

MANAGEMENT OF PARASUICIDE

AT

KENYATTA NATIONAL HOSPITAL

BY

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**A DISSERTATION PRESENTED IN PART
FULFILMENT OF THE DEGREE OF MASTER OF
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DECLARATION

This is my original work and has not been submitted for a degree in any other university, to the best of my knowledge.

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«

DEDICATION

I dedicate this dissertation to these very special people in my life:

My parents: the late Councillor Alfayo David Ogol Okech and Mrs. Truphena Awuor Okech a.k.a Nyargasalo.

My brothers and sisters and their spouses who have all played a significant part in bringing me up: - George and Mary Okech, Joyce and George Alosa. the late Arnold and Judy Okech, David and Dorothy Okech. Sammy and Veronica Okech, Rose and John Ougo and Judy and Greg Kudwoli.

And lastly to a number of friends who have walked with me through medical school: - Nyokabi Kanaiya, Wahu Maingi and Lucy Waruingi.

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ABBREVIATIONS AND ACRONYMS USED

DSM-IV-TR Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision

KNH Kenyatta National Hospital

Parasuicide Attempted Suicide

S.I.S Suicide Intent Scale

WHO World Health Organization

ABSTRACT

This was a cross-sectional study carried out at the Kenyatta National Teaching and Referral Hospital, Nairobi. Doctors working in the casualty, medical and surgical inpatient wards were interviewed in an attempt to establish the management pattern of attempted suicide cases.

The data was collected from consenting participants using a semi-structured questionnaire designed by the author. Variables in the questionnaire included socio-demographic characteristics such as age, gender, marital status; professional qualification, number of years in employment, number of attempted suicide cases seen in the last one week, one month and one year; mode of management, assessment of suicide risk, frequency of use of the suicide intent scale and perceived obstacles to management.

Of the 220 doctors in the selected sample, only 126 (57.3%) responded. The 126 respondents comprised of 107 (85%) males and 18 (14%) female doctors. One (0.8%) doctor did not state the gender. Of the respondents, 86 (68.3%) were aged below 35 years; with only 1 (0.8%) doctor aged below 25 years and 2 (1.6%) doctors aged over 50 years. The median age group was 30-34 years with a standard deviation of 1.3. One hundred and thirteen (90%) were Christians and 83 (65.9%) were married. Majority, 97 (77%), of the respondents worked in the wards, with 29 (23%) working in casualty. Eighty-three (66%) of the doctors had practiced medicine for 7 years or less, with a median of 6 years of practice.

The non-psychiatric doctors at Kenyatta National Hospital recognized that attempted suicide was a psychiatric emergency that was often precipitated by social factors, in particular, relational conflict. They also recognized that psychiatric morbidity; especially depression, predisposed patients to attempt suicide.

Referral to psychiatrists and counsellors for management of attempted suicide and prescription of antidepressants were the management methods most commonly used.

Obstacles to management cited were lack of necessary knowledge and skills, inadequate numbers of mental health specialists to refer to, inaccessibility and/or unavailability of mental health specialists to refer to and insufficient time to adequately manage the patients.

Conclusion

The doctors recognized attempted suicide to be a psychiatric emergency but faced major obstacles in managing patients who attempted suicide. These findings were discussed and remedial measures suggested.

INTRODUCTION

Suicide is a leading psychiatric and medical challenge that can be fairly characterized as epidemic and an international public health emergency. It ranks eighth among causes of death in the United States and is the 3rd leading cause of death for those aged 15-24 years.

Every year more than 1 million people die from suicide. This number would be much greater if corrected for underreporting. The annual international suicide rate averages 14.5/100,000 and attempts occur at 260 per 100,000² or more but rates vary considerably from country to country for unknown environmental, ethnic and cultural reasons as well as variance in case finding and reporting. The economic burden may exceed US\$ 20 Billion annually in the USA and in Europe combined.² The human costs to surviving families and friends are extraordinary in that the lives of approximately 6 - 7 persons are significantly affected by each suicide. Methods of suicide are also a matter of public as well as professional concern in that more than 60 per cent of men and 40 per cent of women use firearms to kill themselves in developed countries.²

As a referral hospital for all health centres in Nairobi and provincial hospitals in Kenya KNH receives a significant number of attempted suicide cases; at least 200 per year i.e. at least 1 person every other day. From liaison psychiatry practice at KNH and a study done at KNH in the year 2000³, the author has noticed that most primary care physicians seem ill equipped to manage psychiatric patients, let alone psychiatric emergencies of which suicide is one.

Furthermore, suicide represents a major risk for malpractice liability in contemporary medicine and in particular, psychiatry. Cases of mentally disturbed patients committing suicide by jumping off high-rise buildings have occurred with attendant costs of litigation and unnecessary loss of life, not to mention the psychological trauma of bereavement and grief to the affected families.

Africa and Kenya in particular have few studies done on the problem of parasuicide and intervention measures. The last one in Kenya was done over 10 years ago.⁴ There is need to re-evaluate the current management of attempted suicide and the impact of interventions previously proposed. This would help in establishing guidelines for the prevention and management of attempted suicide not only at KNH but in Kenya as a whole.

LITERATURE REVIEW

Epidemiology

Worldwide, about 1 million persons die of suicide each year, including more than 30,000 in the United States and 120,000 in Europe." Since suicide has an impact on an average of 6-7 surviving family members, more than 6 million persons lose someone close to them due to suicide each year (about 180,000 in the United States alone). The total number of suicide survivors in United States from 1973 probably exceeds four million.⁶ In the United States in 1998, there was an average of 84 suicides/day (3-4/hour), accounting for 1.3% of all deaths and ranking eighth among causes of death.^{6 7} Among young persons aged 15-24 years in Europe and North America, suicide recently became the third leading cause of death in males and ninth in females. Even these striking estimates, based on World Health Organization (WHO) and government surveys, almost certainly underestimate suicide rates by at least one third and possibly by half, due to underreporting.⁸

National and regional suicide rates vary widely. They recently averaged 14.5/100,000 per year internationally, varying at least 10-fold between countries. Rates per 100,000 population ranged from 3.6 in Greece to 33 in Hungary, with intermediate rates of 10-20 in central and northern Europe and the United States.⁶ Annual suicide rates in Asian countries include 300,000 reported suicides in China (32.3/100,000), the only country with a greater risk among women than men.⁹

Suicide attempts, particularly life-threatening attempts, are sometimes referred to as "parasuicides," a term coined by Kreitman.¹⁰ He defined parasuicide as "a non-fatal act in which an individual deliberately causes self injury or ingests a substance in excess of any prescribed or generally recognized therapeutic dosage."¹⁰

Data about parasuicides are even less reliable than for suicides, due to the lack of reliable national records and heterogeneity of classifications based on varying intent and lethality. International studies have reported prevalences for suicide attempts in the general population ranging from 0.04% to 4.6% for lifetime risk and about 0.8% per year overall,

or 0.2% to 0.6% per year for apparently life-threatening acts.^{6, 12, 13} The ratios of attempts/suicides in the general population varies from 6:1 to 25:1, and averages about 18:1 worldwide.^{2, 14, 15}

Parasuicide is important since 30% to 60% of suicides have been preceded by an attempt. Ten per cent to 14% of those who attempt suicide eventually kill themselves, at rates about 100 times higher than in the general population.^{8, 13, 16, 17}

The annual international rate of suicidal ideation is much higher, but even more unreliable, with estimates ranging from 6% to 14% in the general population, and presumably even higher among individuals with psychiatric and substance use disorders.¹⁸

The problem of parasuicide has been found to be increasing progressively in Western countries since the 1960s. O'Brien¹⁹ noted an estimated 11.8% increase in emergency ward admissions for parasuicide by drug overdose between 1964 and 1972. Smith²⁰ found a one hundred per cent increase in self-poisoning between 1960 and 1970.

In Kenya, Onyango²¹ found an increase in parasuicide in a retrospective study conducted in Nairobi. In 1984, Mengech and Dhadphale²² found a parasuicide incidence of 3.4 cases per month, while in 1990 Nguithi⁴ reported an incidence of 13.3 cases per month. Furthermore, in Kenya and many third world countries, attempting suicide is illegal under the law and this may contribute to possible under reporting.^{21, 22}

Methods of attempting suicide

There has been national and cultural variation in the choice of method for attempted suicide. Methods of suicide throughout the centuries have ranged from hanging, drowning, overdosing, stabbing and jumping from a height to increased use of firearms in modern times especially in the United States.^{6, 23}

In the UK most men commit suicide by poisoning and most women hang themselves, with the reverse happening in Denmark.⁶

In China and India, the most common method by far has been pesticide poisoning. Overdosing with over the counter medicines has been a very common way of attempting suicide worldwide.⁶ Previous studies in developed countries noted that the majority of patients brought to hospital with attempted suicide had taken a drug overdose.²⁴

In Africa, Eferakeya²⁷ in Nigeria reported that while Asuni before him had found that 61% of the attempters used physical means and 34% used drugs or chemicals, he found that 87.6% ingested drugs or chemicals - indicating a change in methods employed to attempt suicide from the physical to the chemical.

Ingestion of a chemical compound, notably organophosphates or a commonly available drug such as chloroquine seemed to be increasing as a popular method of suicide attempt as seen in Egypt. Okasha²⁶ in Egypt found overdose by tablet ingestion to be the most common method of parasuicide. In Gabon, Mboussou²⁷ found that the commonest method of attempting suicide was the ingestion of a medical drug (mainly chloroquine). There was a higher ratio of women to men: 3:1 for attempted suicide. This is comparable to global rates. Suicide attempts have been found to be 2-3 times more frequent in females than males.⁷⁰

In Zimbabwe, Dong & Simon²⁹ - found a 320% increase in the number of admissions for organophosphate poisonings in a Zimbabwean hospital from 1995 to 2000 with suicide cited as the predominant reason for poisoning (74% of the cases). The male to female admission rates were similar (48% vs. 52%): 82% of the patients were less than 31 years old. This compares well with international studies, in which it is noted that 27% of youth attempt suicide at least once before age 25 and 41% make more than 1 attempt.³⁰

In South Africa, Mhlongo & Peltzer³¹ found ingestion of harmful substances (like paraffin, pesticides or battery acid to be the main method of attempted suicide among youth aged 15-24 years referred to the clinical psychology section of a regional hospital from 1995-1998. Trigger factors for attempts ranged from acute social conflicts (38%) topping the list, socio-economic depreciation (17%), AIDS phobia (17%), academic failure (14%), teenage pregnancy (10%) to mental illness (5%). Fifty-eight per cent of the attempts were categorized as demonstrative and 27% as genuine.

In Kenya. Mengech and Dhadphale²² found that half the parasuicides had used organophosphate chemicals, 17% used tranquilizers or aspirin and 8% attempted hanging. Nguithi⁴ found a similar rate of 18 (45%) organophosphate use in suicide attempts, with chloroquine ingestion either alone or with other substances accounting for 10 (25%) of the parasuicide cases in her study.

Associated factors

Sociological

The French sociologist Durkheim attempted to explain statistical patterns of suicide according to social integration¹⁵ in his theory. He divided suicides into three categories: egoistical, altruistic and anomic.

Egoistical suicide applied to those who were not strongly integrated into any social group. This would explain why unmarried people are more vulnerable to suicide than married, and why couples with children are least at risk. Similarly, suicide rates are higher in urban than in rural areas due to lesser social integration.

Altruistic suicide applied to those prone to suicide due to their excessive integration into a group. Examples would include suicide bombers. Anomic suicide applied to people whose integration into society was disturbed so that they could not follow customary norms of behaviour. This would explain why a drastic change in economic situation makes people more vulnerable than they were before their change in fortune.^{1"}

Psychological factors

Freud believed that suicide represented aggression turned inwards against an introjected love object. He doubted that suicide would occur without an earlier repressed desire to kill someone else. Karl Menninger built on this idea further. He thought of suicide as inverted homicide because of a patient's anger toward another person. This retroflexed murder was either turned inward or used as an excuse to punishment. Contemporary suicidologists however are not persuaded that suicide is associated with a specific psychodynamic or personality structure. They believe that suicidal patients often have fantasies about what would happen and what the consequences would be if they committed suicide.¹³

The fantasies would include wishes for revenge, power, control, punishment, atonement, sacrifice, restitution, escape or sleep, rescue, reunion with the dead or a new life. The suicidal patients most likely to commit suicide may have lost a love object or received narcissistic injury, experienced overwhelming emotions such as rage or guilt or have identified with a suicide victim.^{1"}

Age

Completed suicide is more common in older males while attempted suicide is commoner in females internationally.^{1"} Most of the studies on attempted suicide in Africa such as Nguithi⁴, Dong & Simon²⁹, Okulate³² and Allan³³ show a predominance of young adults. Kebede and Alemⁱ⁴ in Ethiopia found that most of the attempts 6,734 (66%) among 10,203 adults studied in Addis Ababa in a four-month period i.e. Jan. - March 1994 occurred in subjects under 25 years of age. Frequency of attempt decreased with increasing age, with age of most frequent suicide attempt to be between 15-24 years, in a cross-sectional sample of 10,468 adults of a rural and semi-urban community interviewed to determine suicide attempts.

Similarly though on a much smaller sample, Nguithi⁴ found that of the 40 cases studied, 36 (90%) of attempters were below thirty years of age with a mean of 23.8 years. Okulate^{j2} of Nigeria studied 51 consecutive cases of suicide attempts in a Nigerian military setting. Majority (60.8%) of them were under the age of 30 years.

Gender

Completed suicide is 3 times as common in men as in women.^{1"} However women are 4 times more likely than men to attempt suicide. This holds true for all ages in the United States of America.^{1"} This has been attributed to the fact that men tend to use more violent methods e.g. shooting, hanging or jumping from a height. Men 45 years or older and who have suffered a loss e.g. divorce, death of a spouse or are single and childless are more likely to commit suicide.^b Okulate^{j2} of Nigeria found in his study that male to female ratio was approximately the same.

Genetic

Researchers have suggested a genetic factor in suicide and there is an increased risk of suicide in some families.⁵ In families with an index case of a suicide attempt, especially one involving violence, suicidal behaviour is significantly more prevalent than in other families with depression.^{3"}

A longitudinal study of an Amish community found that of 35 cases studied, 26 suicides (75%) were committed in just 4 families. They all exhibited heavy genetic loading for major depressive disorder, bipolar I disorder and other mood disorders."⁶

In Uganda; Ovuga, Buga and Guwatudde³⁷ found that students' propensity to self-destructive behaviour was significantly related to the history of suicide behaviour among the students or their relatives and the presence of a probable depressive disorder. They used a suicide proneness questionnaire, the Umzimkulu Suicide Proneness Inventory (USPI), among 619 students admitted to the University of Makerere in the academic year 1992/93. In South Africa, Allan³³ found that compared with non-suicide patients, suicide attempters were more likely to be unmarried and to have a family history of mental disorder. In Kenya, Nguithi⁴ found 1 (2.5%) from a sample of 40 cases to be the 4th member of the same nuclear family to resort to parasuicide.

The genetic factors in suicide may be those involved in the transmission of bipolar I mood disorder, schizophrenia and alcohol dependence; the mental disorders most commonly associated with suicide. However a genetic factor for suicide may be independent of or in addition to the genetic transmission of a mental disorder.¹

Postmortem studies strongly suggest that cerebral concentrations of serotonin are reduced in suicide and specifically, that deficient serotonergic functioning in the ventral prefrontal
1 ft-AO
cerebral cortex may contribute to dis-inhibition of impulsive aggressive behaviour.

Clinical studies also suggest that overt aggression is more common in subjects with previous suicide attempts.²⁸ However, cerebral serotonin may react to environmental factors including stress, loss, abuse of psychoactive substances or low cholesterol levels as well as depressive illness all of which have been associated with suicide.⁴¹ⁿ⁴²

Alcohol

Allan³³ in South Africa found an association between intoxication and both violent crime and suicide attempts in a cross-sectional study of 269 admissions to an alcohol rehabilitation unit in the Western Cape Province. Suicide attempts (24% of subjects) were associated with female gender, white racial group, not being in a marital relationship, younger current age and early age of problem drinking.

Interpersonal conflict

Finally, interpersonal conflict with family or close friends, seems to be an important trigger factor in precipitating suicide attempts as seen by Eferakeya,²¹ Mhlongo,³¹ Alem,³⁴ Odejide,⁴³ Edwards⁴⁴ and Mzezewa.⁴⁴

Nguithi⁴ found that 95% of the patients who attempted suicide had one or more upsetting events over the previous six months of which the most important was some form of interpersonal conflict.

Conclusion

Suicide is a human tragedy and a heavy emotional burden for its survivors. In addition, suicide and parasuicide result in major economic losses. Direct costs reflect treatment and hospitalization following suicide attempts and indirect costs represent lost potential lifetime income due to related disability and premature deaths.

The resulting economic burden from suicides and serious attempts may exceed 16 billion annually in the United States^{46,47} and similar costs in Europe⁴⁸ and the rest of the world. Estimates of the economic burden from suicides and serious suicide attempts from Africa, East Africa and Kenya are presently not available. From this review, it is obvious that there is urgent need to have a formal policy of prevention, assessment, management and referral of attempted suicide in our country.

JUSTIFICATION

Attempted suicide has been a psychiatric emergency of global importance. A study done in 2000³ noted that doctors working at KNH were ill equipped to handle psychiatric cases, let alone psychiatric emergencies.

KNH hospital records have indicated a rising incidence of attempted suicide cases in the last 5 years (Table 1).

Table 1

Number of admissions at KNH with a diagnosis of attempted suicide in the last 10 years(1992-2001)

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
No. attempted suicide patients	72	0	0	96	9	133	145	184	202	156
Attempted suicide cases as a percentage of total admissions	0.114	0	0	0.194	0.017	0.225	0.214	0.198	0.246	0.193
Total admissions for the whole year	63,271	67,216	47,454	49,378	52,759	59,108	67,661	92,540	81,930	80,775

Furthermore social changes such as breakdown of traditional family ties, HIV/AIDS, retrenchment and unemployment have taken their toll on the social fabric of the nation with a rise in reported cases of violent suicide including parents killing themselves and their children.

Psychiatrist: patient ratio in Kenya has been very inadequate at 1:500,000.^J There has been need to adequately equip primary health care doctors in early detection, diagnosis, management and appropriate referral of psychiatric emergencies.

There has been very little data available in Kenya and Africa as a whole on the problem of suicide and even less data on how it has been managed. The last related Kenyan study having been done more than 10 yrs ago (1990) by Nguithi.⁴

There has therefore been need for up to-date information on the management pattern of attempted suicide at KNH. The information gained from the study would help in evaluating the management offered to parasuicide patients at KNH, developing management guidelines and in future planning for personnel training needs.

AIMS AND OBJECTIVES

Aim

To describe the management of attempted suicide cases at KNH and relate the findings to the knowledge and practice of the primary care doctors.

Objectives

1. To identify the management methods of attempted suicide cases at KNH.
2. To identify the obstacles encountered in management of attempted suicide cases.
3. To determine the perceived trigger factors for parasuicide as perceived by primary care doctors.

METHODOLOGY

The study proposal was initially submitted to the KNH ethics, standards and research committee for review and approval.

Study area

Casualty department, medical and surgical wards of KNH

Study population

All doctors working at KNH casualty, medical and surgical wards who were not psychiatrists.

Study Design

Cross-sectional study

Sample size

All doctors i.e. interns, medical officers, registrars and consultants who were not psychiatrists working in the study area (a total of 220 doctors).

Inclusion criteria

All doctors i.e. interns, medical officers, registrars and consultants, who were not psychiatrists, were working in casualty, medical and surgical wards and consented to participate in the study.

Exclusion criteria

All doctors i.e. interns, medical officers, registrars and consultants, who were not psychiatrists, were working in casualty, medical and surgical wards and did not consent to participate in the study.

Procedure

The study was done using semi-structured questionnaires after obtaining informed consent from doctors in casualty, medical and surgical wards. They were asked to complete the questionnaires, which were then collected back within a week during the months of March and April 2003.

Instrument

The data was collected from consenting participants using a semi-structured questionnaire designed by the author. Variables in the questionnaire included socio-demographic characteristics such as age, gender, marital status; professional qualification, number of years in employment, number of attempted suicide cases seen in the last 1 week, 1 month and 1 year, mode of management, their assessment of level of suicide risk, frequency of use of the suicide intent scale and obstacles to management.

Data Analysis

The data obtained was analysed using the statistical package for social science; SPSS version 10.0. Results were presented in the form of frequency tables, pie charts and bar diagrams. Tests of statistical significance were applied and p-value cut-off was less than or equal to 0.5.

Ethical Considerations

Data obtained was handled in confidence and participants remained anonymous.

RESULTS

A total of 220 doctors working in the casualty department and the medical and surgical wards at KNH were given questionnaires to complete while at their usual workplaces, during March and April 2003. Completed questionnaires were then collected within a week of distribution. A total of 126 questionnaires were appropriately completed, returned and included in the study.

One hundred and seven male and eighteen female doctors responded. Of the 126 respondents, 86 (68.3%) were aged below 35 years; with only 1 (0.8%) doctor aged below 25 years and 2 (1.6%) doctors aged over 50 years. The median age group was 30-34 years. One hundred and thirteen (90%) were Christians and 83 (65.9%) were married. Majority 96 (77 %) of the respondents worked in the wards, with 29 (23%) working in casualty.

Years of medical practice ranged from 0.5 to 30 years. Sixty six per cent of the doctors had practiced medicine for 7 years or less, with a median of 6 years. Twenty point seven per cent had worked for more than 10 years.

Non-specialists formed the largest group of respondents (82.5%) with the breakdown as follows: - interns 12 (9.5%), medical officers 28 (22.2%), registrars 64 (50.8%). Consultants 22 (17.5%) made up the rest of the study population.

Most of the doctors had obtained their first degree from a Kenyan university, namely 71(79.8%) from the University of Nairobi and 11(12.4 %) from Moi University, Eldoret.

The number of patients seen in a day by each specific doctor ranged from 5 to 120 with a peak at 20-50 patients a day and a median of 35 patients per day.

Cases of attempted suicide seen at varying intervals were as follows: -

In the last 1 week: 1-10: average 1.

In the last 1 month: 1-30: average 3.

In the last 1 year: 1-120: average 13.

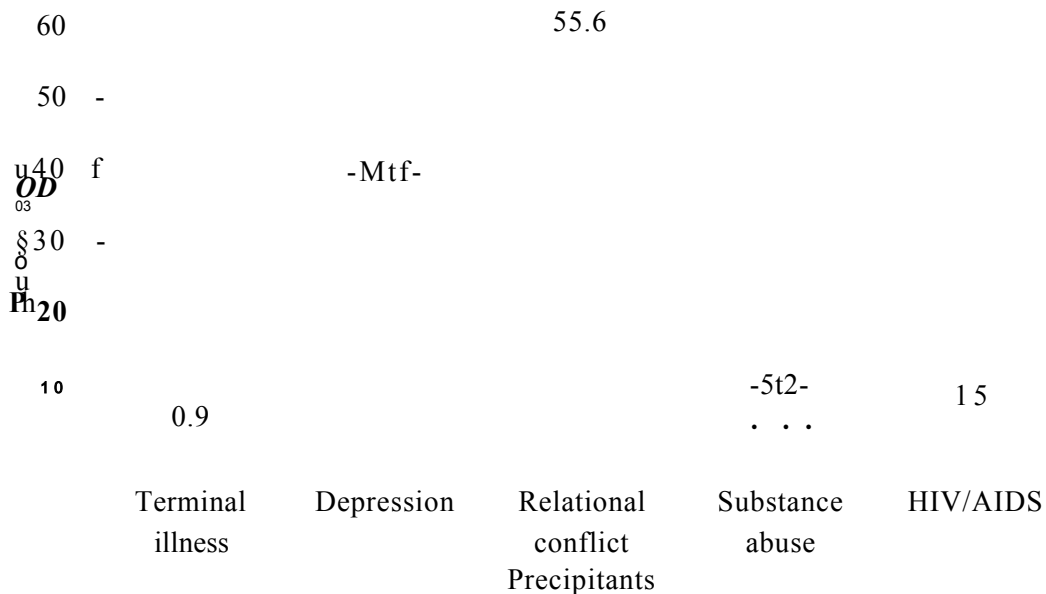
In the doctors' opinion, the most common observed precipitating factor for attempting suicide in the patients they treated was

- Depression 34.8%
- Conflict with significant other (e.g. boyfriend/girlfriend) 19.1%
- Marital conflict 19.1%
- Interpersonal conflict (i.e. not involving a close friend or relative) 17.4%
- Substance abuse 5.2%
- HIV/AIDS 3.5%
- Terminal illness 0.9 %.

In their opinion, conflict with boyfriends at 60.9% topped the list of significant others involved in interpersonal conflict leading to a suicide attempt. This would perhaps imply that most of the victims attempting suicide after a quarrel were the female in a relationship.

When these observed precipitants of attempted suicide were analysed further, relational conflict was seen to be the most frequent precipitant among 55.6% of the cases, followed by depression 34.8%, substance abuse 5.2%, HIV/AIDS 3.5% and terminal illness 0.9%. It was not possible to do statistical analysis due to the low values in the cells (Fig.1).

Figure 1 : Precipitants of attempted suicide



Assessment of suicide risk and management

In relation to their ability to evaluate patients for the risk of attempting suicide, the doctors cited the following as factors predisposing to high suicide risk i.e.

poor social/family support, substance abuse, interpersonal conflict, depression more commonly as compared to financial problems, psychological disorder, age less than 30 years, previous attempt and chronic medical illness (Table 2).

Table 2.

Factors cited by doctors as predisposing to high suicide risk

Factor	Frequency	% of total (n = 126)
Poor social/family support	49	38.9
Substance abuse	46	36.5
Interpersonal conflict	38	30.2
Depression	35	27.8
Financial problems	25	19.8
Psychological disorder	22	17.6
Age less than 30 years	16	12.0
Previous attempt	15	11.9
Chronic medical illness	14	11.1

Total number of respondent doctors, n =126. There was evidence of multiple reporting of factors.

Overwhelmingly 119 (94.4%) of the respondents were not familiar with the suicide intent scale, which a previous Kenyan study; Nguithi⁴, had indicated as a sensitive indicator of prediction of suicide risk. The scale measures the seriousness of intent to kill oneself. One hundred and four (82.4%) respondents did not know a formal management protocol for suicide and an even greater proportion, 121 (96%) indicated that they needed and would benefit greatly from an available, formal management protocol. Those who didn't feel they needed the protocol, 5 (4%) suggested creation of a specialized team to deal with such cases in a specialized unit.

Reasons given for admitting patients who attempt suicide in decreasing frequency were:

77 (61.1%) admitted patients with medical/surgical complications for management, 27 (21.4%) patients with acute mental disturbance, 21(16.7%) patients with risk of reattempt, 20 (15.9%) all patients, 18 (14.3%) patients with poor social/ family support,

5 (4.0%) admitted for counselling and 2 (1.6%) admitted those who had evidence of prior planning of the suicide attempt.

In terms of management of cases of attempted suicide, the practice in most of the cases was: -referral to psychiatrists 78 (65%) and referral to counsellors 47 (45.6%). Referral to other members of the mental health team were considerably less i.e. referral to social worker 9(10.3%), referral to psychologist 6 (6.5 %), referral to others i.e. usually clergy 1 (0.8%). Concerning medication, 55 (46.2%) prescribed antidepressants, 30 (26.1%) prescribed antipsychotics and 29 (25.9%) prescribed sedatives (Table 3).

Table 3

Management of patterns of attempted suicide cases by non-psychiatric KNH doctors

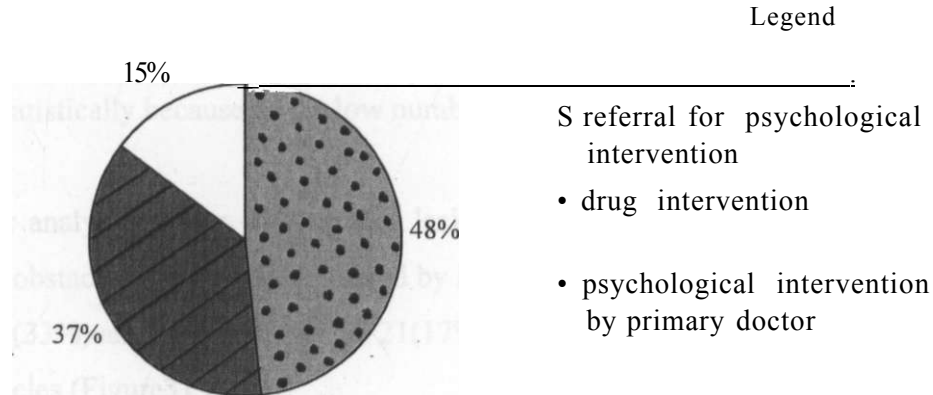
Type of management	Frequency of application							
	Often >50%		Sometimes 25-50%		Rarely 1-25%		Never 0%	
Referral to psychiatrist	78	65	35	29.2	5	4.2	2	1.7
Referral to counsellor	47	45.6	31	30.1	10	9.7	15	14.6
Referral to social worker	9	10.3	10	11.5	23	26.4	45	51.7
Referral to psychologist	6	6.5	18	19.6	30	32.6	38	41.3
Referral to other e.g. clergy	1	1.6	7	11.1	7	11.1	48	76.2
Antidepressants	55	46.2	36	30.3	16	13.4	12	10.1
Antipsychotics	30	26.1	39	33.9	30	26.1	16	13.9
Sedatives	29	25.9	34	29.3	28	24.1	24	20.7
Counselling the patient yourself	30	27.5	43	39.4	29	26.6	7	6.4
Appointments to discuss emotional problems with the patient yourself	12	11.4	21	20.0	30	28.6	42	40

Total number of respondent doctors, n =126. There was evidence of multiple practices, as most respondents gave more than one answer.

Eleven (91%) of the doctors from surgery department stated that they never used antidepressants. This was high compared to none from internal medicine i.e. registrars and consultants and 1 (8.3%) from general medicine, i.e. interns and medical officers. Similarly, 6 (85.7%) of the doctors from surgery department stated that they never counselled patients themselves. This was high compared to none from internal medicine i.e. registrars and consultants and 1 (14.3%) from general medicine, i.e. interns and medical officers. These differences could not be tested statistically due to the low numbers in the cells.

When these management interventions were further categorized, the results were: - referral for psychological intervention 60 (48%), drug intervention 47 (37%) and psychological intervention by primary doctor 19 (15%). (Figure 2)

Figure 2: Management of attempted suicide: interventions



Obstacles to management

The obstacles to management doctors cited included lack of time 89 (70.6%), lack of counselling skills 79 (62.7 %), lack of knowledge about management protocol 76 (60.3 %), inadequate numbers of psychiatrists to refer to 74 (58.7 %) and inadequate numbers of counsellors to refer to 60 (47.6%) as the most common obstacles to management. (Table 4)

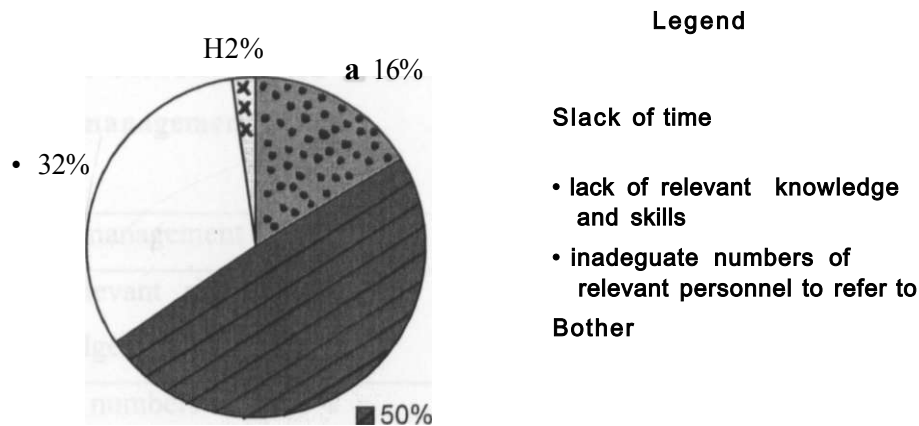
Table 4: Obstacles to managing patients who attempt suicide, cited by KNH doctors

Obstacle	Frequency	% of total
Lack of time	89	70.6
Lack of counselling skills	79	62.7
Lack of knowledge about management protocol	76	60.3
Inadequate numbers of psychiatrists to refer to	74	58.7
Inadequate numbers of counsellors to refer to	60	47.6
Lack of knowledge about medication	42	33.3
Difficulty in obtaining adequate relevant history	60	47.6
Other	12	9.5

Total number of respondent doctors, n =126.

Forty-seven (81%) of the doctors who had practiced medicine for less than 5 years cited lack of time as a hindrance in the management of patients. This was high compared to 44 (66%) of the doctors who had been in practice for a duration of 6 to 10 years; and 7 (28.6%) of those who had been in practice for 11 to 15 years. The differences could not be tested statistically because of the low numbers.

On further analysis, it was striking that lack of relevant knowledge and skills was the most cited obstacle at 60 (48%), followed by inadequate numbers of relevant personnel to refer to 42 (33%) and then lack of time 21(17%), with 2% of the respondents quoting other obstacles (Figure3).

Figure 3: Obstacles to management

Suggestions on ways of improving management of patients who attempt suicide included: formal management protocol 44 (34.9%), continuous medical education on skills relevant to suicide attempt management 45 (35.7%), number of psychiatrists to be increased and for them to be more available 31 (24.6%), number of counsellors to be increased and for them to be more available 22 (17.4%), more effective referral system 12 (9.5%) and avail proper functional resuscitation equipment and drugs and conducive counselling environment 9 (7.2%), better joint management of patients between medical and psychiatric teams 8 (7.1%) and creation of a special unit on ground floor of KNH for such patients with a crisis centre and help line 8 (7.1%).

On further analysis, these suggestions on ways of improving management can be further categorized as: continuous medical education and formal management protocol 49%, increase numbers of relevant personnel e.g. psychiatrists, counsellors 29%, more effective referral system 5%, better joint management of patients between medical and psychiatric teams 7% and avail proper functional resuscitation equipment and drugs and conducive counselling environment 10%.

These suggestions tally very closely with the factors cited by the doctors as obstacles to management (Table 5).

Table 5

Comparison between quoted obstacles to management and suggestions offered for improving management

Obstacle to management	Percentage	Suggestion offered	Percentage
Lack of relevant skills and knowledge	48%	Continuous medical education and formal management protocol	49%
Inadequate numbers of relevant personnel to refer to	33%	Increase numbers of relevant personnel e.g. psychiatrists, counsellors	29%
Lack of time	17%	More effective referral system	5%
		Better joint management of patients between medical and psychiatric teams	7%
Other	2%	Avail proper functional resuscitation equipment and drugs and conducive counselling environment	10%

DISCUSSION

The results indicated that doctors working at Kenyatta National Hospital carry a heavy patient load given a median of 35 patients per day. This compares well with a previous study³ on physician management of psychiatric disorders at KNH in which doctors indicated they attended to an average of 36 patients per day. This was in accordance with the expectation of the hospital. This was bound to interfere with the quality of healthcare delivery.

On average the doctors saw one suicide attempter per week, with a range of 1 to 10 such patients. Every month they saw an average of 3 suicide attempters. Considering that the majority (77%) of the 126 respondents worked in the wards and there were 13 wards, which could possibly admit a patient who attempts suicide, this translated to an average of 13 multiplied by 3, i.e. 39 cases per month. This was a three-fold increase in the last 13 years compared with the 13.3 cases of attempted suicide per month reported by Nguithi⁴ in 1990. It was a ten-fold increase in the last 19 years compared with the 3.4 cases per month reported by Mengech and Dhadphale²² in 1984. KNH records also seem to indicate a rising incidence of attempted suicide cases in the last 5 years as previously mentioned. (Table 1 page 12)

There was no organized source of data concerning cases of attempted suicide attended to at KNH. It would have been very useful to have a single parasuicide register in casualty in order to have valid and up-to-date data for research and management purposes.

The results also confirmed findings from other previous studies that interpersonal conflict with family and close friends was an important trigger factor in precipitating suicide attempts as noted by Nguithi⁴; Eferakeya²³; Mhlongo¹; Alem³⁴; Odejide^{4j}; Edwards⁴⁴ and Mzezewa.^{4^}

Females seemed to be more likely to attempt suicide after a quarrel than men, which also compared well with other literature. ' " Nguithi had noted that anger and a sense of isolation appeared to be the most frequent feeling at the time of attempting suicide for the females in her study. She noted that suicide attempt would then often occur on impulse. It would therefore be very useful to have a 24- hour suicide attempt crisis centre and help line for such cases.

The doctors had some knowledge of the factors that predispose to high suicide risk. They cited poor social/family support 49 (38.9%), substance abuse 46 (36.5%), interpersonal conflict 38 (30.2%), depression 35 (27.8%) and financial problems 25 (19.8%). They did not demonstrate knowledge of the suicide intent scale. Nguithi⁴ found the suicide intent scale to be a sensitive indicator of the gravity of intent to die. It was noted that more than 10 years since Nguithi⁴ advocated the adoption of the suicide intent scale, majority of the doctors practicing at KNH had not adopted it in their practice. Most of them were not aware of a formal management protocol. One hundred and twenty-one (95%) of the respondents expressed a strong desire to have an accessible and available formal management protocol.

35 (27.8%) of the doctors recognized depression to be an important factor in predisposing and precipitating suicide attempt. In line with this, 55 (46.2%) doctors most often used antidepressants as compared to sedatives and antipsychotics. This was in keeping with depression as being the major psychiatric morbidity associated with suicide. It was also in keeping with published literature^{4 36 17} in which mood disorders are the psychiatric diagnoses most commonly associated with suicide risk.¹³

The suicide risk in depressive disorder is about 15%. Studies show that 40% of depressed patients who commit suicide have made a previous attempt.¹⁵ Primary healthcare providers in our country e.g. doctors, nurses, clinical officers, social workers and occupational therapists need to be equipped to prevent more deaths due to suicide. They particularly need skills and knowledge for early identification and for referral and management of patients with severe depression and other high risk factors for suicide.

Eleven (91%) of the doctors from surgery department stated that they never used antidepressants. This was high compared to none from internal medicine i.e. registrars and consultants and 1 (8.3%) from general medicine, i.e. interns and medical officers. Similarly, 6 (85.7%) of the doctors from surgery department stated that they never counselled patients themselves. This was high compared to none from internal medicine i.e. registrars and consultants and 1 (14.3%) from general medicine, i.e. interns and medical officers. These differences could not be tested statistically due to the low numbers in the cells.

The differences could be due to the surgeons referring more often or being more comfortable handling purely surgical aspects of treatment than their counterparts in medicine. Further more, the doctors in medicine could have been more aware of the contribution of psychosocial factors to disease processes and of the use of psychosocial treatments e.g. counselling than those in surgery. This could be attributed to the additional rotation at postgraduate level in psychiatry that registrars studying medicine took, which their surgical counterparts didn't. These differences could be elucidated by further research.

Substance abuse was also perceived to be a predisposing factor to suicide attempt by 46 (36.5%) of the doctors. This compared well with studies in South Africa where Allan³³ found an association between intoxication and both violent crime and suicide attempts in the Western Cape Province.

Opinion has been divided among psychiatrists as to whether all patients who attempt suicide should be admitted into hospital. Only a small proportion 20 (15%) of the doctors admitted all patients. Admission into the already overstretched wards in Kenyan public hospitals would be dependent on primary care doctors being able to identify patients at high risk for suicide, admitting them for further management and assessing those at low risk and arranging to manage them on an outpatient basis.

The doctors seemed more comfortable admitting patients for medical/surgical reasons 77 (61%) than for psychiatric intervention 27 (21%) or for psychological reasons 5 (4%). One would have expected a greater number of doctors to admit patients who had a risk of

reattempting suicide or a poor social/family support system. More so as these factors would place the patient at a higher risk for completing suicide and were therefore indications for admission.

Seventy-eight (65%) of the doctors referred patients who attempted suicide to psychiatrists and 47 (45%) to counsellors. The referral for psychiatric intervention was in keeping with current practice. A definite association has been found between psychiatric morbidity especially schizophrenia, bipolar I disorder, alcoholism and attempted suicide¹. Ideally, one would encourage psychiatric evaluation of all patients who attempted suicide. More so as previous studies have indicated that primary health care workers do not detect up to 67% of patients with psychological problems attending outpatient departments³.

It is known that social problems both predispose and precipitate suicide attempt. However the psychiatry social services were grossly under utilized in KNH as only 13 (10.3%) of the respondents referred the patients there. It was noteworthy that KNH only had 1 psychiatric social worker.

Referrals to other members of the mental health team such as psychologists 8 (6.5%), occupational therapists (none) or even clergy, 1 (0.8%) was very low. It was noted that not even one respondent mentioned referral to the psychiatric nurse. The psychiatric nurse could have been one of the most readily accessible members of the mental health care team in KNH. It is possible that most of the respondents were not sure of the role of these cadres of staff in management of patients with psychological disorders in general and attempted suicide in particular. There was also the view that the psychiatrists and the nurses should be more proactive and manage the patients as part of the team and not wait for referral.

Psychological intervention by the primary doctors themselves such as supportive counselling seemed to be difficult. Forty-seven (81%) of the doctors who had practiced medicine for less than 5 years cited lack of time as a hindrance in the management of patients. This was high compared to 44 (66%) of the doctors who had been in practice for duration of 6 to 10 years; and 7 (28.6%) of those who had been in practice for 11 to 15 years. The differences could not be tested statistically because of the low numbers.

More of the doctors who had recently qualified (practised for less than 5 years) cited lack of time as a hindrance in the management. This was attributed to the high patient load they carried as junior doctors.

Lack of time has been further confirmed by a similar previous study done in year 2000³ in which doctors also cited inadequate time as the single largest obstacle to effective patient management. There was need to reduce the doctor/patient ratio in order to improve patient management. Thought could also be given to reducing working hours or availing compensatory rest time in order to maintain good mental health in medical personnel.

There was a definite need to equip the doctors with more skills and knowledge in the management of attempted suicide. Sixty (48%) of the doctors quoted this as an obstacle to management. A closely corresponding percentage i.e. 49% (62), suggested they needed continuous medical education on management of attempted suicide and other psychiatric cases, counselling skills and a formal management protocol. It is possible that their undergraduate training and external rotation in psychiatry at postgraduate level for registrars in disciplines other than psychiatry has not equipped them adequately to handle psychiatric emergencies.

Most 83 (66%) of the doctors interviewed had practised medicine for 7 years or less. The University of Nairobi started teaching psychiatry as an examinable undergraduate subject in 1994. Majority of the respondents had graduated before 1995. They would therefore not have had as intense and comprehensive a teaching in psychiatry as those graduating from year 2000 onwards. It would be interesting to compare the knowledge and practice of the two groups, as pertains to psychiatry, at a later date.

There was a felt need among the respondents for increase in both availability and numbers of mental health specialists to refer patients who attempt suicide to, such as psychiatrists, psychologists, counsellors, social workers and psychiatric nurses.

Study limitations

1. Difficulty in getting adequate funding for the research and resources e.g. computer and printer.

2. Not all questionnaires were returned, resulting in a smaller than expected number of study subjects. It was surprising that majority of doctors who did not return questionnaires were consultants. One would have expected the senior doctors to provide invaluable input into management practices. This posed a limitation on certain aspects of the study the author would have liked to consider, such as comparing management methods of doctors according to age and experience in medical practice. Statistical analysis was not done due to the low values in the cells.
3. Scarcity of literature on the management of attempted suicide during the literature search on the internet.

Impact of previous recommendations

It appeared that previous recommendations by Dr. Nguithi⁴ in 1990 on the management of attempted suicide had not been implemented. Examples included: - a single parasuicide register in casualty, a formal, accessible policy document on management of attempted suicide and equipping a wider range of staff members, other than doctors, with knowledge and skills in the management of attempted suicide. It is hoped that they, together with the recommendations, from this study would be considered and duly incorporated into day-to-day patient management at KNH and thus improve quality of healthcare.

CONCLUSION

The results of this study indicated that non-psychiatric doctors at Kenyatta National Hospital appreciated that attempted suicide was a psychiatric emergency that was often precipitated by social factors, in particular, relational conflict. They also appreciated that psychiatric morbidity, especially depression, predisposed patients to attempting suicide.

The doctors seem to be more confident in treating the medical and surgical complications arising from attempted suicide than in assessing and managing the psychological and social factors involved.

In their perception, the major obstacles they faced in managing patients who attempted suicide were: - lack of necessary knowledge and skills, relatively inadequate numbers of relevant personnel to refer to, relative inaccessibility of relevant personnel to refer to and lack of time to adequately manage the patients.

RECOMMENDATIONS

It was recommended that:

1. Skills and knowledge

- (i) A policy document and formal management protocol on the assessment, treatment and referral of attempted suicide be drawn up and made available and accessible in casualty, all medical and surgical wards in KNH, as well as in all hospitals countrywide as a matter of priority.
- (ii) The suicide intent scale be incorporated into the formal management protocol mentioned above and used as a tool, in suicide completion risk assessment.
- (iii) Doctors, nurses, social workers, counsellors and occupational therapists be given regular continuous medical education on the management of psychiatric emergencies and commonly occurring psychological disorders. This would facilitate early detection of high-risk patients and timely management or referral.
- (iv) Adequate counselling courses, such as a three to six month module, be introduced in the undergraduate syllabus of all medical health workers and also be available as short in- service courses to all health personnel.
- (v) Educate all personnel as in 3 above on the various roles of the different members of the mental health team.
- (vi) Institute a single register parasuicide in casualty in order to have valid and up- to- date data.

2. Personnel

Psychiatrist/patient ratio currently stands at 1:500,000³. It will take a long time to train and/or employ enough psychiatrists in the near future. With this in mind, it would be important to: -

- (i) Equip other cadres of health workers such as general medical officers, clinical officers, nurses, social workers and counsellors with the knowledge and skills necessary for the management of psychological disorders.
- (ii) Deploy psychiatric nurses and counsellors on 24 hour call in casualty for crisis counselling and intervention.
- (iii) Train more psychiatrists, psychologists, psychiatric nurses and social workers.
- (iv) Deploy adequate numbers of counsellors in all the wards at KNH.

- (v) Deploy adequate numbers of psychiatric social workers in each floor of the wards at KNH.
- (vi) Revive and encourage the concept of the mental health team in KNH and other hospitals countrywide.
- (vii) Find ways of reducing mental health workers workload to reduce burnout and improve efficiency and service delivery. This could be through allowing compensatory rest time, training more personnel or setting guidelines on maximum number of patients to be seen in a day.

3. Prevention

- (i) Modify the attitude of the public towards earlier help seeking behaviour in potential attempted suicide through media education.
- (ii) Educate the public, through the media; on signs and symptoms and situations that predispose to suicide and which require psychiatric intervention.
- (iii) Create awareness of the available sources of help e.g. hospitals, crisis hotlines, shelters for victims of abuse and counselling centres. Make these sources accessible and affordable.

4. Collaboration and referral

- (i) Institute a clear referral strategy for the referral of attempted suicide cases and make it available and accessible.
- (ii) Encourage more collaborative interaction between medical, surgical and mental health teams.

5. Equipment and Service

- (0) Avail modern functional resuscitation equipment, drugs and train all relevant personnel regularly on their usage,
- (i) Set up a 24-hour suicide crisis centre and a toll free help line at KNH.

REFERENCES

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), Fourth Edition Text Revision*, APA (American Psychiatric Association Press), Washington, D.C. 2000.
2. Tondo, L., Baldessarini, R.J. Reduced suicide risk during lithium maintenance treatment. *J Clin Psychiatry*. 2000; **61(suppl 9)** : S97-S104.
3. Othieno, C. J., Okech, V.C.A., Omondi, J. A. How Kenyan Physicians Treat Psychiatric Disorders. *East African Medical Journal*. 2000\ **Vol. 78** No. 4: 204 - 207.
4. Nguithi, A. *Parasuicide ("Attempted Suicide) at Kenyatta National Hospital, M.med Thesis*, University of Nairobi. 1990.
5. Jamison, K.R. *Night Falls Fast*. New York, NY: Alfred Knopf; 1999.
6. American Association of Suicidology. U.S.A. Suicide: 1998 Official Final Data. Available at: <http://www.suicidology.org/index.html>. Accessed February 5, 2001.
7. Murphy, S.L. Deaths: final data for 1998. *Natl Vital Stat Rep*. 2000; **48:1-100**.
8. Diekstra, R.F.W. Epidemiology of suicide and parasuicide. *Acta Psychiatr Scand Suppl*. 1993; **71:9-20**.
9. Phillips, M.R., Liu, H., Zhang Y. Suicide and social change in China. *Culture Med Psychiatry*. 1999; **23:25-50**.
10. Kreitman, N.S. *Parasuicide*. New York, NY: John Wiley and Sons; 1997.
11. Kessler, R.C., Borges, G., Walters, E.E. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Arch Gen Psychiatry*. 1999; **56:617-626**.

12. Mosciki, E.K. Epidemiology of suicide. Jacobs, D, ed. *Harvard Medical School Guide to Assessment and Intervention in Suicide*. San Francisco, Calif: Jossey-Bass; 1998:40-51.
13. Schmidtke, A., Bille-Brahe, U., DeLeo, D. Attempted suicide in Europe: rates, trends and sociodemographic characteristics of suicide attempters during the period 1989-1992. Results of the WHO/EURO Multicentre Study on Parasuicide. *Acta Psychiatr Scand*. 1996; **93**:327-338.
14. Bostwick, J.M., Pankratz, V.S. Affective disorders and suicide risk: a reexamination. *Am J Psychiatry*. 2000; **157**:1925-1932.
15. Kaplan and Saddock. *Synopsis of psychiatry Behavioural Sciences/Clinical Psychiatry, Eighth Edition*, 864 - 869,1998.
16. Stengel, E. *Suicide and Attempted Suicide*. London, England: Penguin; 1964.
17. Tejedor, M.C., Diaz, A., Castillon, J.J., Pericay, J.M. Attempted suicide: repetition and survival findings of a follow-up study. *Acta Psychiatr Scand*. 1999; **100** :205-211.
18. Crosby, A.E., Cheltenham, M.P., Sacks, J.J. Incidence of suicidal ideation and behavior in the US, 1994. *Suicide Life-Threat Behav*. 1999; 29: 131-140.
19. O'Brien, J.P."Increase in suicide attempts by drug ingestion: the Boston experience." *Arch.Gen. Psychiatr*. 1977, 34:1165-1169.
20. Smith, A.J. "Self-poisoning with drugs: a worsening situation". *Brit. Med. J.*, 4: 157- 159,1972.
21. Onyango, P. P. *Suicide in Kenya: Determinants and Impact of the Victim and the Family*. *Ph.D. Thesis*, University of Nairobi. 1982.

22. Mengech, H.N.K. and Dhaphale, M. "Attempted suicide (parasuicide) in Nairobi, Kenya". *Acta Psychaitr. Scctnd* 1984 **69**: 416-419.
23. Minois, G. *History of Suicide, Voluntary Death, in Western Culture*. Baltimore, Md: Johns Hopkins University Press; 1999.
24. Morgan, H.G., Pocock, H., Pottle, S. "The urban distribution of non-fatal deliberate self-harm." *Brit. J. Psychiat.* **126**: 319-328, 1975.
25. Eferakeya, A. "Drugs and suicide attempts in Benin City, Nigeria". *Brit. J. Psychiat.* 1984 Jul, **145**: 70 - 73.
26. Okasha. A., Lotaif, F. Attempted suicide. An Egyptian investigation. *Acta Psychiatr Scand* 1979 Jul; **60 (1)**: 69-75.
27. Mbossou, M., Milebou-Aubusson, L. Suicide and attempted suicides at the Jeanne Ebori Foundation, Libreville, Gabon. *Med Trop (Mars)* 1989 Jul-Sep; **49(3)**: 259-64.
28. Mann, J.J. The neurobiology of suicide. *Nature Med.* 1998;**4**:25-30.
29. Dong, X., Simon, M.A. The epidemiology of organophosphate poisoning in urban Zimbabwe from 1995 to 2000: *Int. J Occup Environ Health* 2001 Oct-Dec; **7 (4)**: 333-8, U.S.A.
30. Andrews, J.A; Lewinsohn, P.M. Suicidal attempts among older adolescents: prevalence and co-occurrence with psychiatric disorders. *J Am Acad Child Adolesc Psychiatry.* 1992; **31:655-662**.
31. Mholongo, T., Peltzer, K. Parasuicide among youth in a general hospital in South Africa. *Curationis* 1999 Jun; **22(2)**: 72-6.
32. Okulate, G.T. Suicide attempts in a Nigerian military setting. *East Afr Med J* 2001 Sep; **78 (9)**: 493-6.

33. Allan, A., Roberts, M.C., Allan, M.M. Intoxication, criminal offence and suicide attempts in a group of South African problem drinkers. *S Afr Med J* 2001 Feb; **91(2)**: 145-50.
34. Kebede, D., Alem, A. Suicide attempts and ideation among adults in Addis Ababa, Ethiopia. *Acta Psychiatr Scand Suppl* 1999; 397: 35 - 9, Addis Ababa, Ethiopia. W ^ ^ ^ ^ A R y
35. Roy, A., Nielsen, D., Rylander, G., Sarchiapone, M., Segal, ^ ^ fenetics of suicide in depression. *J Clin Psychiatry*. 1999;**60(suppl 2)**: 12-17.
36. Egeland, J., Sussex, J. Suicide and family loading for affective disorders. *JAMA*. 1985;**254:915-918**.
37. Ovuga, E.B., Buga, J.W., Guwatudde, D. Risk factors towards self-destructive behaviour among fresh students at Makerere University. East. *Afr. MedJ* 1995 Nov; 72 (11): 722-7.
38. Mann, J.J., Arango, V. Abnormalities of brain structure and function in mood disorders. In: Charney DS, Nestler EJ, Bunney MS, eds. *Neurobiology of Mental Illness*. New York, NY: Oxford University Press; 1999:385-393.
39. Mann, J.J., Huang, Y.Y., Underwood, M.D. A serotonin transporter gene promoter polymorphism (5-HTTLPR) and prefrontal cortical binding in major depression and suicide. *Arch Gen Psychiatry*. 2000; **57:729-738**.
40. Mann, J.J. Role of serotonergic system in the pathogenesis of major depression and suicidal behavior. *Neuropsychopharmacology*. 1999; **21(suppl 2)**: 99S-105S.
41. Arranz, B., Blennow, K., Eriksson, A., Mansson, J.E., Marcusson, J. Serotonergic, noradrenergic, and dopaminergic measures in suicide brains. *Biol Psychiatry*. 1997; **41:1000-1009**.

42. Partonen, T., Haukka, J., Virtamo, J., Taylor, P.R., Lonnqvist, J. Association of low serum total cholesterol with major depression and suicide. *Br J Psychiatry*. 1999; **175**:259-262.
43. Odejide, A.O., Williams, A.O., Ohaeri. J.U. The epidemiology of deliberate self-harm. The Ibadan experience. *Br J Psychiatry* 1986 Dec; **149**:734-7.
44. Edwards, S.D., Cheetham. R.W., Naidoo, L.R. Parasuicide in the Durban Indian community. *S Afr Med J* 1981 Aug 8; **60 (6)**: 241-3.
45. Mzezewa, S., Jonsson, K., Aberg, M. A prospective study of suicidal burns admitted to the Harare burns unit. *Burns* 2000 Aug; **26(5)**:460-4.
46. Palmer, C.S., Revicki, D.A., Hapern, M.T., Haziandrieu, E.J. The cost of suicide and suicide attempts in the United States. *Clin Neuropharmacology*. 1995; **18(suppl 3)**: S525-S533.
47. Wyatt, R.J., Henter, I. An economic evaluation of manic-depressive illness. *Soc Psychiatry Psychiatr Epidemiol*. 1995; **30**:213-219.
48. Kind, P., Sorensen, J. The costs of depression. *Intl Clin Psychopharmacol*. 1993; **7**:191-195. Part II.

APPENDIX I

Dear Colleague,

RE: MANAGEMENT OF ATTEMPTED SUICIDE AT KNH

Suicide is a leading psychiatric and medical challenge and a public health emergency worldwide. As a referral hospital, Kenyatta National Hospital receives a significant number of attempted suicide cases. These often present a management problem to non-psychiatric doctors.

In order to provide timely intervention and effective management, we at Kenyatta National Hospital would wish to know how you currently manage attempted suicide cases and any obstacles encountered. Your suggestions on how we can improve the quality of health care delivery to this cadre of patients would also be invaluable.

To this end, we request you to assist us by filling in the attached short questionnaire.

The data collected will only be used for research purposes. You need not disclose your identity.

Thanking you in advance

Yours faithfully

Dr.Okech VCA
Patient Support Centre, Kenyatta National Hospital
Department of Psychiatry, University of Nairobi.

16. Are you familiar with the suicide intent scale? Yes. _____ No. If no... skip question 17.

17. The following are components of the suicide intent scale, (tick appropriate ones),

isolation timing
suicide note alcohol use
 L _ _ J
 precaution against intervention
final acts in anticipation of death

18. Name two criteria you use for admitting patients with attempted suicide into the wards.

19. Tick the obstacles encountered in trying to manage patients who attempt suicide.

- a) lack of time
- b) lack of counselling skills
- c) lack of knowledge about management protocol
- d) lack of knowledge about medication
- e) inadequate numbers of counsellors to refer to.
- f) inadequate numbers of psychiatrists to refer to
- g) inadequate numbers of psychologists to refer to
- h) difficulty in obtaining adequate relevant history about the suicide attempt
- i) other (specify)

20. Do you know any formal management protocol for managing patients who attempt suicide? Yes No

21. Would you find it helpful in your work to have a formal management protocol for attempted suicide? Yes No

22. What suggestions do you have on how you can be helped to manage patients who attempt suicide more effectively?

Thank you for participating in the study!