportions using frequencies and percentages. However, age was presented in terms of mean and standard deviation. Data analysis was done using SPSS version 26.

Ethical Consideration

Ethical approval was granted by Ghana Health service with institutional approval given by the management of the War Memorial hospital. Informed consent was waived since most of the patients could not be traced. However, information about the study was shared on notice boards in the hospital so that any patient who didn't want their

information to be included could inform the biostatistician and the researchers so that their information could be excluded. The study ensured that strict anonymity was maintained and none of the participants was encountered by the researchers.

3. Results

The study identified 162 cases of suicide (attempted and completed) with 80 (49.4%) males and 82 (50.6%) females (Table 1). The mean age of participants was 32.0±16.1. The results also showed that more females (50.6%) attempted suicide with fewer of them (5.5%) completing suicide compared with 8% of males who completed suicide (Table 1). Suicidal attempts were most common among participants within the age range of 18-25 (38.9%) and formed the majority age group that completed suicide (4.3%). Majority of "attempters" did not have any known mental health diagnosis (80.9%), however, among those with known mental health diagnosis, the commonest diagnosis was psychosis (9.3%) followed by depression (4.9%) as shown in Table 1. It was further identified that the commonest method used in suicide attempts was chemical ingestion (organophosphates) (85.9%) followed by drug overdose (4.9%) with one person attempting to cut his throat (Figure 1). Moreover, the study identified 2020 as the year with the highest number of suicidal attempts (24.7%) while the least number of attempts were recorded in 2018 (11.7%). There was an overall prevalence of completed and attempted suicide of 72.8 per 100000 population. The overall 6-year prevalence of completed suicide was 9.9 per 100000 population while the overall prevalence of non-fatal suicide over the 6-year period was found to be 62.9 per 100000 population. The results also showed that though the highest number of attempted suicide cases occurred in 2020, it also recorded the least attendance and hence recorded the highest prevalence of suicidal attempts within the 6-year period (Tables 2 and 3).

Table 1. Relationship between study variables and suicide outcome

Variables		Suicide Cases	Completed suicide	Non-Fatal Suicide
		N (%)	N (%)	N (%)
Sex	Male	80(49.4)	13(8.0)	67(41.4)
	Female	82(50.6)	9(5.5)	73(45.1)
	Total sample	162(100)	22(13.5)	140(86.5)
Age	<18	15(9.3)	2(1.2)	12(7.4)

	18-25	63(38.9)	7(4.3)	56(34.6)
	26-34	34(21.0)	6(3.7)	28(17.2)
	35-43	26(16.00)	2(1.2)	24(14.8)
	>43	22(13.6)	4(2.4)	18(11.1)
	Missing	2(1.2)	1(0.6)	1(0.6)
	Total sample	162(100)	22(13.5)	140(86.5)
Diagnosis	Unknown	131(80.9)	20(12.3)	111(68.5)
	Epilepsy	1(0.6)	0(0.0)	1(0.6)
	Psychosis	15(9.3)	1(0.6)	14(8.8)
	Substance abuse	7(4.3)	1(0.6)	6(3.7)
	Depression	8(4.9)	0(0.0)	8(4.9)
	Total sample	162(100)	22(13.5)	140(86.5)

Table 2. Yearly distribution of suicidal attempts

Year	Completed suicide (%)	Non-fatal suicide (%)	Total (%)
2016	3(1.9)	18(11.1)	21(13.0)
2017	4(2.5)	29(17.9)	33(20.3)
2018	3(1.9)	16(9.9)	19(11.7)
2019	4(2.5)	17(10.5)	21(13.0)
2020	4(2.5)	36(22.2)	40(24.7)
2021	4(2.5)	25(15.4)	29(17.9)

Table 3: Yearly suicide prevalence

Year	Attendance N	Completed suicide N (prev. per 100000)	Non fata suicide N (prev. per 100000)
2016	30987	3(9.7)	18(58.1)
2017	32321	4(7.6)	29(89.7)
2018	38761	3(9.7)	16(49)
2019	40005	4(7.6)	17(41.3)
2020	28001	4(7.6)	36(128.6)
2021	52653	4(7.6)	25(47.5)
Total	222728	22(9.9)	140(62.9)

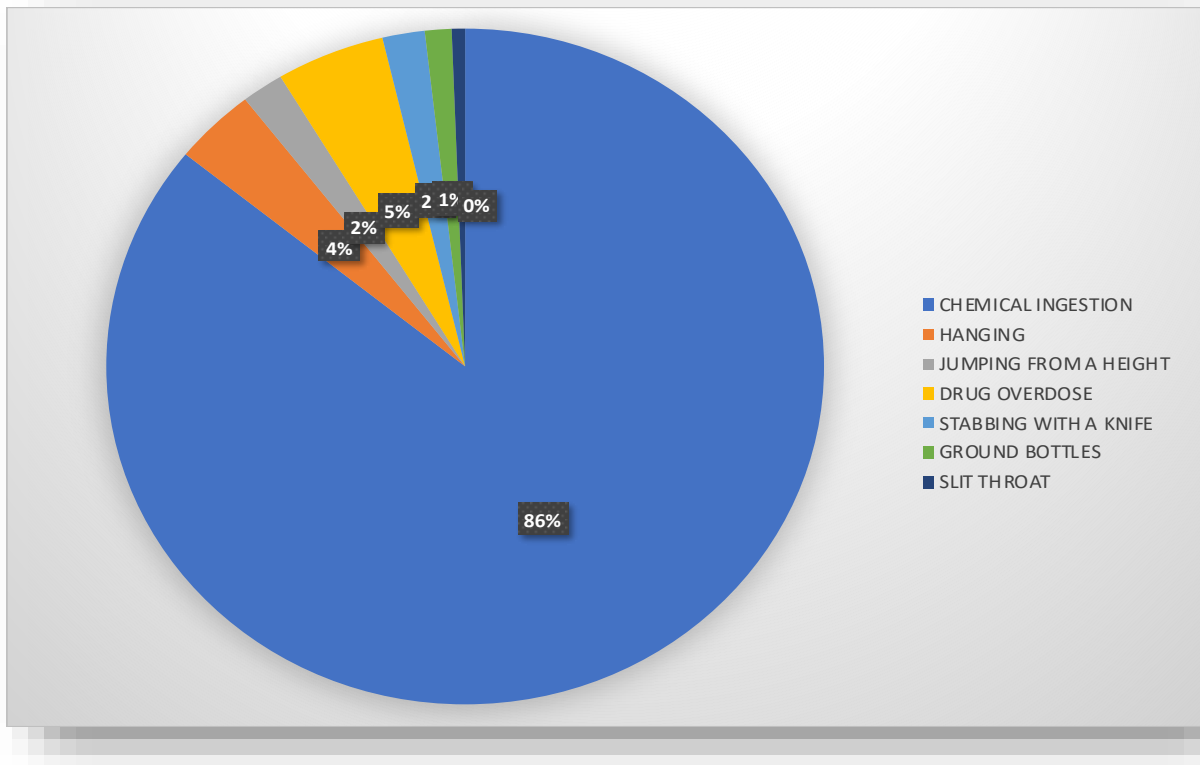


Figure 1. Methods used in suicidal attempts.

4. Discussion

The study sought to analyze the suicide and attempted suicide data as recorded in the records of a district hospital in the Upper East Region of Ghana from 2016-2021. This study found that there were more women who attempted suicide, but more men completed it. This finding is consistent with Bommersbach et al. (2022) who reported that women had a 1.78 odds of lifetime suicidal attempts greater than men. Reasons such as independence among men and the egoistic nature of men makes seeking help less likely while women are more readily acceptable of help and also easier at discussing their challenges have been suggested to account for the increase in the risk of completing suicide among men compared with women (Murphy, 1998). This finding is however contradictory to previous studies that reported that more females completed suicide than men (Freeman et al., 2017; Kaggwa et al., 2022). Also, our study found that the younger population (18-25) attempted suicide the most. This has been corroborated by earlier studies in Uganda which also identified suicidal attempts to be commoner among younger individuals (Kaggwa et al., 2022). It was further corroborated by an Indian study

(Radhakrishnan & Andrade, 2012). Suicide has been reported to be the second leading cause of mortality among young adults worldwide (Nock et al., 2013a). The emergence of “cybersuicide” is said to have worsened the situation among the young adults by contributing to the increased numbers of suicide among this age group (Birbal et al., 2009).

Furthermore, the study identified that the commonest method used in suicidal attempts was ingestion of chemicals (organophosphate). This finding is supported by several earlier studies (Betz & Anestis, 2020; Bonvoisin et al., 2020; Kaggwa et al., 2022). This finding is contradicted by a study from Uganda which reported hanging as the commonest means of suicidal attempts among University students (Kaggwa et al., 2021). The Upper East region is one of the poorest regions in Ghana and the majority of the people are farmers who use agrochemicals for their farming activities. This makes these “poisons” readily available and hence the commonest means for suicidal attempts. There is therefore the need to regulate the sale of these chemicals and possibly introduce less harmful agrochemicals (organic farming) which will reduce this menace. The study further

identified that among the patients who had histories of mental illnesses, psychosis was the commonest diagnosis associated with suicidal attempts. This is contrary to previous reports which have indicated that depression and substance abuse (alcohol) were the commonest diagnosis associated with suicide and its attempts (Bertolote & Fleischmann, 2002).

Like previously reported studies, this study found that the year of the Covid 19 pandemic recorded the highest number of suicide cases both attempted and completed (Kaggwa et al., 2022; Sher, 2020; Tanaka & Okamoto, 2021). This finding stresses the need for strong social interventions to support families who may be poor and vulnerable in society during such pandemics. As an institutional based study, generalization of findings may be challenging. Also, as a descriptive study, the study could not establish correlations between socio-demographic characteristics and suicidal attempts and non-fatal suicides due to lack of adequate data. These limitations, notwithstanding, the study was the first to assess suicide and suicidal attempts in the Upper East region. It provides a basis for the development of hypothesis to further study and understand this menace especially among mentally ill persons. This study findings have brought to the fore the need to run mental health assessment for all patients who report to the hospital for routine checks. Also, there is the need to regulate the sale of pesticides (insecticides, weedicides among others). Furthermore, there is the need to adopt organic methods of farming which are not poisonous. Finally, social interventions need to be put in place to support the vulnerable in society during pandemics such as Covid 19.

5. Conclusion

Suicide and suicidal attempts have become a menace among developing and developed countries. The youth has been found to be more vulnerable to suicide compared to other age groups. All over the world, chemical poisoning is said to be the most common method used in suicide attempts. There is the need for more education on suicide among the various educational institutions which target the youth.

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Competing Interest

No potential conflict of interest was reported by the author(s).

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