

**INFLUENCE OF PSYCHO SOCIAL ISSUES ON INTENTIONAL  
ORGANOPHOSPHATES SELF-POISONING AMONG PERSONS AGED 15-30  
YEARS IN KERICHO COUNTY, KENYA.**

---

**ABSTRACT**

**Aims:** The aim of this study was to assess factors influencing psychosocial issues on intentional organophosphate self-poisoning among persons aged 15-30 years in Kericho County, Kenya...

**Study design:** The study adopted prospective cross-sectional study design and purposive sampling technique.

**Place and Duration of Study:** The study was conducted in 3 level 4 health facilities (Kericho County Referral Hospital, Kapkatet Sub- County Hospital and Sigowet Sub- County Hospital) in Kericho County, Kenya. Which were systematically sampled base on the highest monthly workload one year prior to the study period. Study was conducted between December 2021 and March 2022.

**Methodology:** 100 participants of age between 15 year and 30 years old were included in the study (88 males and 12 females). It was a study of all cases of intentional organophosphate self-poisoning, relied majorly on the diagnosis made by clinicians and doctors at emergency departments. Participants were sampled based on the presenting symptoms and history from the respondents. All respondents brought to hospital presenting to emergency department with a history of intentional organophosphate self-poisoning were recruited for the study depending on their eligibility where only respondents who were admitted and recovered after treatment were enrolled after signing or assenting to the consent voluntarily.

**Results:** A sampled of 100 participants were eligible and managed to have 100% response rate. The study found out that there was a statistical relationship between the parameters since the chi square value were 0.001 which was less than the standard p value which is 0.05 at 95% confidence interval. Bivariate analysis showed a strong positive correlation was found between self-poisoning and easy access to organophosphate ( $p < 0.05$ ,  $r = 0.631$ ). There was a positive correlation between psychosocial issues organophosphate intentional self-poisoning. This indicated that mental disorders and physically disabled individuals tended to self-harm with organophosphate poisons.

**Conclusion:** Train and employ more psychological counselors to be deployed to the villages and initiate psychiatric screening programmes to facilitate the counseling and screening of those who are at the risk of self-poisoning early enough. This is in commensurate with mental health amendment bill June 2022 which has been passed by senate to give way for county government to provide for prevention, care, treatment and rehabilitation of persons with mental illness.

**Keywords:** *Suicide, organophosphate, self-poisoning, ease of access, Deliberate self-harm, Intentional*

## 1.0 INTRODUCTION

The contributions of the compounds across the world in decades is development of agricultural productivity through improved quality product by controlling plant pathogens, nematodes and insects and higher crop yields. Furthermore, they have also minimized machinery, the amount of labor and fuel used for mechanical weed-control [1]. Sexual insult is also a preventable risk factor for self-poisoning. (Paiman et al. 2019) Organophosphorus (OP) attempted suicide or insecticide self-poisoning is the major significant global form of acute poisoning killing almost 100,00 people and affecting more than one million every year. In addition, in developing countries persons dying from pesticide self-poisoning are more than 168,000 every year (2).

The period of development between 12 years and 15 years is vital to directly conduct research on self-harm since these years consists of the (12-14years), peak(15-24years) and beginning of remittance of the behavior (Morey *et al.*, 2016). Furthermore, due to unintentional poisoning, approximately 4.8 million years lose their lives. This proportion is significant because of pesticides (3). According to the 2017 World Health Organization (4) report, it was found to be the most cause of early deaths among adolescents. Moreover, findings from the USA and the UK in three different studies reiterates that self-poisoning rates among adolescents and children has been on the rise from the commencement of this decade (5,6 and 7).

The high rise of admission of children and adolescent in the emergency departments as a result of self-harm or self-poisoning have been reported in the New South Wales according to the two recent studies from Australia. from 2010 to 2014 (8) and Victoria from 2008 to 2015 (9). It is as well the second-ranked cause of death among people in the age bracket of 10-19 years in Europe. However, in Europe the rate of suicide among the youth is relatively decreasing by each year. Furthermore,

suicide has been found to be the highest cause of deaths among females between the age of 15 and 19 years; it is approximated that suicide causes death in 6.15 females per 100,000 females. Suicide also accounts for a fifth of all mortality in European youth from age 15 and 29 years translating to approximately 24,000 deaths every year (10). Poisoning by organophosphorus compounds is a worldwide challenge in the health sector. According to WHO, the most common poisoning cause is pesticides; approximately 3 million cases of pesticide-poisoning every year global occurrence initiating over 220,000 deaths. (11). For those attempting suicide, the emergency department severally acts as the sole point or primary contact in the sector of healthcare and caused by the nature of situation's urgency.

Since 2008, the trend of people presented in emergency care units in hospitals is increasing. It is estimated that about 200,000 people are presented in hospitals every year as a result of self-poisoning or self-harm (12).

Suicidal attempts in Iran are approximately 91.65 per 100,000 people commonly reported in people between age 15-24 (13). There is need for registrars and regulators for pesticide to improve their role in ensuring food security among people as well as achieving pest control. Over the last 70 years, it is anticipated that food security in the world would have been better if there was no establishment of pesticides; this would as well have reduced the high incidences of vector-borne disease. On contrary, all pesticides are manufactured with toxins that are harmful to living organism and they do not select what type of a living organism to affect. The IPM and IVM are the recognized alternatives to intensive pesticide use as promoted by the FAO and the World Health Organization (14). Changes in treatment capacity, toxicity, formulations, and packaging, storage, and pesticide sales may also have an impact on how often people self-injure by harmful pesticides. According to Additives et al study, India has seen significant swings in the usage of insecticides, starting with a steady reduction from more than 51,000 tonnes of active ingredients in 1992 to 3000 tonnes in 2008, then a rapid spike to about 21,000 tonnes by 2010 (15). Nevertheless, suicidal rate

among girls of age 10-14 nearly tripled and the suicidal rate among people of age 10-19 rose by 56% between 2007 and 2016 (16). Data collected from 49 children in United States of America (USA) indicated that hospitalization suicidal patients or behavior doubled among people between the age of 5-17 years from 2008 to 2015 (17). From 2010 to 2018, US Poison Control Centers (PCCs) reported an increase in self-poisoning suicide attempts in 10-18 years old people.

Furthermore, the report indicated a 151% increase in suicide rates among females between the age of 10-15 years; this translates to a total of 81% attempted suicide rates. (16). The sample data extracted from the National Emergency Department in period between 2006 and 2013 showed a high rate of frequency from visits among people between the age of 15 and 19 years. This frequency was as well discovered to translate close to two times of the visits made by people between the age of 35 and 50 years. The suicide mechanism with the highest prevalence index was poisoning with 66.5% (18). The researchers filled out a specific case report form after the patient was stabilized and managed. The team, which included a senior toxicologist, a psychiatrist, and a nurse, was tasked with meeting the patients in person or with the help of a guardian for children. The patients' biodata, which included their age, sex, place of residence, and job, were. Additional details, such as the causal agent, triggering circumstances, such as psychiatric issues or family conflicts, and the outcomes, were recorded. Using the scale created by Fahmy et al., the socioeconomic status was rated as high, moderate, or poor. Psychiatrists assessed the patients psychologically using the Diagnostic and Statistical Manual of Mental Disorders, 4th edition 14 criteria.

For those who had been given a psychological diagnosis, a psychological review was sought. Other patients who did not have mental illnesses were asked to pick one of four options as the factor that they believed may have contributed to their attempt at suicide: familial disputes, financial difficulties, emotional difficulties, or bullying. Patients with no prior selections or those with additional or illogical causes, such as street children, were noted as having unknown causes (19).

Age, gender, race, psychosocial variables, employment, education, family status, and accessibility to mental health resources are a few socio-demographic characteristics that increase the risk of suicide. However, family strife was the primary factor in DSP (43.17%). The causes of DSP and demographic data clearly differed from one another. Gender, age groups, marital status, employment position, and educational status are typical (20). Kasemy (2021) study, aimed at investigating the incidence, distribution, trends, and determinants of suicide by self-poisoning among patients presenting at Menoufia Poison Control Center (MPCC) and Tanta Poison Control Center (TPCC), serving two significant Egyptian provinces, in light of the rising trend of self-poisoning and as demonstrated by past statistics on its incidence in Egypt are grossly insufficient, making comparison of the past figures potentially ineffective and inconclusive. [21].

## **1.2 Statement of the Problem**

An extremely vulnerable group is represented by adolescents who self-harm [22]. Approximately 800 000 persons lost live by self-poisoning yearly. Self-harm using chemicals bring up to one-fifth of the global self-harm and have been known to cause an alarming challenge in public health issues mostly in agriculture productive regions especially in developing countries in Asia. [4]. In 1950s, during introduction of Agrarian Revolution which were accompanied by pest control chemicals which were hazardous at the same time, approximately fourteen million early deaths were reported to have been associated with intentional self-poisoning.[4]. People die as a result of suicide at a rate of 10.7 people for every 100, 000 persons meaning that there is a single death due to suicide in every 20 seconds. Suicide is ranked at position 15 in the leading causes of deaths in the world since it translates to 1.4% of all deaths worldwide [4]. Over 79% of suicidal deaths are accounted by people from low- and middle-income earners (LMICs). Public health and medical fields have raised an alarm on the rising adolescent intentional self-poisoning which have been noted in November 2019 report that adolescent attempted self-poisoning has been on the rise. [23]. A study done in

Kericho County Referral Hospital reported that 5% of all admissions are due to poisoning [24]. The data base report(facility registers for the year 2017 to 2019) in the study sites showed an uptrend reported cases of self-poisoning. Following that report, researcher opted to conduct a study to assess factors influencing ease of access on self-poisoning among persons aged 15-30 years.

### **1.2 Purpose of the study**

The study aimed at assessing factors influencing psychosocial issues on organophosphate poisons on intentional self- poisoning among persons aged between 15-30 years in Kericho County, Kenya and establishing measures to curb the predicament.

### **1.3 Hypothesis.**

Ha: psychosocial issues on organophosphate poisons influence intentional self-poisoning among persons age 15-30 years.

H0: psychosocial issues on organophosphate poisons do not influence intentional self-poisoning among persons age 15-30 years.

## **2.0 LITERATURE REVIEW**

### **2.1 Influence of psycho-social factors**

Issues of mental health as well as other problems of life for example excessive alcoholism and difficulties in maintaining relationships are increasing in youth who harm themselves (25). Medical circumstances can include physical disorders e.g., sclerosis and cancer or disorders of the mind such as schizophrenia, bipolar disorder as well as depression (26). Self-poisoning results to mental health problems in the later life among the victims.

There has been increasing risks of completed suicide among people, and the trend is persisting over the continuous decades (27). The challenges dealing with situations following chronicity or deadly

diseases for instance, high blood pressure, hyperglycemias, malignancies and retro viral diseases could have contributed to DSP.

Furthermore, the overburdening situations following symptoms and adverse reactions of drugs for management of these conditions may not be tolerable to individual patients. (28). In a study by Albano noticed that stressful situations were mostly related with self-harm. The fore mentioned disorder presented by clinical features mostly affect physically, psychologically socio-economically and culturally wellbeing of an individual negatively (terminal conditions, singleness and domestic instability). Primary health care should pay attention in diagnosis and treatment since there was association between suicide and depression and prevention measures be put in place. (29). Existence of stressful situations markedly raised chances referrals for psychiatric admission in the specialized hospital after taking into considerations the risk factors like substance abuse, employment situations, previous or recent psychiatric clinic visit and school challenges for students may determine whether the affected individual was to be admitted in mental hospital or not. (30). Kasemy's research showed that self—harm by use of chemicals were aggravated by some factors, for instance outcomes of the analysis were as follows: domestic dispute (33%), psychosocial issues (23%) and others stand at (4%). The major physically disabled individual was the associated factor for self-harm despite chances of being misclassified as non-intentional accidents. Again the relationship between psycho-social issues and self-harm agreed with outcome of other studies on this matter. (19). In addition, emphasis on the significance of job security as a strategy to reduce substance abuse. This is from an interrelationship between drug addiction and unemployment (31). In another study conducted in West Iran, the findings of the study revealed that there is a relationship comorbidity of drug addiction and personality disorders (32). Other factors are particularly related to specific gender in attempting suicide as shown from the evidence. For instance, alcoholic use, disorders and financial problems have been revealed as risk factors which

are specific to the male gender while family issues have been revealed to affect the females particularly (33).

It is necessary to avail case management care services to combat depression in primary care facilities, especially in places of high population. Furthermore, there should be follow-ups to the patients who are depressed to provide suicide-screening programmes to those individuals suffering from mental disorders (34). Male adolescents in Iran are comparatively considered to be at high risks of drug and substance abuse compared to females in the same country; this is in light to the recent meta-analysis which was carried out in Iran on the topic “*prevalence and pattern drug use among Iranians.*” (35).

Rodenticide was the common poisons ingested by young women of age between twenty-one to thirty years old (aged 21 to 30) Mortality/morbidity depend entirely on mitigation measures and implement strategic plan for instance:1 Putting into considerations law against the dowry payment, counseling and empowering women resulting in too much pressure on wives in marriage therefore, lowering chances of self-harm among these categories.2.

Anyone suspected to have psychological issues should be recognized at initial stage and must be assisted to see psychiatrist for help.3. Adjustment problem should be approached through extended family, engagement with support groups and relationship establishment to lower the incidences of this disorder. (36)

### **3.0 MATERIAL AND METHODS.**

#### **3.1 Location of the study**

This research was conducted in Kericho County. Kericho County is one of the 47 counties in Kenya. This county borders Bomet County to the south, Kisumu County to the west, Nandi and

Uasin Gishu to the North and Nakuru County to the east. This County is about 256 kilometers from Nairobi. Kericho County is known for its large- and small-scale tea-farming and most of its residents rear livestock as well. It covers an area of 2479 square kilometers and is divided into six sub-counties. As per the 2019 census, the population of this County was 901,777. The study was conducted in Kericho County Referral Hospital and three other selected sub-county hospitals within Kericho County, namely, Sigowet, Londiani Sub-County Hospital and Kapkatet. The study sites were selected depending on the traffic of patients seeking medical attention in these hospitals, which provide curatives, preventives, promotive and rehabilitative health services, and also based on geographical distribution.

### **3.2 Research Design**

The study employed a prospective cross-sectional survey. It was a study of all cases of intentional organophosphate self-poisoning and relied majorly on the diagnosis made by clinicians at emergency departments. It was based on presenting symptoms and history from the respondents of ages between 15-30 years.

This was justified by previous studies which showed that this age group was majorly involved in self-poisoning and also encounters teenage and youth life changes with accompanying challenges. This design provided insight into factors that influence youth and teenagers in Kericho County, leading to organophosphate self-poisoning. The design was appropriate for the study since the researcher was able to collect information without manipulation of variables. Psychosocial issues to do with the availability, storage of poisons at homes, the market-cost, and regulations in Mental disorders, Major physical injuries and disabilities. The researcher used researcher administered questionnaires which were both quantitative and qualitative in nature. The quantitative section of the questionnaire enabled the researcher to link the influencing factors to intentional organophosphate self-poisoning.

### **3.3 Target population**

All clients who reported in Emergency Departments at study sites with a history of poisoning within the study period.

### **3.4 Sample population**

All respondents brought to hospital presenting to emergency department with a history of intentional organophosphate self-poisoning were recruited for the study depending on their eligibility. The aim was to sample 100 participants during the study period.

### **3.5 Sampling Procedure and Techniques**

The recruitment procedure was purposive sampling for all those respondents who sought medical help in during the period of study preceded by intentional self-organophosphate poisoning. The sampling study sites were the hospitals in the 6 constituencies in this county where the researcher placed these hospitals in terms of health facilities to the Northern, Western, Southern and Eastern part of the county. They were then listed in the order of the highest to lowest number of patients who had attended each facility per month (general monthly workload). Sampling of all number ones was done, informed by larger number of patients seen in hospital monthly workload from each of the four parts of the County where 4 facilities were selected by systematic random sampling. These were: to the north, comprising Ainamoi constituency and represented by Kericho County Referral Hospital; to the south comprising Bureti constituency and represented by Kapkatet Sub-County Hospital; the west comprising Belgut and Sigowet-Soin constituencies and represented by Sigowet Sub-County Hospital; and the east comprising Kipkelion East and Kipkelion West and represented by Londiani Sub-County Hospital. Based on the data reviewed from the registers MOH 735 from the previous years' i.e. 2017 (292), 2018 (220) and 2019 (525).

### **3.6 Construction of research Instruments**

The instrument was pre-tested before actual study. The qualitative section of the questionnaires enabled the researcher to collect data in the actual context so that findings and conclusions about the study were made based on the situation on the ground. The study covered all those cases occasioned by self-poisoning during the study period where respondents were interviewed when they had recovered in the study sites and eligible for study.

### **3.7 sampling size**

The aim was to purposely sampled 100 participants (The study employed Fischer formula to estimate the sample size (Mugenda & Mugenda, 1999).during the study period from December 2021 to March 2022) Interviewed administered questionnaires were used to cater the data from respondents

The study employed Fischer formula to estimate the sample size (Mugenda & Mugenda, 1999).

$$n = \frac{Z^2 Pq}{d^2}$$

In this formula, n represented the desired sample size when the study population is over 10 000 and Z is the standard normal deviate normally set at 1.96 and corresponds to 95% confidence interval (CI). On the other hand, p was the proportion of target population estimated to have the desired characteristic and was 0.07% (q=1-p=1-0.07=0.93), while d is the degree of accuracy usually set as 0.05. The prevalence of intentional organophosphate poisoning in Rift Valley-Regional was 0.07 %. Hence the desired sample size (n) was determined as follows;

$$n = \frac{Z^2 Pq}{d^2}$$

$$n = \frac{1.96^2 \times 0.07 \times (1 - 0.07)}{0.05} = 100$$

### 3.8 Data analysis and presentation.

The collected data were sorted and coded. Microsoft Excel was used. Statistical Package for Social Sciences (SPSS) version 21.0 was used to carry out data analysis of factors influencing psychosocial issues on poisons of the persons aged 15-30 years. Correlation and regression analysis were carried out to establish relationship between variables. Chi-square also was used to measure association of variables. The analyzed data were presented in tables, charts and the corresponding thematic areas. Statistical significance was set at  $p < 0.05$ . The ethical clearance was sought from Hospital ethical committee, National commission for science, technology and innovation (NACOSTI) and Mount Kenya University ethical review committee before data was collected. The results indicated that psychosocial issues are strongly related with self-poisoning.

## 4.0 RESULTS /FINDINGS.

### 4.1 Descriptive Statistics on psycho-social disorder

The respondents were posed the following questions and asked to either respond yes or no.

**Table 1 Psychiatric Services**

Statement	Yes		No	
	n	%	n	%
Have you ever been in contact with psychiatric services in the past or current?	77	77	23	23

### Source field Data (2022)

First, they were asked whether they had ever been in contact with psychiatric services in the past or current; 77% said yes while 23% said no.

**Table 2 Chronic Disease**

Statement	Yes		No	
	n	%	n	%
Have you ever been diagnosed with a chronic disease?	22	22	78	78

### Source field Data (2022)

Secondly, they were asked whether they had ever been diagnosed with a chronic disease; 22% said yes whereas 78% said no

**Table 3 Physical deformity**

Statement	Yes		No	
	n	%	n	%
Do you have any physical deformity	08	08	92	92

**Source field Data (2022)**

Thirdly, the respondents were asked whether they had had any physical deformity; 8% said yes while 92% said no. Kasemy et al. study (1996) revealed that physical disability may trigger ideation of self-poisoning due to stressful situations and overdependence on other members of the family who may not be available all the time around the physically challenge individual.

**Table 4. Results disclosure**

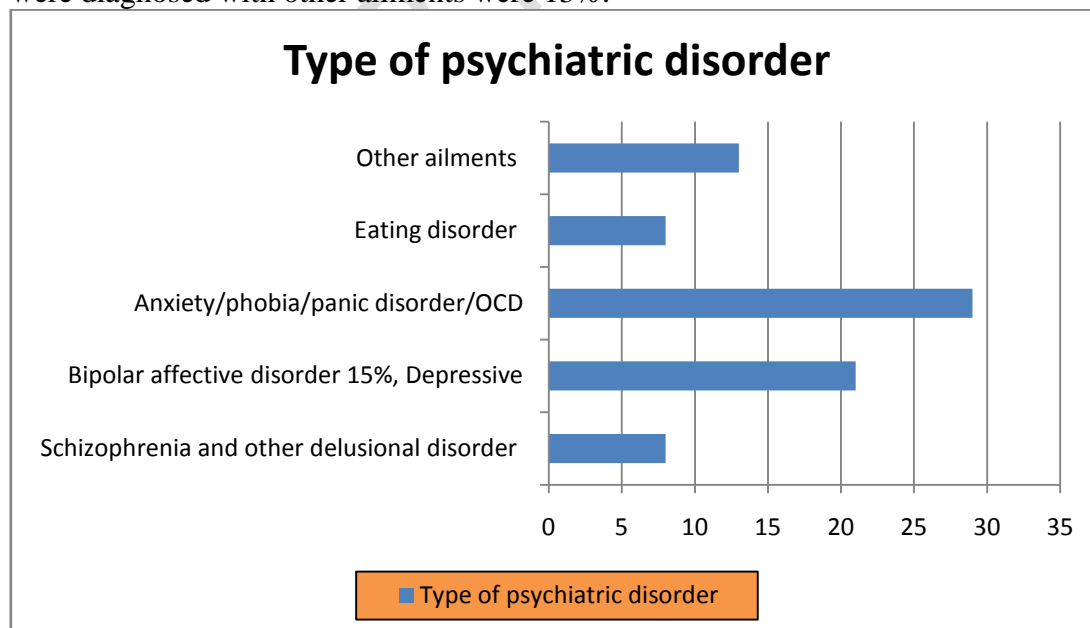
Statement	Yes		No	
	n	%	n	%
Were you counseled before or after receiving the results?	05	05	95	95

**Source field Data (2022)**

Lastly, they were asked whether they were counseled before or after receiving the results; 5% said yes whereas 95% said no.

**Type of psychiatric disorder diagnosed with (n=100)**

The question asked was to establish the type of psychiatric disorder diagnosed with. The responses were as follows: schizophrenia and other delusional disorders -8%; bipolar affective disorder-15%; depressive illness-21%; anxiety/phobia/panic disorder/OCD-29%; eating disorder-6%; . Those who were diagnosed with other ailments were 13%.



**Figure 1: Type of psychiatric disorder diagnosed with**

### Separate times in your life you have had thoughts of committing suicide (n=100)

The researcher sought to know how often in their lives the respondents had had thoughts of committing suicide. The responses were as follows: never-17%; almost never-34%; sometimes-28%; fairly often-17%; and very often-4%.

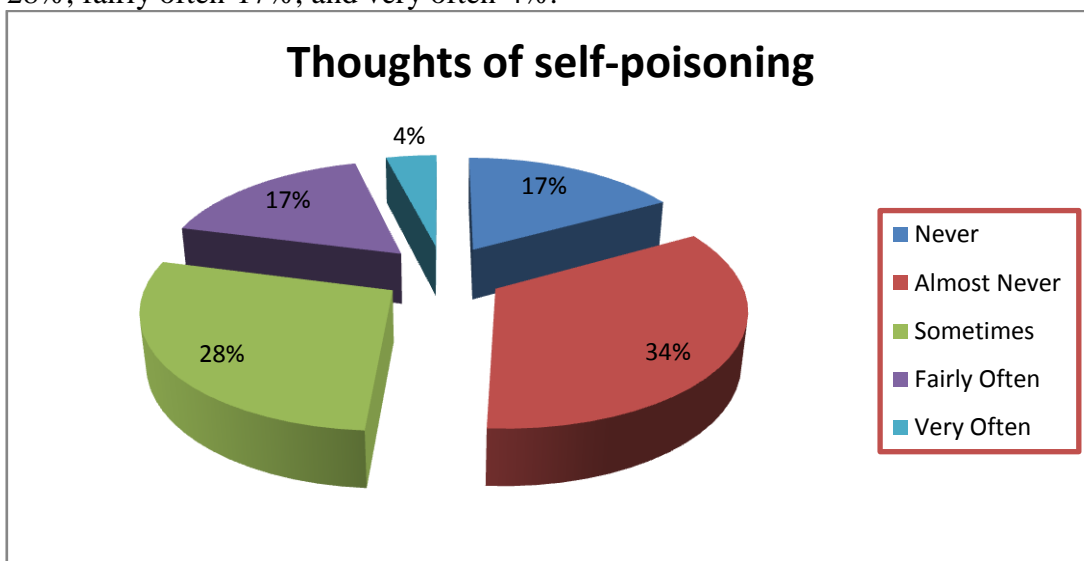
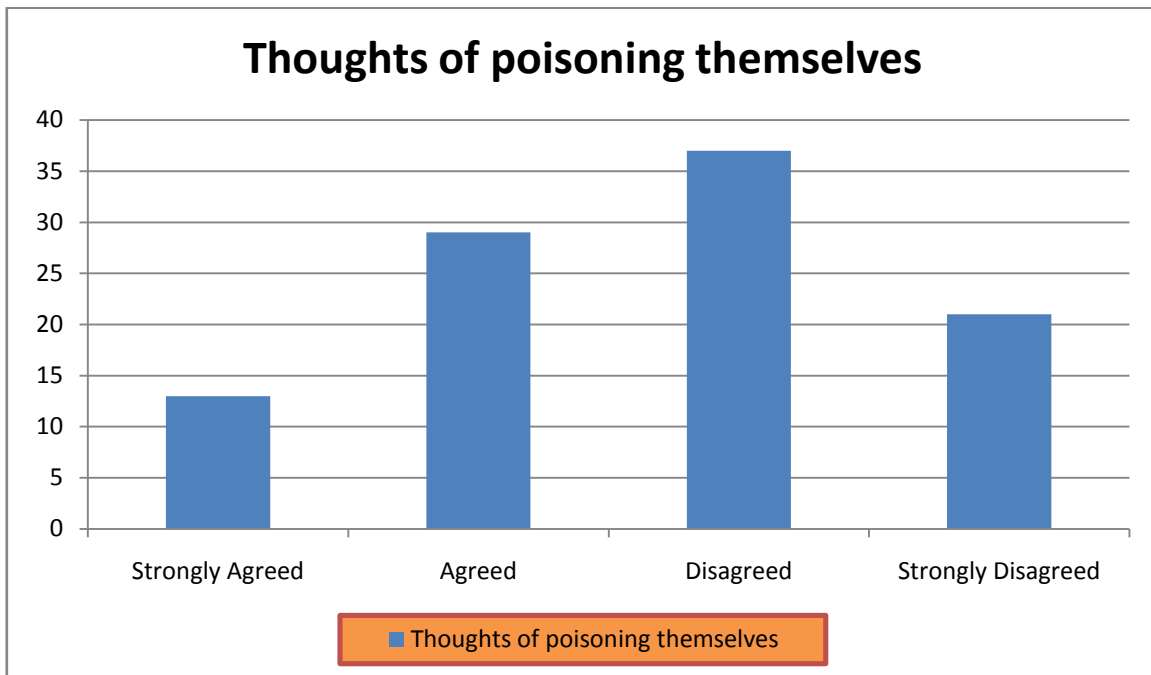


Figure 2: Thoughts of self-poisoning

### How much they thought of poisoning themselves

The respondents were asked to rate on a scale of 0 to 4, (4 being the worst point) how much they thought of poisoning themselves in order to get out of circumstances or to get away from others. Of these, 13% strongly agreed, 29% agreed, 37% disagreed, 21% strongly disagreed. Van der *et al.*, (2015) study showed that there should be screening of psychiatric disorders to identify those at risk early enough for the purpose of preventive measures before they attempt suicide. It concurs with this study since 79% of all respondents agreed that they have thought of ingesting poisons at certain point in time.

This means that there are many people out there who are depressed but no one have identified them, so psychiatric screening programmes should be the way to go to help reduce self-harm incidences.



**Figure 3: Thoughts of poisoning themselves**

### Which chronic disease were you diagnosed with (n=22)

The respondents were asked to indicate any chronic disease they had been diagnosed with. Of these, 55% said they had been diagnosed with high blood pressure, 23% with diabetes; and 22% with other ailments.

This study concurs with Benedict et al (2019) and Albano (2022) results of their studies in the sense that some symptoms and adverse reactions of drugs for management of these conditions may not be tolerable to individual respondents, therefore, one might have decided to end his/her life to get rid of the existing challenges of the disease.

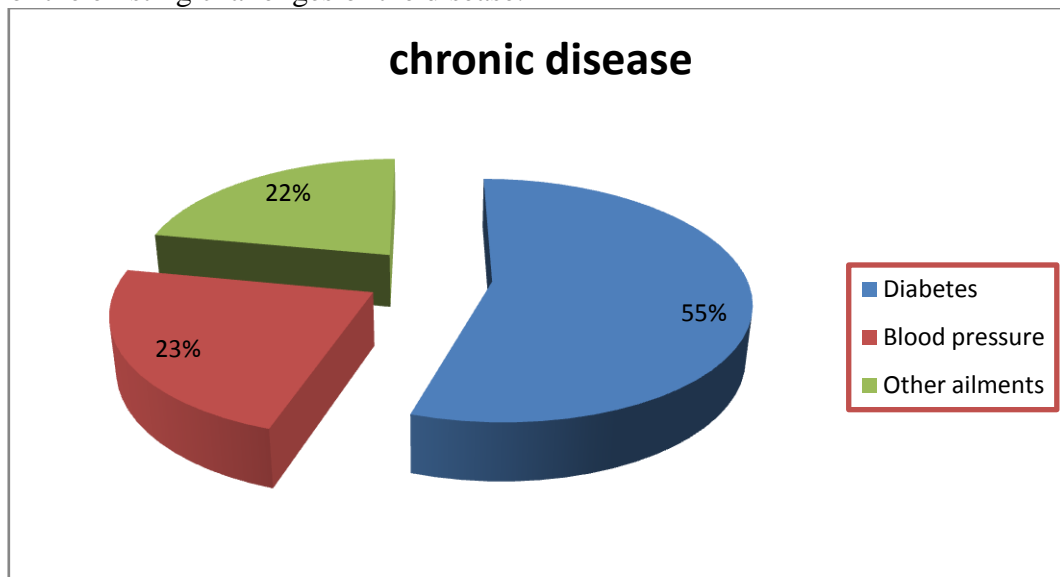


Figure 4.: Chronic disease

### After how long did you inform your family of the diagnostic results? (n=22)

The respondents were asked how long they had taken to inform their families of the diagnostic results. Of these, 3 respondents said they did it within a day, 12 said after some time, and 7 said not yet.

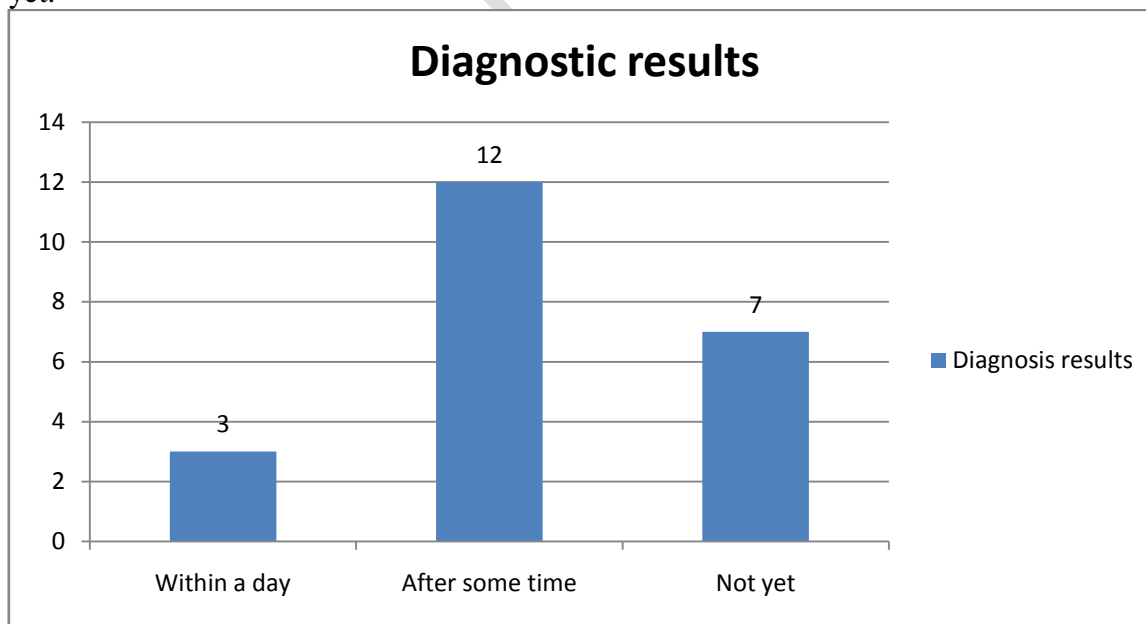


Figure 5: Length of time to disclose results

These results indicated that psychological conditions, physical deformity and chronic conditions were likely to influence one to self-poison. This finding was similar to what Hughes (2016) and Tatari *et al.* (2016) found in their studies.

**Table 5 Problem with family member**

Statement	Yes		No	
	n	%	N	%
Problem with family member influenced thoughts of committing suicide	56	56	44	44

#### Source field Data (2022)

Secondly, they were asked if problem with family member influenced thoughts of committing suicide and 56% of the respondents said yes whereas 44% said no.

#### 4.7 Summary of Responses per variable

##### Source field Data (2022)

The study found that the respondents who replied yes to the question whether they had been affected by psychosocial factors were 68 while those who indicated no were 32

#### 4.7 Measure of Association

##### Source field Data (2022)

The study found that there was a statistical relationship between the parameters since the chi square value were 0.001 which was less than the standard p value which is 0.05 at 95% confidence interval.

#### 4.8 Non-Parametric Correlation

Bivariate analysis was determined and the results obtained were represented on table below that shows that self-poisoning was correlated to respondents having psycho-social factors.

**\*\*.** Correlation is significant at the 0.01 level (2-tailed).

A strong positive correlation was found between self-poisoning and easy access to organophosphate ( $p < 0.05$ ,  $r = 0.631$ ). There was also a strong positive correlation between self-poisoning and psychosocial factors ( $p < 0.05$ ,  $r = 0.588$ ), which implied that having a mental or physical disorder could lead to one having suicidal thoughts. A multivariate analysis indicates that psychosocial factors accounted for 60.4% of intentional self-poisoning among persons aged 15-30 years in Kericho County. The model was also significant with a Hosmer and Lemeshow test of  $p > 0.05$ .

## 4.9 Model Summary

Table 6: Model Summary

---

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke Square	R
1	40.168 <sup>a</sup>	.335	.604	

---

### Source field Data (2022)

The study indicated that the parameters used to determine the model summary fitted the study since the value of Nagelkerke R Square was more than 50% which was 60.4%, hence indicating goodness in model fitting.

## 5.0. DISCUSSIONS.

The findings are consistent with those made by This study is in concurrence with Dani et al. (2022) study where psychiatric disorders might prompt one to be admitted or reviewed in psychiatric clinic where in this study, more than three quarters (77%) of all respondents have been booked in psychiatric clinic at appoint in time.

Kasemy et al. study (1996) revealed that physical disability may trigger ideation of self-poisoning due to stressful situations and overdependence on other members of the family who may not be available all the time around the physically challenge individual.

This study concurs with Benedict et al (2019) andAlbano (2022) results of their studies in the sense that some symptoms and adverse reactions of drugs for management of these conditions may not be tolerable to individual respondents, therefore, one might have decided to end his/her live to get rid of the existing challenges of the disease.

These results indicated that psychological conditions, physical deformity and chronic conditions were likely to influence one to self-poison. This finding was similar to what Hughes (2016) and Tatari *et al.* (2016) found in their studies.

## 6.CONCLUSION

The study found out that majority of the respondents received results of their medical conditions without counseling, which could influence one to think of self-poisoning due to unpreparedness for results after being diagnosed with chronic/psychiatric disorders, terminal conditions or physical disabilities. The study revealed that many respondents delayed disclosing their medical results to their loved ones, which could mean one was living in denial. These results indicated that psychological conditions, physical deformities and chronic conditions were likely to influence one to self-poison. The study also showed that most of the respondents had thought of self-poisoning before ingesting poisons. This meant that many people must have thought of self-harming more than once before implementing it. Therefore, identification of those at risk early could save lives.

## 7. RECOMMENDATIONS

2. Train and employ more psychological counselors to be deployed to the villages and initiate psychiatric screening programmes to facilitate the counseling and screening of those who are at the risk of self-poisoning early enough. This is in commensurate with mental health amendment bill June 2022 which has been passed by senate to give way for county government to provide for prevention, care, treatment and rehabilitation of persons with mental illness.

## **8. LIMITATIONS ENCOUNTERED.**

Despite successful completion of the study we encountered the following challenges;

1. Unwillingness of some respondents to share some vital information: Resolved by reassuring and reminding them on our confidentiality and anonymity in this matter.
2. Some respondents were not promising us to meet them at certain places other than hospital set up, therefore sharing contact were not that ease due to unknown reasons: Resolve that by allowing them to feel at ease and feel free to be accompanied by close or confidant persons.

## **SUGGESTED RESEARCH IN FUTURE.**

1. Assessment of the impact of psychological counseling during follow up among suicide poisoning survivors.

## **CONSENT AND ETHICAL APPROVAL.**

The researcher obtained research authorization letter from Mount Kenya University Ethical Review Committee. A research permit was sought from the National Commission for Science, Technology and Innovation (NACOSTI) before conducting the study. Authorizations were sought from the County government, the County Commissioner, the County Director of Education, the management of: Kericho County Referral Hospital, Kapkatet Sub- County hospital, Sigowet Sub- County hospital and Londiani Sub- County Hospital. In addition, the researcher explained the importance of the research to the respondents to obtain free consent and no one was coerced to take part in the study. The participation was voluntary. The researcher assured the respondents that information obtained from them would be treated with utmost confidentiality and their privacy was guaranteed as anonymity would be assured by the use of numbers/codes to identify respondents. Additionally, the researcher assured respondents that no one would suffer any form of harm in the event of information utilization since the information was particularly for academic purposes and respondents had the freedom to withdraw with no consequences.

## **Definitions, Acronyms, Abbreviations**

TPCC-Tanta Poisons Control Centre  
MPCC-Menoufia Poisons Control Centre  
LMIC-Low and Middle Income earners  
IPM- Intergrated Pest Management

## **REFERENCES**

1. Fernandez-Cornejo, J., Nehring, R. F., Osteen, C., Wechsler, S., Martin, A., & Vialou, A. (2014). Pesticide use in US agriculture: 21 selected crops, 1960-2008. USDA-ERS Economic Information Bulletin, (124).
2. Mew, E. J., Padmanathan, P., Konradsen, F., Eddleston, M., Chang, S. S., Phillips, M. R., & Gunnell, D. (2017). The global burden of fatal self-poisoning with pesticides 2006-15: systematic review. *Journal of affective disorders*, 219, 93-104.
3. Kassebaum, N., Kyu, H. H., Zocckler, L., Olsen, H. E., Thomas, K., Pinho, C., ... & Hay, S. I. (2017). Child and adolescent health from 1990 to 2015: findings from the global burden of diseases, injuries, and risk factors 2015 study. *JAMA pediatrics*, 171(6), 573-592.

4. World Health Organization. (2017). *Global diffusion of eHealth: making universal health coverage achievable: report of the third global survey on eHealth*. World Health Organization.
5. Cutler, G. J., Flood, A., Dreyfus, J., Ortega, H. W., & Kharbanda, A. B. (2015). Emergency department visits for self-inflicted injuries in adolescents. *Pediatrics*, 136(1), 28-34.
6. Bottei, E. (2016). Increased hospitalizations and ICU admissions in poison center cases involving teenagers. In: *CLINICAL TOXICOLOGY* (Vol. 54, No. 8, pp. 698-698). 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND: TAYLOR & FRANCIS LTD
7. Tyrrell, E. G., Orton, E., & Tata, L. J. (2016). Changes in poisonings among adolescents in the UK between 1992 and 2012: a population based cohort study. *Injury prevention*, 22(6), 400-406.
8. Perera, J., Wand, T., Bein, K. J., Chalkley, D., Ivers, R., Steinbeck, K. S. & Dinh, M. M. (2018).
9. Hiscock, H., Neely, R. J., Lei, S., & Freed, G. (2018). Paediatric mental and physical health presentations to emergency departments, Victoria, 2008–15. *Medical journal of Australia*, 208(8), 343-348.
10. Eurostat. *Statistics Explained. Being Young in Europe today*. European Union (2017). Available online at: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Being\\_young\\_in\\_Europe\\_today\\_-\\_health#Main\\_tables](http://ec.europa.eu/eurostat/statistics-explained/index.php/Being_young_in_Europe_today_-_health#Main_tables)
11. Ahuja, H., Mathai, A. S., Pannu, A., & Arora, R. (2015). Acute poisonings admitted to a tertiary level intensive care unit in northern India: patient profile and outcomes. *Journal of clinical and diagnostic research: JCDR*, 9(10), UC01
12. Geulayov, G., Kapur, N., Turnbull, P., Clements, C., Waters, K., Ness, J., ... & Hawton, K. (2016). Epidemiology and trends in non-fatal self-harm in three centres in England, 2000–2012: findings from the Multicentre Study of Self-harm in England. *BMJ open*, 6(4).
13. Rostami, C., Daliri, S., Sayehmiri, K., Delpisheh, A., Sayehmiri, F., & Saadata, M. (2016). The incidence of suicide attempt in Iran (2001-12): A meta-analysis. *J Kermanshah Univ Med Sci* 2016, 19(7), 374-82.
14. World Health Organization. (2016). *Safer Access to pesticides for suicide prevention. Experiences from community interventions*. Geneva: World Health Organization.
15. Additives, F., & Geneva, S. (2015). *Food and Agriculture Organization of the United Nations*.
16. Spiller, H. A., Ackerman, J. P., Smith, G. A., Kistamgari, S., Funk, A. R., McDermott, M. R., & Casavant, M. J. (2019). Suicide attempts by self-poisoning in the United States among 10–25 year olds from 2000 to 2018: substances used, temporal changes and demographics. *Clinical toxicology*, 1-12.
17. Plemmons, G., Hall, M., Douplik, S., Gay, J., Brown, C., Browning, W., & Rehm, K. (2018). Hospitalization for suicide ideation or attempt: 2008–2015. *Pediatrics*, 141(6), e20172426
18. Canner, J. K., Giuliano, K., Selvarajah, S., Hammond, E. R., & Schneider, E. B. (2018). Emergency department visits for attempted suicide and self-harm in the USA: 2006–2013. *Epidemiology and psychiatric sciences*, 27(1), 94-102.
19. KASEMY, Z. A., AMIN, S. A., SHARIF, A. F., FAYED, M. M., DESOUKY, D. E., SALAMA, A. A., ... & ABDEL-AATY, N. B. Incidence, Distribution, and Determinants of Suicide by Self-Poisoning in two Egyptian Provinces.
20. Shokrzadeh, M., Hoseinpoor, R., Hajimohammadi, A., Delaram, A., Pahlavani, M., Rezaei, M., & Shayeste, Y. (2017). Pattern of deliberate self-poisoning in Gorgan, North of Iran. *Int J Med Toxicol Forensic Med*, 7(May (1)(Winter)), 6-18.
21. Kasemy, Z. A., Amin, S. A., Sharif, A. F., Fayed, M. M., Desouky, D. E., Salama, A. A., ... & NB, A. A. (2021). Incidence, distribution, and determinants of suicide by self-poisoning in two Egyptian provinces. *Pakistan J Med Heal Sci*, 15, 3571-5.

22. World Health Organization. (2019). World health statistics 2019: monitoring health for the SDGs, sustainable development goals.
23. Gummin DD, Mowry JB, Spyker DA, Brooks DE, Beuhler MC, Rivers LJ, Hashem HA, Ryan ML. 2018 Annual report of the American Association of Poison control centers' National Poison Data System (NPDS): 36th annual report. *Clinical toxicology*. 2019 Dec 2;57(12):1220-413.
24. Sang, R.K.A., Kimani, J. *Organophosphate poisons among patients attending Kericho county referral hospital, Kenya*. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 15, Issue 8 Ver. I (August. 2016), PP 114-125 [www.iosrjournals.org](http://www.iosrjournals.org)
25. Townsend, E., Ness, J., Waters, K., Kapur, N., Turnbull, P., Cooper, J., & Hawton, K. (2016). Self-harm and life problems: findings from the Multicentre Study of Self-harm in England. *Social psychiatry and psychiatric epidemiology*, 51(2), 183-192.
26. Hughes, M. K. (2016). Suicide screening in the oncology population. *Journal of the advanced practitioner in oncology*, 7(1), 101.
27. Finkelstein, Y., Macdonald, E. M., Hollands, S., Hutson, J. R., Sivilotti, M. L., Mamdani, M. M., & Canadian Drug Safety and Effectiveness Research Network (CDSEEN). (2015). Long-term outcomes following self-poisoning in adolescents: a population-based cohort study. *The Lancet Psychiatry*, 2(6), 532-539.
28. Benedict, M. O. A., Van Loggerenberg, C. J., & Steinberg, W. J. (2019). The profile of deliberate self-poisoning cases presenting at the emergency department of Pelonomi Regional Hospital, Bloemfontein. *South African Family Practice*, 61(1), 11-17.
29. Albano, G. D., Malta, G., La Spina, C., Rifiorito, A., Provenzano, V., Triolo, V., ... & Argo, A. (2022). Toxicological findings of self-poisoning suicidal deaths: a systematic review by countries. *Toxics*, 10(11), 654.
30. Dani, A., Balachandran, S., McGill, K., Whyte, I., & Carter, G. (2022). Prevalence of Depression and Predictors of Discharge to a Psychiatric Hospital in Young People with Hospital-Treated Deliberate Self-Poisoning at an Australian Sentinel Unit. *International Journal of Environmental Research and Public Health*, 19(23), 15753.
31. Walton, M. T., & Hall, M. T. (2016). The effects of employment interventions on addiction treatment outcomes: a review of the literature. *Journal of Social Work Practice in the Addictions*, 16(4), 358-384.
32. Tatari, F., Mousavi, S., Shakeri, J., Abdoli, N., Mohammadi Zavaleh, V. and Zarafshani, K. "Comorbidity of substance dependency in patients with cluster B personality disorders," *Journal of Kermanshah University of Medical Sciences*, vol.19, no.6, pp. 365-373, 2016.
33. Kim, M., Oh, G. J., & Lee, Y. H. (2016). Gender-specific factors associated with suicide attempts among the community-dwelling general population with suicidal ideation: the 2013 Korean community health survey. *Journal of Korean medical science*, 31(12), 2010-2019.
34. Van der Feltz-Cornelis, C. M., Sarchiapone, V.M., Postuvan et al., "Best practice elements of multilevel suicide prevention strategies: are view of systematic reviews," *Crisis*, vol.32, no.6, pp.319-333, 2015.
35. Ansari-Moghaddam, A., Rakhshani, F., Shahraki-Sanavi, F., Mohammadi, M., Miri-Bonjar, M., & Bakhshani, N. M. (2016). Prevalence and patterns of tobacco, alcohol, and drug use among Iranian adolescents: A meta-analysis of 58 studies. *Children and Youth Services Review*, 60, 68-79.
36. Amarnath, D. (2017). A Study on Psychiatric Illness in Self Poisoning patients in Tertiary Care Hospital (Doctoral dissertation, Thanjavur Medical College, Thanjavur).