

Trends in Poisoning and Bites among Patients Referred to the Limbe Regional Hospital, South-West Cameroon

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Abstract

Poisoning is a common public health issue as it affects millions of people in all social levels worldwide. This retrospective cohort study assessed trends in poisoning and bites among patients referred to the Limbe Regional Hospital from the 1st January 2009 to the 31st December 2018 (10 years). After clearance from public health authorities, data was collected from April to July 2019 at the Emergency Ward of the Limbe Regional Hospital from records. The Limbe Regional Hospital received 244 patients from 2009 to 2018 because of poisoning and animal bites. Twelve types of poisons and eight types of bites were recorded. Dog bite (33.20%), snake bite (15.16%) and ingestion of bleaching agent (11.48%) were significantly ($p < 0.001$) more frequent. Based on gender, males (55%) significantly ($p < 0.01$) suffered from more than females (45%). The age of the patient significantly ($p < 0.001$) influenced the frequency of poisons and bites as patients under 30 years old were the most affected group. The occupation of the patient significantly ($p < 0.001$) influenced the frequency of poisoning and bites with a high percentage occurring in unemployed patients (67.21%). The number of cases significantly changed according to seasonality. While a few cases (7%) occurred under unknown circumstances, accidental cases (80%) were significantly ($p < 0.001$) higher than suicide attempts (13%). This study raises

awareness of poisoning and bites, and stresses on the importance of the safe-keeping of toxic compounds, respecting prescribed drugs doses, being careful when dealing with animals and the need to create psychological and poison management centers in Cameroon.

Keywords: Farming, Farm gross income, Organic, Conventional, Tanguieta

Introduction

Poisoning is a common public health issue as it affects millions of people in all age groups and social levels worldwide. Poisoning occurs when people drink, eat, breathe, inject, or touch enough of a hazardous substance to cause illness or death (WHO, 2020a). A poison is a substance that through its chemical action kills, injures or impairs an organism. It is the dose that makes the poison as stated by Paracelsus (1493 -1541) centuries ago; the dose is the absolute quantity of the toxin that an organism has been exposed (Viau & Tardif, 2003). There are three types of medical poisoning: accidental poisoning, experimental poisoning and intentional poisoning (Uges, 2001). Rapid industrialization, introduction of new drugs and massive use of pesticides in agriculture has increased the incidence of poisoning (Maharani & Vijayakumari, 2013). Pesticides and analgesics are the most common poisons (Moazzam et al., 2009). In the years 1980-1989 in Indonesia, 28% of acute poisoning was related to pesticides (Jeyaratnam, 1990). The widespread use of organophosphorus pesticides has made them serious poisons (Mahdi & Mohammad, 2014); in industrialized countries, intoxication due to heavy metals is common (Sinicropi et al., 2010); between 1985 and 2009, a trend toward a higher incidence of suicide attempt by poisoning was found in Northern Greece (Tsalkidis et al., 2010); Taiwan recorded 20 260 deaths and 210 021 hospitalizations from poisoning between 1999 and 2008 (Chien et al., 2011).

Studies on poisoning worldwide have revealed that infants are vulnerable to unintentional tobacco poisoning (Connolly et al., 2010) and drug related poisoning (Ramazan et al., 2012). Poisoning due to self-medication is common worldwide (Zardosht et al., 2016) as well as intentional poisoning (Saravi, 2013). Between 1999 and 2008, Taiwan recorded 14 440 deaths (70.03% of poisoning cases) due intentional poisoning with medical drugs and pesticides being the main agents (Chien et al., 2011). There is no established treatment protocols for the clinical management of intoxication related to some chemicals in a country like Spain (Mas-Morey et al., 2012). In most developing countries, trained personnel for poisoning care, and also diagnosis and treatment facilities are limited (Tejas et al., 2013) or even completely inexistent. Cameroon lacks a network of poison control centers.

Unfortunately, poisoning sometimes results in high mortality (Arulmurugan et al., 2015).

One study of poisoning in Cameroon revealed that pesticides and pathogenic microorganisms were the most common poisons in Bamenda and Ndop, two localities of the North-West Region (Sonchieu et al., 2018). In fact, Cameroonian pesticide users often throw empty pesticide containers in water and bushes, and recycle those containers for various uses including storage of grains, oil, and kerosene (N. Kenko et al., 2017); moreover, pesticide users in Cameroon mainly keep pesticides at home and in unsafe places (Kenko, 2020); such practices can be potential sources of poisoning, either accidentally or by suicide attempts, due easy access to chemicals. In addition, many pesticides used in the South-West Region of Cameroon pose an acute and a chronic risk to the aquatic ecosystem: water, fish, aquatic invertebrates (N. D. B. Kenko et al., 2017); since water resources are used for several domestic purposes (drinking, cooking, consumption of aquatic organisms). Contaminated water may be another potential source of poisons. Poisons like pesticides have a negative impact on male reproductive capacities by reducing sperm counts and the amount of sex hormone in the body (Manfo et al., 2012). Organophosphorus insecticides are a major cause of toxicity and mortality as they inhibit the enzyme acetylcholinesterase (AChE), promoting the accumulation of the neurotransmitter acetylcholine at synapses (Morris et al., 2014). Poisons such as toxic metals interfere with a number of physiological processes: central nervous system, hematopoiesis, liver and kidneys (Sinicropi et al., 2010). Illness may occur quickly after exposure or may develop later following long-term exposure (WHO, 2020a). An immediate reaction at the contact point with the poison is referred to as local toxicity (cutaneous eruption, respiratory irritation). In some cases, the poison is carried via the circulatory system to the organ of injury (nephrotoxic effects of cadmium or hepatotoxicity) (Viau & Tardif, 2003). In acute poisoning, biological effects appear in no more than 24hours of exposure time while chronic exposure refers to repeated exposure for six months or more and sub-chronic exposure are effects over about 13 weeks (Viau & Tardif, 2003). Patients with acute drug poisoning have high long-term mortality (Liisanantti, 2012).

In addition to extensive agriculture carried out in South-West Region of Cameroon by the Cameroon Development Corporation (CDC), Limbe harbors a petroleum company (SONARA) which may be another source of poisoning for workers and the local population, hence the choice of the Limbe Regional Hospital for this study. Research on poisoning profile in Cameroon will help to propose preventive measures to the local population and public health authorities as the country lacks poison management centers. The research question then arose as: what is the distribution of poisoning and bites

at the Limbe Regional Hospital from 2009 to 2018? To answer this question, this retrospective cohort study assessed trends in poisoning and bites among patients referred to the Limbe Regional Hospital from the 1st January 2009 to the 31st December 2018 (10 years). More specifically, (a) we assessed the various types of poisons and bites, and their frequency; (b) we assessed the impact of occupation, gender, age on poisoning and bites; (c) we assessed the intentions of poisoned and bitten subjects and (d) we evaluated the temporal distribution of poisonings and bites.

Material and Methods

Clearance

Administrative clearance was obtained from the South-West Regional Delegation of the Ministry of Public Health and the Director of the Limbe Regional Hospital. Confidentiality on the content of medical logbooks was maintained and information collected was used by investigators only for the purpose of this research.

Study area

This retrospective cohort study was carried out between April and June 2019 at the Emergency Ward of the Limbe Regional Hospital. Founded in 1858, Limbe is a seaside town in the South-West Region of Cameroon. The city harbors a Wildlife Centre founded in 1885 that covers an area of 0.5 ha and has one of the four autonomous ports of Cameroon (NIS, 2011).

Data collection

Sociodemographic data (age, sex), name of poison, name of the biting animal, intention of the poison, time (month and years) were recorded from the 1st January 2009 to the 31st December 2018 (10 years) from medical logbooks using well-numbered forms designed for this purpose. Efforts were made to get the optimum benefit from the available data in hospital logbooks.

Data processing and analysis

Data compilation, creation of tables and graphs, and statistical analyses were done using Microsoft Excel 2016 and SPSS version 21. The difference in the frequency of poisoning in terms of poison agent, gender, age, occupation, intention of the poisoning, time (months and years) was assessed at 5% significant level using the Chi-square test.

Results

Two hundred and forty-four (244) cases of poisoning and bites were recorded at the Limbe Regional Hospital from January 1, 2009 to December 31, 2018.

Frequency of poisoning according to poisons

Twelve types of poisons and eight types of bites were recorded in this study; the frequency of dog bite (33.20%) was significantly higher ($p < 0.001$), followed by snake bite (15.16%), bleaching agent (11.48%), human bite (8.20%) and arthropod bite (7.38%) as seen on Table 1. Food poisoning (4.10%), poisoning from pesticides (1.64%) and medical drugs (6.56%) were of lower incidence.

Table 1: Frequency of poisons and bites recorded at the Limbe Regional Hospital between 2009 and 2018

Poisoning agents	Frequency	Percentage (%)
Acid	1	0.41
Alcohol	10	4.10
Arthropod bite	18	7.38
Batteries	1	0.41
Bleaching agent	28	11.48
Cat bite	1	0.41
Cement	1	0.41
Chlorine	1	0.41
Crocodile bite	1	0.41
Dog bite	81	33.20
Drug intoxication	16	6.56
Food poisoning	10	4.10
Gas intoxication	1	0.41
Human bite	20	8.20
Kerosene	2	0.82
Pesticide	4	1.64
Rat bite	1	0.41
Snake bite	37	15.16
Unknown chemical	8	3.28
Unknown animal bite	2	0.82
Total	244	100

Frequency of poisoning and bites according to gender

Males (133; 55%) significantly ($p < 0.01$) suffered from poisoning and bites more than females (111; 45 %) as shown on Figure 1.

Frequency of poisoning and bites according to occupations

The occupation of the patients significantly ($p < 0.001$) influenced the frequency of poisoning and bites as seen in Table 2. Unemployed patients were significantly more affected (67.21%) than other groups. In the category of employed, housewives (4.10%), business men (6.56%), civil engineers (2.87%) and farmers (3.69%) were more affected.

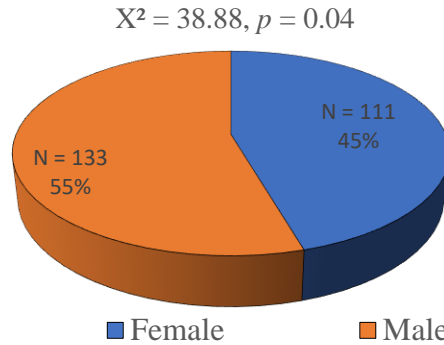


Figure 1: Distribution of Poisoning and Bites According to Gender of Patients Referred to the Limbe Regional Hospital between 2009 and 2018

Table 2: Distribution of poisoning and bites based on the occupation of patients referred to the Limbe Regional Hospital between 2009 and 2018

Occupations	Frequency	Percentage (%)
Applicant	4	1.64
Artist	2	0.82
Banker	2	0.82
Bike rider	2	0.82
Civil Engineering	7	2.87
Business	16	6.56
Cook	1	0.41
Petroleum Engineering	1	0.41
Car Driver	2	0.82
Electrician	3	1.23
Farmer	9	3.69
Fisherman	1	0.41
Hairdresser	2	0.82
House Help	1	0.41
Housewife	10	4.10
Mechanic	2	0.82
Unemployed	164	67.21
Nurse	3	1.23
Photographer	2	0.82
Retired	2	0.82
Seamstress	1	0.41
Secretary	1	0.41
Security	1	0.41
Tailor	1	0.41
Teacher	3	1.23
Zoo Keeper	1	0.41
Total	244	100

Frequency of poisoning and bites according to age groups

The age of the patient significantly ($p < 0.001$) influenced the distribution of poisoning and bites. Being young exposed more people to poisons and bites. Patients below 30 years old had the bulk as compared to older patients with 37.30 % for patients less than 15 years old and 36.07% in patients between 16 and 30 years old. The tendency is a gradual decrease in the frequency as age increases, in such a way that after 60 years old, poisoning and bites were quite rare as just 7 cases (2.87%) were recorded in patients above 60 years old (Table 3).

Table 3: Distribution of poisoning and bites in various age groups of patients referred to the Limbe Regional Hospital between 2009 and 2018

Age groups (years)	Frequency	Percentage (%)
Less than 15	91	37.30
16-30	88	36.07
31-45	42	17.21
46-60	16	6.56
61-75	4	1.64
Above 76	3	1.23
Total	244	100

Temporal distribution of poisoning and bites

A significant ($p < 0.001$) temporal dynamic was recorded: the number of cases significantly fluctuated from year to year (Figure 2) and from month to month (Figure 3).

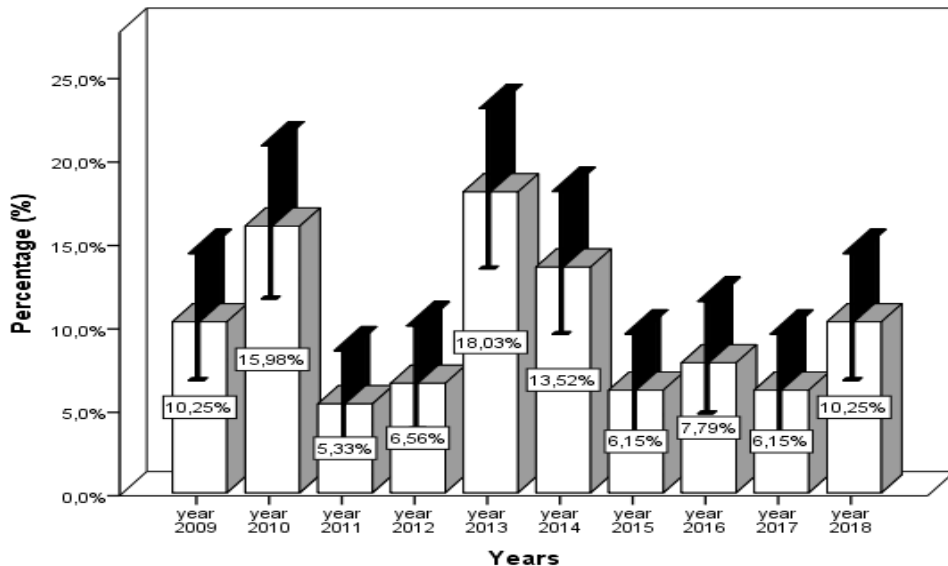


Figure 2: Yearly variation in the frequency of poisoning and bites among patients referred to the Limbe Regional Hospital between 2009 and 2018

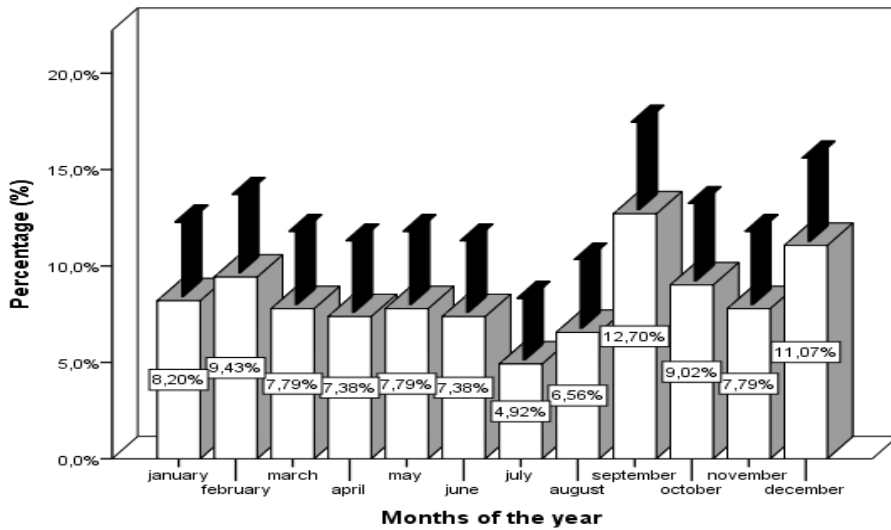


Figure 3: Monthly variation in the frequency of poisoning and bites among patients referred to the Limbe Regional Hospital between 2009 and 2018

The highest frequency (N=44; 18.03%) was recorded in the year 2013 followed by the year 2010 (N=39; 15.98%) and the year 2014 (N=33; 13.52%). The year 2011 had the lowest poisoning and bites frequency (N=13; 5.33%).

September (N=31; 12.70%), December (N=27; 11.07%), February (N=23; 9.43%), October (N=22; 9.02%) and January (N=20; 8.20%) were the months in which significantly higher number of cases were recorded as compared to other months especially July which recorded the lowest frequency of poisoning and bites (N=12; 4.92%).

Intention of poisoning and bites

This study revealed that accidental cases (N=194; 80%) significantly ($p < 0.001$) dominated suicide attempts (N=32; 13%) while eighteen cases (7%) occurred under unknown circumstances as shown on Figure 4.

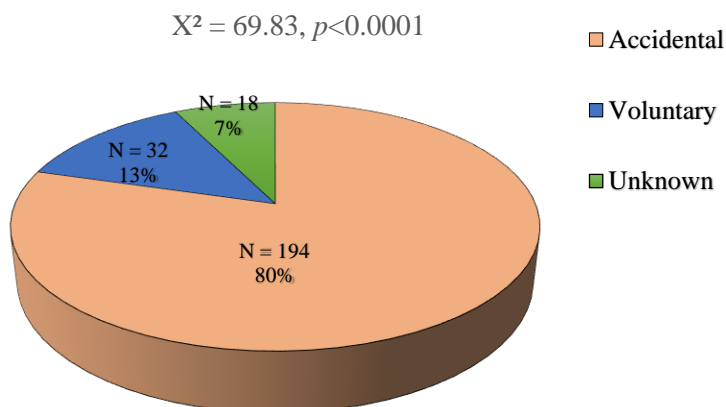


Figure 4: Frequency of poisoning and bites according to intentions among patients referred to the Limbe Regional Hospital between 2009 and 2018

Discussion

Two hundred and forty-four (244) cases of poisoning and bites were recorded at the Limbe Regional Hospital between 2009 and 2018. This number is relatively smaller than the number of cases obtained in a similar study at the Buea Regional Hospital between 2013 and 2017 where 335 cases were recorded (Kenko et al., 2020). Nevertheless, results of the research are close to those obtained from a similar study carried out in Bamenda and Ndop (North-West, Cameroon) in which 252 people were reported to suffer from food poisoning between 2010 and 2014 (Sonchieu et al., 2018). A relatively higher number was recorded in Nigeria where 684 cases were recorded in a 5-year study (Imoudu et al., 2018). As a general tendency, high number of poisoning cases are reported out of Africa; in India, 366 cases were reported in one year (Tejas et al., 2013); in countries like Finland drug poisoning is particularly very high with 9177 admissions recorded in a 22 years (1985-2005) study (Liisanantti, 2012); in China, 2867 patients were recorded over 5 years (2001-2005) in Fujian Provincial Hospital (Chen et al., 2010); in Teheran (Iran), 988 cases of drug poisoning were recorded in one year at the Sina Hospital of Tabriz (Eslami et al., 2014). Many other studies in Middle East and India have reported a high number of poisoning cases and most often with a high number of intentional poisoning (Arulmurugan et al., 2015; Moazzam et al., 2009; Saravi, 2013; Zeinab & Badar, 2014). This tendency may be related to low industrialization in Africa and poor drug production capacity. Poisons in poorer countries are usually pesticides and household products.

Young patients were more affected. In the same line, between 2005 and 2009 (5 years), 258 children were admitted for acute poisoning to the Regional University Hospital in Northern Greece (Tsalkidis et al., 2010).

Many other studies worldwide have reported high incidence of poisoning in patients below 30 years old (Arulmurugan et al., 2015; Chen et al., 2010; Eslami et al., 2014; Maharani & Vijayakumari, 2013; Oreby et al., 2016; Ramazan et al., 2012; Tejas et al., 2013; Tsalkidis et al., 2010). This high exposure of children may be due to the general tendency of oral exploration, ignorance and poorly handled chemicals by adults. Children are at risk of toxic ingestion because of three main reasons: improper storage of chemicals, children spending more time in other people's homes and distraction of caregivers (Aisha et al., 2012). For teenagers, the inability to cope with high expectation from parents, stress related to unwanted pregnancies and love problems may lead to intentional poisoning. An exception has been reported in Taiwan between 1999 and 2008, where patients above 65 years old were most exposed to poisoning especially from medical drugs, with a higher incidence in males (Chien et al., 2011).

Twelve types of poisons and eight types of bites were recorded with Dog Bite at the top position followed by snake bite, bleaching agent, human bite and arthropod bite. Bacteria from the mouth of a dog can cause infection and add to the pain from the bite. The proliferation of dog bites may be due to negligence by dog owners in this area. The physical and the emotional effects of dog bite may be long-term even after the wound heals. Common diseases faced by dog bite victims include tetanus, sepsis and rabies. Rabies affects the central nervous system and can lead to death if untreated (Loughlin, 2020). Snake bites were also relatively high. Groups at high risks are rural agricultural workers, herders, fishermen, hunters, working children, people living in poorly constructed houses (WHO, 2020b). Snake bites are caused by venomous snakes such as rattlesnakes, copperheads, cottonmouth and coral snakes (CDC, 2020). Annually, 1.8 to 2.7 million people develop clinical illness (snake bite envenoming) among which 81 000 to 138 000 die from complications (WHO, 2020b).

Bleaching agents are commonly used in houses for cleaning and disinfection. Since they are colorless, they may be mistakenly taken as water. If they are stored in unsafe places, children may reach them. Household products such as kerosene and bleaching agents are commonly responsible for poisoning (Imoudu et al., 2018; Tejas et al., 2013; Tsalkidis et al., 2010).

Human bites were also common. This human-human violence may be due to the consumption of alcohol and drugs, added to psychological problems or ignorance and unconsciousness with the case of children. The incidence of serious infection and complications associated with human bites is increasing (Griego et al., 1995). The severity of the infection depends on bite location, host factors and wound care.

Increases in arthropod bites may be related to poorly constructed houses, lack of protective clothing and occupations that expose inhabitants to

arthropods. In the Al Majmaah Region (Saudi Arabia), a similar study revealed a high incidence of animal envenomization (Zeinab & Badar, 2014). Recreational and farm activities may be the main factors accounting for animal envenomization.

Food (4.10%), drug (6.56%) and pesticide (1.64%) poisoning were relatively low. Contrary to this study, many researchers worldwide have reported that pesticides especially organophosphate insecticides were the main poisoning agents (Aisha et al., 2012; Arulmurugan et al., 2015; Chen et al., 2010; Imoudu et al., 2018; Maharani & Vijayakumari, 2013; Moazzam et al., 2009; Saravi, 2013; Tejas et al., 2013). In the years 1980s, Cameroun was having 175 000 cases of pesticide poisoning annually with a 80% agricultural labor force; at that time, Sudan was at the top position in Africa with 384 000 cases of pesticide poisoning yearly (Jeyaratnam, 1990). Unlike this study, food intoxication was reported to be very high in the North West Region of Cameroon between 2010 and 2014 (Sonchieu et al., 2018). A high incidence of drug poisoning has been reported in several studies (contrary to this study) all over the world (Aisha et al., 2012; Chen et al., 2010; Eslami et al., 2014; Liisanantti, 2012; Moazzam et al., 2009; Tsalkidis et al., 2010; Zardosht et al., 2016). Drug poisoning is mostly due to self-medication, a very common practice and the main non-prescription drugs consumed include cold and cough medicines, analgesic-antipyretics, antihistamines (Ramazan et al., 2012; Zardosht et al., 2016).

The percentage of poisoning was significantly higher in males as compared to females probably because men carry out daily activities that expose them. Additionally, the South-West Region of Cameroon had relatively more males (700 109) than females (684 177) (MINEPAT, 2010). A high incidence of poisoning in males has been reported in many studies (Arulmurugan et al., 2015; Eslami et al., 2014; Imoudu et al., 2018; Maharani & Vijayakumari, 2013; Tejas et al., 2013; Zeinab & Badar, 2014). Contrary to this study, females were reported to have a higher incidence of poisoning as compared to males (Chen et al., 2010; Liisanantti, 2012; Saravi, 2013), and sometimes, the gender had no significant influence on poisoning incidence (Tsalkidis et al., 2010).

Unemployed patients were more affected. In the same line, studies worldwide have revealed that unemployment could be a risk factor for poisoning (Eslami et al., 2014; Maharani & Vijayakumari, 2013; Oreby et al., 2016; Sonchieu et al., 2018) with students being one of the most exposed group; this may be due to idleness. Other factors include, the lack of jobs that brings about poverty and depression with many implications. Among workers, some occupations appear to be more risky exposing to poison: housewives, business men, civil engineers and farmers. Farmers and housewives are very exposed to poisoning (Maharani & Vijayakumari, 2013). Of course, farmers

make use of many agricultural inputs and the use of protective clothing, respect of doses, safety rules are still a mystery for most of them (N. Kenko et al., 2017). In a study carried out in the Northwest Region of Cameroon, farmers were reported to be highly exposed to food poisoning (Sonchieu et al., 2018). Civil engineers may be exposed to paints and solvents used in construction as well as animal bites in unoccupied houses still under construction. Business men may be depressed if their business fails, exposing them to alcohol or drug addiction. Housewives may be exposed because of numerous chemicals that they encounter in their daily duties especially cleaning and bleaching agents.

The end of the rainy season and early dry seasons are months in which most cases were recorded. In the same line, a high incidence in poisoning have been reported in dry months (Chen et al., 2010; Maharani & Vijayakumari, 2013). Thirst in the dry season may push people in an indiscriminate drinking. In addition, during these periods, cleaning of farms using herbicides or other techniques may expose farmers to agricultural inputs and animal bites (dog, snake, arthropods).

Most poisonings were accidental with a few cases due to suicide attempts. Few studies have also revealed that accidental poisoning was higher (Moazzam et al., 2009; Ramazan et al., 2012). In contrast to this study, suicide is a more common cause of poisoning in Middle East and India. In a study carried out in Ahmedabad (India), 74% of poisoning were suicide attempts and 26% were accidental poisoning (Tejas et al., 2013). Moreover, suicide attempts were reported to be significantly higher than unintentional poisoning in the Sina Hospital Tabriz, Iran (Eslami et al., 2014); more than 50% of suicide attempts were reported in the Mansoura-Dakhliya Governorate (Egypt); in Mazandoran (Iran), 51.6% of intentional poisoning were reported (Saravi, 2013) while 98.67% of intentional poisoning were reported at Tamil Nadu, India (Maharani & Vijayakumari, 2013); another study in Chennai (Southern India) reported 88.75% of suicide attempts (Arulmurugan et al., 2015). Suicide takes the life of 800 000 people each year. The most common methods are ingestion of pesticides, hanging and firearms (WHO, 2019). The reason for the extensive use of pesticides as an agent for suicide is the ready availability of extremely toxic pesticides (Jeyaratnam, 1990). Suicide is related to depression and alcohol abuse. Depression may be due to financial problems, relationship break-up, pain or illness. Other causes include violence, isolation, discrimination, disaster. Many developing countries lack trained personnel and programs to prevent suicides. Thus, suicide remains a taboo subject in many cultures as it is associated with curse. Actually, suicide is a social problem that requires attention (Jeyaratnam, 1990).

This study did not have access to outcomes after poisoning, but a similar study at the Buea Regional Hospital, South-West Cameroon from

01/01/2013 to 31/12/2017 reported two deaths from 335 poisoning cases (Kenko et al., 2020). This is not the case in other studies in which higher mortalities rates have been reported; 25.4% in Mazandoran, Iran (Saravi, 2013), 5.32% in Chennai, Southern India (Arulmurugan et al., 2015), 2.2% in Al-Qassim, Saudi Arabia (Moazzam et al., 2009), 2.4% in Azare, North Eastern Nigeria (Imoudu et al., 2018) and 25% from food poisoning in the Northwest Region of Cameroon (Sonchieu et al., 2018). Nevertheless, the prevention of poisoning is desirable even when it does not lead to mortality, since poisoning may have other adverse effects (immune suppression, cancer, reduction of reproductive capacities). In the case of chronic exposure, it is not obvious to link the exposure to the observation of toxic effects (Viau & Tardif, 2003). Common symptoms of poisoning include agitation, psychosis, tachycardia, hypertension and seizures (Mas-Morey et al., 2012) as well as pupillary constriction, respiratory depression, bradycardia, nausea and vomiting (Oreby et al., 2016). In the case of food poisoning, symptoms include vomiting, diarrhea, stomach pains and headache (Sonchieu et al., 2018). Even in the absence of symptoms, exposure to poisons like organophosphates insecticides at low levels may bring about subtle central nervous system effects (Morris et al., 2014). Causative agents of poisoning fluctuate with countries, making it important for every nation to establish its own poisoning profile, identify risk factors, and implement preventive measures (Ramazan et al., 2012). Timely transport and early intervention of poisoning patient is needed (Arulmurugan et al., 2015). Unlike poor countries, developed countries have organized networks of regional poison control centers (Gummin et al. 2020).

Conclusion

At the end of this retrospective cohort study, it can be concluded that poisoning and animal bites constituted a serious public health issue among the Limbe population (South-West Cameroon). Poisoning and bites varied with factors such as gender, age, occupation, months and years. Most poisonings were accidental with a minority due to suicide attempts. The local population needs better education on the handling of toxic chemicals, domestic animals and drugs as well as their behaviors towards animals. The medical staff needs training on the management of patients suffering from poisoning. Cameroon would benefit from the creation of poisoning management centers as well as improved psychological care facilities depression in order to prevent suicides. Laboratory and diagnosis facilities are also needed but emphasis should be placed on prevention of accidental poisoning and suicides.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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