

THE PREVALENCE OF MENTAL DISORDERS AND THE ATTITUDES OF STAFF IN GENERAL MEDICAL FACILITIES IN KENYA

A MONOGRAPH OF AFRICA MENTAL HEALTH FOUNDATION (AMHF)
IN CONJUNCTION WITH
WORLD HEALTH ORGANISATION (WHO)

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DEDICATION

This study is dedicated to all Medical and Allied students, and staffs in Africa in whom we invest and entrust the care of patients, on one hand, and on the other hand to the patients in Africa seeking help in general medical facilities. It is hoped that the health care professionals and their patients will find common and mutual enriching grounds in the area of mental health even as both struggle with the physical conditions, one the carer and the other the cared for.

David Musyimi Ndeti

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PREFACE

The study reported here is part of a Road-Map for mental health research conceptualized and developed by Prof. David M. Ndeti under the auspices of Africa Mental Health Foundation (AMHF) which is dedicated to Research for evidence-based Policy, Practice in and Promotion of Mental and Neurological Health and Healthy Behavior. It is a joint venture of AMHF and the World Health Organisation (WHO).

So far as part of this Road Map, the following areas have been studied and the reports are at advanced stages of finalisation: -

1. A clinical and phenomenological study of patients in Mathari Hospital which clearly has both policy and good practice implications – focussing on the whole population of 691 patients at the time of the study (supported wholly by AMHF).
2. Mental health and substance use in schools, with a sample size of just about 9,000, equivalent of 37% of all Public Secondary Schools in Nairobi (supported wholly by AMHF).
3. Substance Use/HIV/AIDS in drug recovering patients and in on-going drug users in their secret dens in 5 urban areas in Kenya (supported by UNODC).
4. Attitudes of Medical students, University of Nairobi (UoN) towards Psychiatry; Beliefs of Medical students on Psychiatry and the students of the College of Health Sciences perception of their learning environment. All these studies are meant to give insights on how best to interest medical students in Mental Health.

Other studies are at various stages of development to fill the critical missing gaps in mental health data in Kenya, all to guide policy and practice based on evidence for the most cost-effective alternatives. Foremost amongst these are mental health and drug abuse in prison populations and in general population.

This particular study was meant to study and document the prevalence of depression, anxiety, cognitive disorders and substance use and abuse in general medical facilities,

ranging from the lowest level of the Health Centre all the way to the Kenyatta National Hospital, the biggest Referral and Teaching Hospital in East and Central Africa.

The study also looked at Knowledge, Attitude, Practice and Stigma towards mental health in various types and grades of the staff working in those facilities. It sought to identify the missing linkages between the need for services on Mental Health in such facilities and the provision of those services on the part of the staff, and suggest solutions.

The findings have far reaching implications on good clinical practice (for both physical and mental health disorders) and policy implications on how to bridge the gaps.

The results are presented in three formats to suit different readers: Narratives for those who want to know the general trends, bar- and pie-charts for those who want a visual impression of the most important trends for all the sites together, and tables (as an appendix) for those interested in the detailed data. Inferential analysis was not included in this report which is meant mainly for policy makers' readership. Neither was comparative data provided since the report intends to report and document Kenyan data. Both inferential analysis and comparisons will be done in the scientific papers and reports.

A detailed executive summary is provided for those only interested in the findings, conclusions and recommendations.

This report is in the format of a monograph primarily meant for policy makers, out of which various scientific papers are in the process of development.

Professor David Musyimi Ndeti

ACKNOWLEDGEMENTS

This study was co-sponsored by the World Health Organisation and the Africa Mental Health Foundation (AMHF), a Kenyan NGO specifically dedicated to Research for evidence-based Policy, Practice in and Promotion of Mental and Neurological Health and Healthy Behavior. It was cleared by the Kenyatta National Hospital Research and Clearance Committee. The Heads of the various medical facilities made it possible for the study to be done, through their permission, for the study to take place in their institutions. The staff in the concerned institutions who found the time to be trained and their own time to administer the questionnaire, Dr. G.M. Mareko of Kenyatta National Hospital and 4th and 5th Medical students (headed by Sam Kariuki and assisted by Charles Kwobah), University of Nairobi who already had psychiatric clinical exposure all played crucial roles. The patients and the parents/guardians of the children, and the children themselves were just eager to participate, making the process very smooth.

Several medical students from the University of Nairobi participated in the data entry, Grace Mutevu of AMHF did the data cleaning and data analysis at the direction of the Principal Investigator (PI), and the staff of AMHF provided much needed administrative and technical staff. The University of Nairobi allowed me the time for this research.

I am specifically grateful to my Co-PIs who did the training for all the sites except Dr. Kimani, a Registrar in psychiatry who trained for the Kikuyu hospital and the two health centres. The Co-PIs helped in the literature search and drafting of the report. The other investigators played key roles in the initial conceptualisation of the study by the PI and in the planning and implementation stages of the study, and in the final drafts.

DEFINITIONS/ABBREVIATIONS

Definitions

- KNH –Kenyatta National Hospital – the largest teaching and referral hospital in Kenya
- Medical practitioners/Clinicians- inclusive of clinical officers, medical officers, specialist doctors/consultants.
- Clinical Officer - trained for 3 years in clinical medicine after high school education, holder of a diploma in clinical medicine.
- Psychiatric nurse - a nurse with training in general nursing as well as 8-12 months training in mental health nursing.
- Specialist - undergraduate training in medicine and surgery then three years clinical practice in general medicine followed by a postgraduate training in any of the medical disciplines such as psychiatry, internal medicine, surgery, paediatrics, obstetrics and gynaecology at the university.
- Mathari Hospital - National teaching and referral mental hospital in Kenya
- Community Enrolled Nurse – A nurse trained to a level just below that of a registered nurse.

Abbreviations

ASSIT – Alcohol, Smoking and Substance Involvement Screening Test

AUA- Alcohol use /abuse

BDI – Beck Depression Inventory

Bsc – Bachelor of Science

CCC – Comprehensive Care Clinic

CDI – Child Depression Inventory

CIDI – Composite International Diagnostic Interview

CME – Continued Medical education

CT- Cancer

CVD- Cerebrovascular

DM- Diabetes Mellitus

ENT – Ear Nose and Throat

EPDS – Edinburgh Postnatal Depression Scale
GS - General Surgery
GU - Genito urinary disease
Gynae - Gynaecological conditions
HMO - Health Management Organisation
HT - Hypertension
LSAD – Leeds Scales for the Self-Assessment of Anxiety and Depression
MBCbB – Bachelor of Medicine and Bachelor of Surgery (This is the first medical qualification in Kenya and in most countries with the English school of Medicine, equivalent to MD in some countries)
MMSE – Mini-Mental State Examination
MOCP – Medical Outpatient Clinic
MTRH- Moi Teaching and Referral Hospital
NHIF- National Hospital Insurance Fund
NOK – Ndetei-Othieno-Kathuku Scale
Obst- Obstetrical conditions
OM- Other Medical conditions
Ortho/STI- Orthopaedic conditions / Soft tissue injury
PHO – Public Health Officer
PTSD- Post traumatic stress disorder
PUD- Peptic Ulcer Disease
RCO – Registered Clinical Officer
RS- Respiratory system conditions
SCID – Structured Clinical Interview for the Diagnosis of DSM-IV Diagnosis
SOP – Surgical Outpatient Clinic
SUA- Substance use / abuse
TB- Tuberculosis
UNODC – United Nations Office for Drugs and Crime

LEVELS OF HEALTH CARE PROVISION (Types of staff in brackets)

Public Facilities

Dispensary (usually manned by a community
enrolled nurses



Health centre (Clinical officer, Nurses)

Sub-district hospital (A doctor – usually few with no specialist training)

District hospital (Few doctors with specialist training, usually no psychiatrist)

Provincial hospital (All specialists available; normally psychiatrist is also available.)

KNH/MTRH-National referral hospital – (Have psychiatrists - KNH has 6, MTRH has 6)

Private Hospitals

Individual, Company owned,
Mission, HMO , Faith Based
Organisation (any depending
on size)

EXECUTIVE SUMMARY

BACKGROUND

The prevalence and types of mental disorders among patients in general health facilities and attitudes of the staff towards mental health are not known in Kenya. The information is necessary for policies geared towards provision of appropriate mental health care services in general hospitals. It is also important for appropriate human resource development and good clinical practice.

OBJECTIVES

General objective: To determine the prevalence of psychiatric morbidity and their management in general hospitals and health centres in Kenya and staffs stigma/attitudes towards mental illness.

Specific Objectives:

1. To determine the prevalence of the common psychiatric disorders in patients in general hospitals.
2. To determine the prevalence of the common psychiatric disorders in patients seen in a health centre setting.
3. To determine the prevalence of the common psychiatric disorders in specialized clinics and units in general hospitals.
4. To determine whether these conditions are recognized.
5. To determine how these conditions are managed.
6. To characterize the attitudes and stigma towards mental health by professionals in the general non-psychiatric facilities.

DESIGN, SETTING AND PARTICIPANTS

STUDY DESIGN: Descriptive cross-sectional

SETTINGS: In two Health Centres (Karuri and Kibera), 2 Sub-District Hospitals (Makindu and Naivasha), 2 District Hospitals (Kiambu and Kajiado), 1 Provincial

Hospital (Embu), 1 National teaching and referral hospital (Kenyatta National Hospital-KNH), 1 mission hospital (Kikuyu) and 1 private institutional hospital (Magadi).

PARTICIPANTS: 2799 adults and 411 children who were in-patients or out-patients (excluding those in the psychiatric wards or clinics) in the named health facilities and were willing and able to voluntarily participate in the study.

METHOD

The patients were sampled using a broad stratified sampling in each institution to cater for the different disciplines of medicine, then in each sub-unit a systematic sampling was employed except if there were few then all those who consented were interviewed. The research assistants who included nurses, clinical officers and medical students (4th and final year) were trained on the instrument and recruitment of participants, including observations of all the ethical issues detailed in the main text under Methods and Subjects. The data was collected over a four week period (November 2005) using a socio-demographic questionnaire, the BDI for adults and the CDI for children, the Leeds Anxiety and Depression Scale, the NOK, the WHO Audit for Alcohol, the ASSIST, a special screen for Psychosis, the Edinburgh Postnatal Depression scale and the Mini-Mental State Examination (for the adults only). The staffs had a questionnaire designed by the principal investigator which enquired about the staffs' professional background, and a questionnaire adopted from Mayou and Smith (1986) and recently used by Morgan and Killoughery (2003) on attitude to Psychiatry in general, and attitudes to depression in particular. The data was managed and analysed according to the details provided in the text under Methods and Subjects.

RESULTS:

ADULTS

Social-Demographics

A total of 2799 patients were interviewed of which (n=1295) 46.3% were males and (n=1502) 53.7% were females. The age ranged from 18-90 years with the majority (n=593) lying in the 21-25 and (n=590) 26-30 age bracket (20-30%) except in Kajiado

and Naivasha where 18-20 age bracket was a majority (27.9%). Over 80% had no medical insurance and depended on somebody else to pay for their medical expenses.

Diagnoses and Clinical Practice:

67.8% of the patients had been given a chance by the doctors to ask about their conditions and 72.4% had been informed of their diagnoses.

Less than 2% of the patients thought they had a mental illness and in less than 2% of the patients did the doctor tell them they had a mental disorder. Less than 7% of the patients had a diagnosis of mental illness entered in the patients' clinical notes.

The BDI, LSD, NOK

On BDI, 42.3% of all participants were suffering from mild to severe depression distributed as mild depression 38.9%, moderate depression 3.2% and severe depression 0.2%. Higher site rates were noted in Naivasha n=49; BDI scores >8 =66.2%, Makindu n=73; BDI scores >8 =63.5%, Embu n=68; BDI scores >8 =53.8% and Kajiado n=27; BDI scores >8 =53.0%. The file diagnosis (clinicians pick rate) for depression was very low ranging from none in Embu, Kiambu, Makindu, Magadi and Karuri to 16.4% in Kajiado. The other instruments picked lower rates of depression (and anxiety).

Postnatal depression

Of the mothers with children less than one year old, (n=226) 95.9% had mild to severe depression on the EPDS, distributed as follows: Mild=6.0%; moderate 75.6% and severe 14.3%. It was only in KNH (n=10 out of 134 females) (0.7%) and Embu (n=10 out of 32 females) (31.3%) that a small proportion of respondents were found to be normal.

Drugs:

The most abused substances were alcohol (n=706; 25.2%), tobacco (n=452; 16.1%), cannabis (n=107; 3.8%), cocaine (n=33; 1.2%), amphetamines/khat (n=100; 3.6%) and sedatives in that order. Overall substance user rate was (n=698; 24.8% with (n=197; 63.3% males and (n=31; 22.4% females being dependent on alcohol. Apart from Kibera

and Kikuyu, all the other alcohol users in other sites (n=536; 75.9% needed some brief intervention and (n=10; 1.4% intense treatment. For cannabis (n=4; 3.7% of the users did not require any intervention, (n=92; 87.8% needed brief intervention and (n=11; 8.5% intense treatment. Cocaine users though few all required some intervention with (n=22; 66.7% requiring brief intervention and (n=10; 33.3% intense treatment. (n=95; 95% of the Amphetamine/Khat users required some intervention. Of those who had used sedatives (n=59; 90.7% required some intervention.

Cognitive Functions

Cognitive impairment was mainly diagnosed in the hospitals and not in the health centres with Makindu recording highest 52.3%, followed by Magadi (24.1%), Kajiado (21.3%) and Naivasha (15.5%).

Co-morbidity

(n=60) 59.6% of patients suffering from cancer and (n=13) 52.2%, suffering from HIV/AIDS scored positively on the BDI and LEEDS scales. Patients with typhoid and cerebrovascular disease (CVD) did not have any positive scores on general anxiety scale. Highest rates for the NOK instrument were recorded among patients with other medical co-morbid conditions (n=199) (78.6%) and HIV/AIDS (n=16) (64.7%).

All patients who used alcohol exhibited pathological use which bordered from harmful use to dependence. Highest dependence was found among TB (n=71) (64.3%), general surgery (n=41) (52.6%) and Respiratory system (n=67) (51.4%) patients. All PUD and HIV/AIDS were harmful and dependent users.

Mental illness among patients treated for malaria showed depression was low (n=47) 38.6% but alcohol use was high (n=706) 67.9%).

Clinical diagnoses of mental disorders

Of the several diagnoses listed only 114(4%) of study subjects had a file diagnosis of mental disorder, mainly from KNH 39/114 (34.2%), Naivasha 24/114 (21.1%), Embu

5/114 (4.4%), Kibera 4/114 (3.5%) and 1/114 (0.9%) each from Kiambu (chronic mental illness), Kikuyu, Makindu and Magadi (mental disorder) and Karuri (bipolar disorder). A range of mental disorder diagnoses was documented at KNH and Kajiado (13 in each site), Kibera (bipolar disorder, schizophrenia and psychosis), Embu (mental disorder, depression and substance use disorder) and Naivasha (depression, Epilepsy, other psychiatric illness, parasuicide). Mathari Hospital was the referral centre for patients from Karuri (100%), Kiambu (100%), Kajiado, and Kibera. KNH also received patients from Kajiado and Kibera. Those seen at the health centres were all referred. The referrals were mainly to CCC (Comprehensive Care Clinic) probably due to a recent increase in HIV related mental disorders, counselling clinics and psychiatric clinics.

CHILDREN:

Socio-demographic characteristics

A total of 411 children aged 11-18 years with a mean of 15.54, medium of 16, mode of 17 participated in the study. Except for KNH, the numbers from other sites are too small to give significant meaning to the percentages. Majority were Christians (93.4%) and 59.1% were boys and 40.9% girls. All had some formal education. Kajiado, Naivasha and Makindu had a high level of orphanhood for either or both of the parents, ranging from 9.1% - 29.6% except for Magadi where there was no father orphanhood. All the children were staying with a parent or guardian who was in gainful employment except in Makindu where the majority were farmers. Only 1.1% was overall not employed, mainly from KNH.

Diagnoses and Clinical Practice

91.6% had their own thoughts of what they were suffering from even though the clinician had only communicated to 61.5% of them. Of the mental disorders, depression was suspected by 0.6% (i.e. 2 children out of 344), a mental problem by 0.3 (1 child), insomnia 0.9% (3 children), epilepsy by 0.3% (1 child). When all possible psychiatric disorders entered in the case notes are considered then a total of 17 diagnoses were recorded from all sites, only 4 at KNH, 1 Kiambu and 9 in Kajiado, distributed as following: - Depression 9, epilepsy 2, 1 each for panic attack, puerperal psychosis, rape,

schizophrenia, stress and substance abuse. It was only at KNH where all of the cases had been referred to a psychiatrist. At Kajiado three had been referred to a psychiatric nurse.

Instruments CDI, LSAD, NOK, AUDIT, ASSIST, PSYCHOSIS

Not all 411 children completed these instruments. Those who completed were as follows: - CDI 295; LSAD 321; NOK 295; AUDIT 20; ASSIST 342 and Psychosis 12.

98.4% had a positive score on CDI suggesting some degree of depression. On LSAD the scores were as follows: Endogenous depression (severe depression) 96.6%, Anxiety Neurosis (severe anxiety) 97.8%, Depression General (mild depression) 95.4% and Anxiety General (mild anxiety) 97.8% were found in the majority of the respondents.

The NOK recorded higher normal scores for both anxiety and depressive symptoms in 78% of all the respondents, which was well replicated in all sites except Embu which showed a higher pathology of 50%. On average, anxiety/depression was about 22% for all the sites combined. No severe symptoms were recorded.

Only 20 youth responded to the AUDIT instrument of which 8 i.e. 40% were dependent on alcohol and 2(10%) were harmful users. ASSIST with a higher response rate picked 3.7%-20% requiring only brief intervention with an overall average rate of 7.9%.

All the 12 children who answered to this instrument scored positive for psychosis.

Orphans

All the children who were orphaned had very high CDI scores at 41-54, implying severe depression. However, on the NOK scale 30% who did not have their mothers and 16.7% who were orphans of their fathers scored 20-47 suggesting mild anxiety and depression.

STAFF:

Social-Demographic Characteristics and Professional Backgrounds

A total of 648 staff working at the 10 study sites participated in the study. Their age range was 19-59 years, mean age 34.6, median 34, mode 30. 41% were males and 59% females. Females were the majority in Magadi where all the respondents were males and Karuri 2/3 (60%) males. Nurses were the most in number (50%), followed by doctors 17.9%, physiotherapists 6.3%, student nurses 5.7%, registered clinical officers 4%, occupational therapists 3.2%, medical students 2.6% and administrators 1.9%.

Clinical experience with mental disorders:

Out of every 100 patients seen by the staff, from all the sites, the results showed that 14.3% of the respondents were attending to 1-2 patients with mental illness, 13.7% attending to 3-5 patients, 17.2% attending to 6-10 patients, 22.4% attending to 11-20 patients, 3.1% attending to 61-100 patients. Only 4.3% thought they were not attending to any patient with mental illness.

Only 5.3% of the staff did not attend to any patient with a significant mental health component. From all the sites, 26.0% of the staffs indicated that they had 6-10 patients with a significant psychiatric component in addition to the physical illness out of every 100 patients they saw, followed by 18.5% staff that had 3-5 patients, 17.2% of the staff who saw between 11-20 patients, 16.9% of the staff who identified 1-2 patients, 6.2% of the staff seeing 21-30, 5.6% staff seeing 31-40 patients in 100 and 1.9% seeing 41-50.

Thus most staffs thought they were dealing with patients who also had mental health problems in addition to their physical disorders.

Access to Mental Health Specialists and Referrals

From all the sites the majority of the staffs had access to mental health workers in case they needed to refer; KNH 92.7%, Embu 90.2%, Kiambu 91.8%, Kikuyu 67.7%, Kajiado 90.9%, Kibera 66.7%, Naivasha 95.8% and Karuri 100%, except the staff in Magadi who did not have these access (25%).

CME on mental health

Over 75% of the staffs from all centres had not had a chance to attend a refresher course in mental health. Among the hindering factors were: lack of time (36.1%), lack of interest (16.5%) and a waste of time (3.4%). Majority of the staffs (>80% from most sites) needed a refresher course in mental health because they thought mental health was relevant to what they saw at work; except for KNH and Magadi where only 61.1% and 66.7% felt the need.

Attitude, Knowledge, Practice and Stigma towards mental illness and depressed patients

Only the results for the substantial numbers of staffs and in particular those who are in close contact with the patients are reproduced here.

On attitudes of the staff towards mental health, the results were as follows:-

- Doctors: Positive = 46.1%; uncertain = 34.8%; Negative = 19.1%.
- Medical students (doctors in the making): Positive = 43.8%; uncertain 50.0%; Negative = 6.3%.
- Nurses: Positive = 30.8%; uncertain = 59.3%; Negative = 9.9%.
- Students nurse (nurses in the making): Positive = 39.3%; uncertain = 57.1%; Negative = 3.6%.
- RCO (n=25): Positive = 48.0%; uncertain = 44.0%; Negative = 8.0%.
- Psychotherapists (n=39%): Positive = 43.6%; uncertain 51.3%; Negative = 5.1%.
- There were a few administrators (n=12) who are important in that they are policy makers and can influence what is practiced in their institutions: Positive = none; uncertain = 33.3%; Negative = 66.7%.

On stigma towards persons with depression the respective results were as follows: -

- Doctors: Do not stigmatise 63.5%, uncertain 33.0%; stigmatise 3.5%.
- Medical students: Do not stigmatise 12.5%; uncertain 81.3%; stigmatise 6.3%.
- Nurses: Do not stigmatise 19.5%; uncertain 78.8%; stigmatise 2.6%.
- Students nurse: Do not stigmatise 9.1%; uncertain 81.8%, stigmatise 9.1%

- RCO (n=26): Do not stigmatise 15.4%; uncertain 84.6%; stigmatise 0
- Physiotherapists (n=38): Do not stigmatise 23.7%; uncertain 73.7%; stigmatise 2.6%.
- Administrator (n=9). Do not stigmatise 22.2%; uncertain 77.8%; stigmatise 0.

On awareness that psychological factors influence the cause and outcome of physical disorders: -

- Doctors: Aware 50.0%; uncertain 31.9%; unaware 18.1%.
- Medical students: Aware 52.9%; uncertain 41.2%; unaware 5.9%.
- Nurse: Aware 34.2%; uncertain 57.3%; unaware 8.5%.
- Nursing students: Aware 44.4%; uncertain 50.0%; unaware 5.6%.
- RCO (n=24): Aware 33.3%; uncertain 54.2%; unaware 12.5%.
- Physiotherapists (n=40): Aware 27.5%; uncertain 65.0% and unaware 7.5%.
- Administrators: (n=2): Aware 33.3%, uncertain 41.7%; unaware 25.0%.

On whether the staffs were aware that they need more contact with psychiatric services, should know more about psychiatry services in the management of medical or surgical patients and what psychiatrist have to offer in general hospitals: -

- Doctors: Aware 12.2%; uncertain 73.0%; unaware 14.8%.
- Medical students: 18.8%; 61.7% and 0% respectively.
- Nurse: 26.1%; 61.7% and 12.2% respectively.
- Nursing students: 18.8%; 71.9% and 9.4% respectively.
- Administrators: (n=9) 0%; 66.7% and 33.3% respectively.
- RCO: (n=25) 16.0%; 80% and 4.0% respectively.
- Physiotherapists: (n=40) 16.2%; 75.7% and 8.1% respectively.

However, the most finding is that, a significant proportion of the staffs were unaware and therefore amenable to education especially at undergraduate level or as part of CME.

For details in the other areas of attitudes refer to Table S21.

When doctors and nurses are compared and also in respect to age structure the following were found: -

1. The doctors were better off than nurses in the general knowledge, attitude and practice in relation to mental health.
2. The doctors knowledge about mental disorders increased with age but slightly decreased with age in the nurses.
3. The doctors felt responsibility for people with mental disorders increased with age and slightly decreased in the nurses.
4. The younger doctors and nurses were more aware of the assessment on psychological disorders than the older ones.
5. The younger doctors and nurses had better knowledge on treatments than the older ones.
6. The younger doctors and nurses had more knowledge on psychiatry in general than the older ones.

Therefore these findings suggest lack of psychiatric inputs in the training of nurses.

On stigma towards depression there were also differences between doctors and nurses and in respect to age: -

1. The younger doctors stigmatised less than older doctors whereas the younger nurses stigmatised more than the older ones.
2. In relation to people with depression in general, younger doctors (21-30) stigmatised more than those 40 or more years. The younger nurses (25-30) stigmatised most (54.7%) than those more than 40 doctors in general stigmatised less than more.

These findings re-affirm lack of psychiatric input in the nurses more than the doctors, which can be corrected at the time of training or as part of CME.

CONCLUSIONS:

ADULT PATIENTS AND CHILDREN:

- Mental illnesses are highly prevalent in general health facilities according to the research diagnostic tools.
- Mental illnesses go almost totally unrecognized by both patients and clinicians in general health facilities and therefore unmanaged.
- There is a patient-doctor two way communication breakdown on what the patient is being managed for in about 30% overall with widely varying percentages in different sites.
- There is need to develop and/or adopt and validate various psychometric instruments for screening and diagnostic purposes and routine clinical practice.
- As for the adults (unlike the children) a higher rate of psychiatric morbidity was found in those with chronic conditions such as TB, Cancer, HIV/AIDS, and also on diseases involving the reproduction functions i.e. genitor-urinary diseases.
- Many patients with physical illnesses also had alcohol and drugs abuse problems which were unrecognized.
- Those mental disorders recognised were generally referred to psychiatric nurses *where available and were rarely managed by the doctors themselves.*

Thus: All the general and specific objectives on prevalence's and management of mental disorders were met.

STAFFS

- The staffs do not generally recognise mental health disorders
- On average 30% of the staffs do not adequately communicate to their patients on their diagnoses and management even on physical condition.
- The staffs feel inadequate towards diagnosis and management of mental illness.
- The staff felt the need for continued medical education (CME) on clinical mental health service provision.
- A significant proportion of the staff had negative attitudes to and stigmatised mentally ill patients but also many of them were unaware or undecided.

- The mentally ill patients if recognised are not appropriately managed.
- **Stigma:** This is a major obstacle in provision and utilization of mental health services.

Thus: All the general and specific objectives on the staffs were met.

RECOMMENDATIONS

1. Training

- There should be a policy to incorporate mental health in the training of all medical and all paramedical staff (nurses, social workers, psychologists of all other specialities, clinical officers, rehabilitation officers etc) and medical students to empower them to recognise and manage mental health problems to a no lesser extent as they are capable of recognizing and managing physical conditions at their level of training.
- The training of psychiatric clinical officers in Kenya is long overdue and should be initiated without any further delay as a priority over and above training of psychiatrists.
- The Division of Mental Health, Ministry of Health in Liaison with other stakeholders should lobby and spearhead the above.

2. Continued Medical Education (CME)

- The Division of Mental Health, Ministry of Health in Liaison with other stakeholders should spearhead and lobby for CME's at all levels of healthcare provision.
- The Kenya Psychiatric Association, (a major stakeholder) in collaboration with the Division of Mental Health, Ministry of Health, should take up this challenge to all private institutions.

3. Mental Health Services

- Mental health services should be fully integrated within the general health care at all levels to reduce the stigma and improve mental health service provision.

4. Stigma

- This can be best minimised through integration of mental health training in all sectors of medical education and continued medical education. The Division of mental health, Ministry of Health should spearhead this and lobby for this in collaboration with all stakeholders.

5. Best Clinical Practices

- Clinicians should effectively communicate their finding with patients in all areas of their practice.
- Clinicians should be able to employ team work with appropriate support systems, referrals systems and networks.

6. The referrals system

- There should be clear guidelines on referral systems that are available at every level of medical health care facilities, which guidelines should be available to all staffs and patients.

7. Screening and diagnoses

- It is an expected good clinical practice in many centres to routinely administer screening and diagnostic psychometric instruments in non-psychiatric hospitals and facilities. This helps non-psychiatrists to detect and identify psychiatric morbidity. This approach should be considered in Kenya.

8. Research

- There is an urgent need to develop, adopt and validate appropriate tools that can be routinely used for screening and diagnostic purposes even by non-psychiatrists in general medical facilities. These instruments should be in various local languages.
- There is an urgent need for community based surveys to ascertain the incidence, prevalence and types of mental health disorders and best community based prevention, interventions and management to decrease morbidity.

- *There is an urgent need for research on evidence-based approach towards reduction of stigma, and evaluations of any approaches on stigma.*

INTRODUCTION

Over 40% of patients in general medical and surgical wards have diagnosable mental illness needing treatment (Von Amon, 1983; Nabarro, 1984). The most frequent diagnoses are depression, anxiety and organic brain syndromes, with 39% of these patients showing cognitive deficits. Conversely almost 60% of psychiatric patients have identifiable physical illness for which non-mental health specialists attend to them (Granville-Grossman, 1983).

Psychiatric disorders are common among in-patients in General Hospitals. This prevalence rated at 40% exceeds that reported in Kenyan studies at 20-25% by (Ndeti, and Muhangi 1979), (Dhadphale (1984) in outpatient general facilities. Data from several studies show that the frequencies of the major mental disorders accounted in the general hospital setting are as follows: Organic mental disorders (15%), Neurotic stress related and somatoform disorders (12%) and mood disorders (9%) (Lipowski 1977). Further behavioural syndromes associated with physiological disturbances and physical factors, personality disorders, childhood and development disorders each account for 2% of the cases; while schizophrenia accounts for 1%, although it is the most common disorder in the mental hospitals (Lipowski 1977).

A study done at Kenyatta National Hospital by Makanyengo (2005) on referrals to a psychiatric service showed that many patients who presented mainly with psychiatric symptoms accounted for 8.7% of the cases at the hospital ward and consultations constituted 9.6% of those cases. Majority were under the age of 44 years. Of the patients referred from the ward, 28.86% had alcohol related disorders, 17.65% acute and transient psychiatric disorder, 9.19% depressive disorders, 4.78% dissociative and conversion disorders, 5.7 % dementia, 4.96% schizophrenia, 2.92%, delirium, 0.92%, anxiety disorders and 4.96% childhood disorders. Females had more of depressive, dissociative anxiety and conversion disorders while males had more substance abuse (alcohol and cannabis), bipolar and childhood disorders.

Untreated psychiatric illness in the medically ill is associated with increased morbidity, increased length of hospital stay and ultimately increased costs of care (Gomez 1987). This often leads to wasteful, costly and inefficient use of medical services and complications of the diagnoses and treatments among these patients (Musisi S., et al 2001). There is thus the need to recognize and appropriately manage these psychiatric disorders in patients attending general hospitals.

It has been shown that surgeons and nurses detect only minority of the substance abusing surgical patients (Lappalainen, 2005). They detected only 23% of their patients with substance abuse; 84% of the nurses and 83% of the surgeons perceived responsibility for intervention but claimed obstacles such as lack of knowledge and time.

Apart from untreated psychiatric illness, the stigma associated with mental illness can adversely affect help-seeking behaviour (Wells, et al (1994)), employment, accommodation (Corrigan, et al 2001) and mental health in general (Link, et al 1997). The stigma attached to label of 'mental illness' can have a lasting impact on the person so labeled. The expectation and actual experience of stigmatization can result in the lowering of self-esteem (Link, et al 2001) and quality of life (Rosenfield, 1997), persistent depression (Link, et al 1997), impairment in social relationship (Perlick, et al 2001), and early treatment discontinuation (Sirey, et al 2001). Coping with stigma by avoidance, withdrawal and secrecy is common, but this may result in demoralization, social isolation and lost opportunities for education, employment and housing. The patients' fear of rejection, coupled with uncertainty about ability to function in everyday roles, is a significant barrier to full social participation for both the patients and their families (Clausen, 1981).

Persons suffering from schizophrenia and their close family members are such frequent targets of stigma (Scottish Schizophrenia Research Group, 1987).

Stigma is conceptualized as a malevolent influence existing in the external environment that wreaks havoc in the lives of those who are objects of it. The most damaging effect

of stigma and discrimination is the subjective internalization of these negative valuations; this is a cognitive process that can be resisted and altered.

Changing the negative response of patients and their families is a much more realistic goal for clinicians to achieve. To do this, clinicians need a greater understanding of the factors that mediate the emotional and cognitive responses to stigma, discrimination and live expression of emotions by the patient's family. In a study of people with schizophrenia and their family members in China on Stigma and expressed emotion, it was found that respondents who had high expressed emotions – emotional over involvement with their patients reported greater effect of stigma and discrimination on lives of both their patients and their family members. Stigma and discrimination had a greater effect on younger patients who had an earlier age of onset of schizophrenia.

THE KENYAN SITUATION

With absence of data, it is not possible to convince policy makers to make arrangements for these services, either in the area of allocation of mental health personnel as an integral part of the whole professional personnel in the general hospital for purposes of liaison medicine or continued education for mental health to non-psychiatric personnel to be able to recognize, manage or make appropriate referrals. This study aims to document the prevalence of mental health problems in general medical facilities and also characterize attitudes and stigma towards mental health by the medical workers.

The levels at which the general patients are studied include

- The Referral Hospital, which is also the Teaching Hospital
- The Provincial Hospital which often also serves as the District Hospital
- The District Hospital
- A Sub-District Hospital
- Health Centre

In the private sector, especially in church supported hospitals, the functions of the hospital usually complement the Government Hospital

It is further recognized that part of the problem may also be attitudes of staff in these general hospitals towards mental health.

Justification of the study

The fact that 40% of patients attending a general health facility may have a mental disorder requires that the mental disorders be recognised as well as be managed appropriately. With Kenya having only 68 psychiatrists (September 2006) to a population of approximately 34 million it is definite that they do not see the majority of patients with mental disorders. On the other hand over 90% of these specialists are found within Nairobi (i.e. based at the National referral hospital and the National mental health hospital) leaving many general health facilities without specialists. The literature above has also alluded to staff attitudes and knowledge as a major hindrance to the service provision.

Thus this study sets to find out whether the mental disorders are recognised and managed appropriately. It also seeks to find out attitudes of staff towards patients with mental illness and any contributing factors. This information is necessary for policy formulation for training, management, and service delivery for those with mental illness and reduction of stigma associated with the same.

THE HYPOTHESIS AND OBJECTIVES

It can therefore be hypothesized that: -

1. There is a high rate of mental health problems in patients admitted in general hospitals
2. These problems go undiagnosed and therefore unmanaged or not referred for specialist care.
3. Stigma and negative attitudes in staffs contribute to the decreased recognition and management of the patients with mental disorders.
4. There is lack of knowledge on mental health issues by staff in the general medical facilities.

The Null Hypothesis:

1. There are no mental health problems in patients in general medical facilities.
2. If any such mental health problems exist they are diagnosed and properly managed.
3. Medical staffs in above facilities have no stigma or negative attitudes toward mental illness.
4. Staffs in general hospitals do not lack knowledge on mental health issues.

The Objective of the study

To obtain evidence based prevalence of psychiatric morbidity in general hospitals and two health centres in Kenya and the stigma of the staff towards mental illness and in particular depression, one of the commonest disorders.

Specific Objectives

1. To determine prevalence of the common psychiatric disorders in patients admitted in general hospitals.
2. To determine prevalence of the common psychiatric disorders in patients seen in a health centre setting.
3. To determine the prevalence of the common psychiatric disorders in specialized clinics and units in general hospitals.

4. To determine whether these conditions are recognized
5. To determine how these conditions are managed
6. To characterize the attitudes and stigma towards mental health by professionals in the general non-psychiatric facilities

METHODS AND SUBJECTS

STUDY DESIGN AND CHOICE OF SITES

This was a cross-sectional study conducted in several ten (10) health facilities which were selected to represent the different levels of healthcare provision, in keeping with the country's healthcare system. These included, from the lowest, two health centres (Karuri and Kibera), 2 sub-district hospitals (Makindu and Naivasha), 2 district hospitals (Kiambu and Kajiado), 1 provincial hospital (Embu) and 1 National teaching and referral hospital (Kenyatta National Hospital-KNH). It also includes 1 mission Faith based hospital (Kikuyu) and 1 private institutional hospital (Magadi).

The hospitals were selected on basis of proximity (that is within radius of 200km) to Nairobi the capital city of Kenya. They were basically representative of health infrastructure and governance as per the Ministry of Health's policy for the establishment and provision of care for particular level of healthcare. The study sites were also selected based on direction from the Nairobi city and to represent the different economic activities of the people (industrialisation, agriculturalist or pastoralists) and also cadres of personnel providing services within each site. KNH followed by Embu have more specialist doctors compared to other facilities and some without any.

All the facilities chosen offered both inpatient and outpatient services which was where the patient recruitment was to take place. However, the health centres do not have any outpatient clinics for follow-up except for ante-natal clinic; instead they refer all other patients who need specialised treatment to next level of care that is appropriate and available. Since this study wanted to find out the prevalence of mental disorders in general but not psychiatric facilities, it did not recruit patients from the psychiatric units or clinics, if any, in the facilities studied.

DESCRIPTION OF STUDY SITES

Kenyatta National Hospital

Kenyatta National Hospital is the National, Teaching and Referral Hospital located in the cosmopolitan political and commercial capital city of Nairobi. The Hospital has a ward

bed capacity of 1800 in-patients and 40,000 out patient capacity per month. It is manned by 2, 402 medical personnel (1002 medical practitioners/clinicians and 1400 nurses). It has 8 in-patient speciality areas: Obstetrics & Gynaecology, Paediatrics, Surgery (special), Surgery (general), Surgery (orthopaedics), Medicine, Special Units and Private wing. It is important to note that KNH has no psychiatric ward and thus refers most of their patients who cannot be managed in general wards to the Mathari Hospital, the National referral and teaching psychiatric hospital located about 13 kilometres away from KNH on the opposite side to city.

The out- patient department at Kenyatta National Hospital is divided into several specialties: Medical Out-patient Clinic (MOPC) running neurology, skin, cardiac, general medicine, diabetes consultant clinic , chest, diabetes mini clinic, and tuberculosis clinics; Surgical Out-patient Clinic (SOPC) runs thyroid, neurosurgery, general surgery, cardio thoracic, urology, plastic surgery, psychiatric, liver, renal and breast clinics; Paediatric Out Patient Clinic (POPC) runs haematology, child psychiatric, general surgery, neurology, skin, general medicine, cardiac and neo-natal clinics; ORTHOPAEDIC runs orthopaedic clinics; Obstetrical & Gynecological conditions clinic runs antenatal, general gynaecology, post natal, colposcopy, acute gynaecology, and infertility clinics; ENT clinics; EYE clinics and OTHERS which houses casualty, dental, radiotherapy, staff clinic, physiotherapy, occupational therapy, patient support centre, drop-in clinic, family planning, medical reports, paediatric day unit, cardiology unit, neurophysiology unit, renal and x-ray units.

Embu Provincial Hospital

Embu Provincial Hospital is a regional hospital serving one of the eight main administrative units of Kenya called Eastern Province. It is located 140km to the Northeast of Nairobi. The main economic activity of the people here is agriculture since it is located in the highland areas with two rainy seasons annually. The hospital has a ward capacity of 600 in-patients and 13, 400 out-patients per month. It is manned by 50 Medical practitioners (including 8 specialists) and 150 Nurses. It has specialist clinics (Internal medicine, Surgery, Orthopaedic surgery, Peadiatrics, Eye, ENT, Obstetrics and

Gynaecology, Chest, Comprehensive Care Clinic (CCC) and Psychiatry; just like KNH though with fewer sub-specialities. At the time of doing this study, there was no psychiatrist based in Embu but there is a psychiatric ward attached to the general hospital manned by psychiatric nurses with a walk in walk out outpatient service.

Kiambu District Hospital

Kiambu District Hospital is located about 17km North of Nairobi city centre within the Central Province in a major agricultural neighbourhood. It has a ward bed capacity of 360 in-patients and 8,000 out-patients per month. Kiambu hospital is manned by 20 Medical Practitioners and 80 Nurses. It also has out-patient clinics run by both specialist and medical officers. It has no specialised psychiatric services (unit / outpatient clinic).

Kajiado District Hospital

Kajiado is a district hospital located 158km south of Nairobi, in a major pastoralist area. It has a ward bed capacity of 179 inpatients and 2850 out-patients per month. It is manned by 11 clinicians (2 specialists, 4 medical officers, 5 clinical officers and 47 nurses (including 2 psychiatric nurses). It has outpatient clinics in medical, surgical and gynaecological fields but run by the specialists and medical officers. It also has a psychiatric clinic run by the 2 psychiatric nurses operational daily on a walk in walk-out basis.

It is worth noting that the two district hospitals are in opposite directions from the city with different economic activities.

The Sub-District Hospitals

Makindu sub-district hospital is situated 170km south-east of Nairobi in a rather dry area with one rainy season and where pastoralists are also found. It has a ward bed capacity of 225 in-patients and 5,000 out patients per month. It has 11 medical practitioners (2 medical officers and 9 clinical officers) and 74 nurses. It has a psychiatric clinic which operates once weekly and is run by 2 psychiatric nurses. It also has outpatient clinics in

gynaecology, general surgery, medical and paediatric run once weekly by the medical officers.

Naivasha sub-district hospital is located 112km to the west of Nairobi in a rather dry area with climate similar to that of Makindu. It has a ward bed capacity of 223 in-patients and 2700 outpatients per month. It is manned by 12 medical practitioners (3 specialists, 3 Medical officers and 6 Clinical officers) and 47 nurses (including 2 psychiatry nurses). It has out-patient clinics run by specialists and medical officers. It also has a psychiatric *clinic which is operational daily and run by psychiatric nurses.*

Health Centres

Kibera (south-west) and Karuri (north-west) are both located within the city of Nairobi *with the former being within the biggest slum in Kenya.* They each have a ward capacity of 80 in-patients and 2500 monthly outpatient attendance. These are mainly run by a clinical officer and nurses. They do not operate any specialised outpatient clinics except Ante-Natal Clinic (ANC) in these sites nor do they offer psychiatric treatment. All their patients who need further care are referred.

Private Facilities

Kikuyu Hospital is a faith based facility with a ward capacity of 600 in-patients and 13,400 monthly outpatients' attendance. It is manned by 50 clinicians and 150 Nurses. It has one of the best Eye Units in the country, with specialists also in other areas: It has no psychiatric services.

Magadi Hospital is a private hospital owned and run by the management of a private company, the Magadi Soda which produces soda ash. It is located 120 km to the south east of Nairobi. The community living in the area apart from those who are working for the company are largely pastoralists. It has a bed capacity of 96 inpatients and 1763 outpatient attendance per month. It is manned by 5 (2 medical officers and 3 clinical officers), 6 nurses and 6 nurse assistants. There are neither psychiatric nurses nor psychiatric clinic. It does not run any specialised clinics.

THE DIFFERENT TYPES OF MEDICAL STAFFS IN GENERAL FACILITIES

Doctors:

There are several categories of doctors in Kenya.

- **The Interns:** These are the ones who have just completed their medical qualification degree (MBChB) and are serving to gain mandatory experience under supervision before they can be registered as general medical non specialised practitioners.
- **Registrars (Residents):** These are post-graduate students studying for different specialities in Medicine. They are to be found only in University Teaching Hospitals.
- **Medical Officers of Health:** These are doctors who have been registered, and are not studying for their specializations. They are found in any hospital.
- **Specialists:** Also called consultants, these are doctors who have postgraduate specialisations in different disciplines. They are found only in some hospitals.

Clinical Officers

These are post-secondary school diploma graduates of clinical medicine but not at university level.

Nurses

They are either enrolled, diploma or Bsc. graduates. Enrolled nurses are at a lower level than the diploma nurses. Diploma nurses would be post-high school graduates who did not go to the University for a Degree Course in nursing, unlike the Bsc nurses.

Other Professionals

There are various types, some university graduates and other post-secondary school diploma graduates. They are in the areas of pharmacy, dentistry and occupational therapy, rehabilitations, physiotherapy and laboratory medicine.

Students

- University students - These include medical students and students in studying dentistry, pharmacy, and nursing.
- Diploma students - Courses in the various disciplines except clinical officer diploma course students who are trained in facilities not included in this study.

INSTRUMENTS/QUESTIONNAIRE

Several instruments were used to measure different mental disorders, staff attitudes and knowledge as described below with a baseline socio-demographic data of each patient recruited into the study. Names of patients were omitted.

The properties of the instruments are described in details below. As for the psychometric instruments, their scoring is detailed in the instruments themselves and their respective cut off points are given in the tables of their respective results except for the attitudes and stigma whose psychometric properties have not been validated and therefore the cut off points are reproduced under methods.

The Socio- Demographic Data

This was the same data that was collected by the records department of the health facilities at the registration stage for both inpatients and outpatients

Beck Depression Inventory (BDI)

The original BDI, first published in 1961 was created by Dr. Aaron T. Beck in 1961, (Beck et al, 1961), and later revised in 1971. The contents of BDI were obtained by consensus from clinical settings regarding symptoms of depressed patients (Beck et al 1961). The revised BDI items are consistent with 6 of the nine DSM-III categories for the diagnosis of depression (Groth-Marnat, 1990). These earlier versions consist of 21 questions about how the subject was feeling in the last week. Internal consistency is good, with a Cronbach's alpha co-efficient of around 0.85 (Ambrosini et al 1991). It is also positively correlated with the Hamilton Depression Scale (Brown et al., 1995) with a

pearson ratio of 0.71. The test was also found to have a high one-week test-retest reliability with a Pearson value of 0.93 (Beck, Steer and Brown, 1996).

The BDI is a self-administered self report which takes approximately 10 minutes to complete with demonstrated consistent properties over time and situation over and above what has already been said. Internal consistency for the BDI ranges from 0.73 to 0.92 with a mean of 0.86 (Beck, Steer and Garbin 1988). The BDI demonstrates high internal consistency, with alpha coefficients of 0.86 and 0.81 for psychiatric and non-psychiatric population, respectively (Beck et al 1988). A meta-analysis of studies on the revised BDI's psychometric properties by Richter et al 1998) report advantages with the revised BDI's high content validity and validity in differentiating between depressed and non-depressed people. Beck, Steer and Garbin (1988) reported that the revised BDI has been found to include 3-7 factors, depending on the method of factor extraction. These include factors that reflect negative attitudes towards self, performance impairment and somatic disturbances, as well as general factor of depression (Brown, Schulberg and Madonia, 1995).

Correlations with clinician ratings of depression using the revised BDI ranged from 0.62 to 0.66 (Foa et al, 1993). Clinical ratings for psychiatric patients are reported as being high to moderate ranging from 0.55 to 0.96 Mean = 0.72 (Beck et al 1988, cited in Groth-Marnat, 1990). Groth-Marnat (1990) reported moderate correlations between the revised BDI and other scales measuring depression such as the Hamilton Psychiatric Rating Scale for depression (.073) and the Zung Self Reported Depression Scale (.76). However, some shortcomings of BDI on construct validity have been reported Groth-Marnat by (1990), who reported that controversy exists over whether the revised BDI is measuring state or trait variables.

Discriminate analysis had found that the translated version of the revised BDI highly discriminates depressive symptoms in Spanish (Bonicatto, Dew and Soria, 1998), and Persian people (Skek & Hojat et al, 1990). Groth-Marnat (1990) reported that the revised BDI discriminates psychiatric patients from non-psychiatric patients as well as relatively

higher scores for patients with major depressive disorder compared to patients with dysthymic disorder. The revised BDI has also been used to discriminate loneliness, stress and self-reported anxiety (Groth-Marnat 1990).

The BDI suffers from some problems as other self-report inventories, in that; scores can be easily exaggerated or minimized by the client. In addition, participants with concomitant physical illness, it has been suggested that its reliance on physical symptoms such as fatigue might artificially inflate scores of symptoms of the illness, rather than those of depression (Moore et al, 1998). This places a limitation on its use on medically ill-patients where Hospital Anxiety and Depression Scale (HADS) may be used (Zigmond and Snaith 1983). However, the HADS is a screening not a diagnostic instrument and therefore not used in this study which aimed at diagnostic categories.

Although Moore et al, 1998 alluded to the limitation of the BDI in patients with concomitant physical illnesses; the BDI has been used in people with medical conditions including HIV (Judd, et al 2005; Rabkin, 1996;, Markowitz et al 1995; Mulder et al 1994;, Lutgendoff, et al 1997; Cruess et al 2003; Balch et al 2002 and Zisook et 1998). BDI has also been used in people with other physical conditions, such as Parkinsonian disease (Stallibrass, 2002) and traumatic brain injuries, (Bedard et al 2003).

In 1996, the BDI was revised (Beck et al 1996) to what is referred to as BDI-II and which is what was used in this study. The 1996 version of BDI was created to fall in line with the DSM-IV criteria for depression. Like the original BDI, the BDI-II contains 21 questions, each answer being scored on a scale value of 0-3.

Interpretation of the BDI

Add up the score for each of the 21 questions and obtain the total score. The highest score for each of the twenty one questions is 3, the highest possible total for the whole test is 63. The lowest possible score for the whole test is zero. Only one score per questions.

The interpretation of the scores for BDI depends on the setting, whether in the general population, medical facilities or psychiatric facilities. The interpretations i.e. the cut offs used in this study are those for patients in general medical facilities.

Child Depression Inventory (CDI)

The CDI was first published by (Kovacs M. in 1992). It was developed because depression in young children is often difficult to diagnose, and also because depression was regarded as an adult disorder until the 1970's. It was thought that children's nervous systems were not sufficiently mature to manifest the neurological changes in brain function associated with depression.

In 2002 the National Institute of Mental Health (NIMH) estimated that as many as 2.5% of children and 8.3% of adolescents under the age of 18 in the USA suffer from depression. A study supported by the NIMH on 9-17 year olds found that 6% developed depression in a six month period, with 4.9% diagnosed as having major depression. Research also indicates that children and adolescents experience the onset of depression at earlier ages than in previous generation. They are more likely to experience recurrence, or severe depression as adults:

The CDI is intended to detect and evaluate a major depressive disorder or dysthymic disorder in children and adolescents, and to distinguish between children with those disorders and children with other psychiatric conditions. The CDI can be administered repeatedly in order to measure changes in depression over time and to evaluate the results of treatment for depression disorder. It is regarded as adequate for assessing the severity of the depression symptoms (Finch et al (1987).

The CDI has also been used in research studies for epidemiology of depression in children as well as studies on dissociative symptoms and post-traumatic syndromes in children (Michael, KD, 1998). It has been rated as having adequate to excellent psychometric properties (Michael 1998).

Peferson set out to study in-patient children reports on the congruence of a clinician's DSM-IV diagnosis versus the CDI, (a patient – administered scale) versus the parent's report of depression. The sample comprised 111 children; 5-15 years of age admitted the Child Psychiatry unit of Pennsylvania State College of Medicine (Peferson, 2004).

63 (56.8%) of the children had a DSM-IV diagnosis of depression and 48 (43.2%) did not complete the CDI. It was found that the CDI scores differed significantly ($P < 0.0001$) between children with depression and children without depression. Positive and negative powers were high (79% and 61%). Within the depressed group, percent agreement for depression was 81% for the child psychiatrists and child, and 81% for the psychiatrist and parent. He concluded that the CDI was a valuable instrument in the inpatient assessment of children and a good predictor of depressive diagnosis. They suggested a cut-off of 12 in clinical assessment in inpatient population. Similar findings were reported more recently (Matthey and Petrouski, 2002; Twenge & Nolen-Hoeksema, 2002).

The Leeds Scales for the Self-Assessment of Anxiety and Depression (LSAD)

The original items for the LSAD (Snaith et al, 1976) were a combination of the Wakefield Self-Assessment of Depression Inventory (Snaith et al, 1971) with added items. The original Wakefield Scale had been validated against gold standard Hamilton Depression Scale (Hamilton 1967) and Hamilton Anxiety rating Scale (Hamilton 1959).

The 24-item LSAD instruments were then administered to patients suffering from the following psychiatric disorders: Depressed phase of manic-depressive psychosis (endogenous depression), depressive neurosis, anxiety neurosis, phobic neurosis, hypochondriacal neurosis and obsessive-compulsive neurosis. All were diagnosed using the International Classification and the definitions of these disorders in the British Glossary of Mental Disorders (General Register Office, 1968).

The 24 symptoms can be grouped in different combinations to produce endogenous depression, anxiety neurosis, general depression and general anxiety. To establish the

cut-off points for these groups, the instruments were also administered to healthy population. This produced a cut-off point of 6 for depression and 7 for anxiety.

Although this scale can be used as a diagnostic tool, scores of the original Wakefield self assessment for depression was found to be significantly affected by physical illness (Snaith et al., 1972) and likewise this scale may be affected.

The NOK

The NOK was developed in the same pattern as most other instruments are developed, detailed by Snaith, Bridge & Hamilton (1976) in their description of the development of Wakefield Self rating Scale for Anxiety and Depression.

The items of the NOK are therefore derived from a collection of the symptoms based on the complaints of people with anxiety and depression when they present at health care facilities. All the questions are culture appropriate. These were subjected to statistical analysis against gold standard DSM-IV and ICD-10 derived diagnostic instruments for anxiety and depression and also against the Hamilton Depression Scale.

The psychometric properties of this instrument have recently been documented (Ndetei et al 2006) and the cut-off point has been put at 20. The scores are divided into several categories: Normal = <19, Mild = 20-47, Moderate = 48-75, Severe = >75.

The NOK was considered most appropriate for this context. It was developed in the same context.

Instrument on Psychosis

The reason for the inclusion of the instrument was to ensure that general psychosis was not left out. The question covered the following areas: Manic episode, passivity phenomena, paranoia and perceptual disturbance.

The Edinburgh Postnatal Depression Scale (EPDS)

The EPDS was developed to assist primary care health professionals to detect mothers suffering from post-natal depression, a distressing disorder more prolonged than the “blues” which occur in the first week of delivery (Cox & Holden, 1987). EPDS is however less severe than puerperal psychosis. It has been estimated that 10% of all women who deliver suffer depression.

The EPDS is a ten short statements instrument, each with four possibilities and refers to how the mother was feeling in the previous week. It takes about 5 minutes to complete. Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity. The initial validation study showed that mothers who score above threshold, 92.3% were likely to be suffering from a depressive illness of varying severity. However a careful clinical assessment should then be used to confirm the diagnosis since EPDS is a screening test (Nielsen et al 2000, Wisner et al 2002). The scale will not detect mothers with anxiety neuroses, phobias or personality disorder. If in doubt the scale can be repeated after 2 weeks.

The EPDS had been utilized in 23 countries and carries a significant level of sensitivity (86%) and specificity (78%) in identifying those at risk of or potentially suffering from either pre-natal or post-partum depression (Misri, et al 1995).

THE AUDIT -Alcohol Use Disorders Identification Test

The AUDIT at a cut-off point of 5 and above has been found to clearly identify respondents with alcohol related problems in Nigeria, with sensitivity of 0.935 and specificity of 0.915 (Adewuya, 2005).

In a study designed to identify subjects with alcohol use disorders in two general medical practices, Bischof et al (2005) in German found AUDIT useful in detailed alcohol use. In a population of emergency service patients in Poland (Cherpitel et al 2005) found that AUDIT was significantly better than other instruments for alcohol dependence in Warsaw, though with females, it required a cut-off point of 8.

used not only as a test for Alzheimer's disease but also to screen for the presence of cognitive impairment on mental activities such as memory, thinking, calculation, language, constructional ability, reasoning, decision making, orientation to time, place, attention, immediate and recall memory and dealing with concepts i.e. abstraction.

Developed by Dr. Marshal Folstein in the 1970's, the MMSE has been used not only as a clinical tool, but as a research tool in developed countries such as UK, USA and in developing countries such as Ecuador, Uganda and South Africa. It has been translated to over 50 languages.

It is quick to administer and simple to use. It consists of a series of questions with a maximum score of 30 points. The lower the score the more the indication for cognitive deficit; scores of 26 or less are generally reported in people with Alzheimer's disease.

The MMSE is a brief quantitative measure of cognitive status in adults, and can be used to estimate the severity of cognitive impairment at a given point in time, to follow the course of cognitive impairment and to document an individual's response to treatment. The MMSE has demonstrated validity and reliability in psychiatric, neurological, geriatric and other medical populations.

The MMSE is a 5-10 minutes bedside test. It correlates well with the more time consuming Intelligence Quotient (IQ) tests, but will not easily pick problems caused by focal brain lesions. It is used on patients who are able to cooperate at an optimum level with examiners.

The MMSE is used most often to evaluate older adults for delirium or dementia. The MMSE has also recently been professionally approached as a measurement of a patient's ability to complete an advance directive, or so called living will. It has also been used as a screener in evaluating cognitive function in depressed patients.

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The MMSE is a brief quantitative measure of cognitive status in adults, and can be used to estimate the severity of cognitive impairment at a given point in time, to follow the course of cognitive impairment and to document an individual's response to treatment. The MMSE has demonstrated validity and reliability in psychiatric, neurological, geriatric and other medical populations.

The MMSE is a 5-10 minutes bedside test. It correlates well with the more time consuming Intelligence Quotient (IQ) tests, but will not easily pick problems caused by focal brain lesions. It is used on patients who are able to cooperate at an optimum level with examiners.

The MMSE is used most often to evaluate older adults for delirium or dementia. The MMSE has also recently been professionally approached as a measurement of a patient's ability to complete an advance directive, or so called living will. It has also been used as a screener in evaluating cognitive function in depressed patients.

The MMSE correlates well with a standard measure of cognition in adults, the Wechsler Adult Intelligence Scale (WAIS). In contrast to the Wechsler, which takes about an hour or more to administer the MMSE can be completed in ten minutes or less.

The MMSE was elaborated by (Folstein et al 1975) as a simplified form of the routine cognitive status examination. It has the virtue of brevity, taking only 5-10 minutes to administer, yet test-retest reliability is high and it has been shown to discriminate well between patients with dementia and delirium (Antony et al 1982). MMSE can be used in Paediatric Oncology to assess and follow alterations in mental status (Slater, 1996).

A very useful broad screening test, especially when it is suspected that mental functions are severely compromised (Folstein et al 1975) The maximum score is 30 and a score of 24 or less raises the possibility of dementia in older persons, especially if they have had 9 or more years of education (a score of 24 is at about the 10th percentage per people aged 65 or older. As a rule, scores of 20 or lower indicate delirium, dementia, schizophrenia or a mood disorder.

However, the -MMSE is only a screening test and the presence or nature of cognitive impairment cannot be diagnosed on the basis of this test alone and a detailed assessment is provided by the Wechsler Scales.

Why Composite Intentional Diagnostic Interview (CIDI) and Structured Clinical Interview for the Diagnosis and Statistical Manual IV (SCID) were not used in this study

The above instruments have been used specifically to generate DSM-IV Diagnoses. CIDI (www.hcp.med.harvard.edu/wmh) can be administered by trained lay interviewers, who are more available than the professional psychiatrically trained interviewers. The SCID (First et al 1996) can only be administered by interviewers who have extensive training and professional background in psychiatric disorders.

None of the above was used in this study, a decision made after extensive evaluation of the resources available on the ground. The CIDI has been used extensively in community Epidemiological studies in various studies coordinated by the WHO (www.hcp.med.harvard.edu/wmh). However, for purposes of uniformity, it is recommended that training of CIDI should be standardised so as to generate data that are cross-countries comparable. The research team did not have access to a trained trainer. There were no resources available for a member of the team to get that kind of training so that he/she could train others. Besides this was a hospital based study in general medical facilities rather than a community based study and the ethical considerations would not have allowed lay people to access clinical medical data from patients in hospitals.

The SCID (First et al 1996) which also generates DSM-IV diagnoses requires experience with psychiatric disorders. Such staffs are simply not available in general medical facilities in Kenya and the ones available in psychiatric facilities would not leave their facilities in sufficient numbers for the purposes of this study without severely compromising services at their respective facilities.

This study was more focused on depression and anxiety and substance use, the most common medical conditions in general medical conditions. CIDI and SCID place emphasis also on symptoms profiles, which was not the objective of this study, which is less phenomenological but more on diagnostic categories.

THE QUESTIONNAIRE ON STAFFS

This questionnaire was compiled by the Principal Investigator. It has two major sections. Section one covers age, sex, their current level of professional development/status, how long ago they achieved their basic qualifications (for those who had already qualified, and any post-basic qualifications.

Section two was intended to gauge the following from the staff: -

1. Whether in their own opinion they encountered patients with psychiatric problem and if so what percentage and how they handled them and whether or not they were comfortable.
2. Their own general exposure to psychiatric training or the need for such exposure
3. Their own attitudes to mental illness modelled after (Mayou, & Smith 1986 and recently used by Morgan & Killoughery 2003) and implied stigma especially in relation to depression.

Scoring and interpretation of the Staff Attitudes, Knowledge and Practice in Relation to Mental Health and Stigma Especially in Relation to Depression (Also see table S21 and S22 and also the questionnaire in the appendix)

Knowledge

- Staff's being aware that: Psychological factors influence the cause and outcome of physical disorders; emotional and social aspect of care enhance job interest in the patient; management of emotional issues is also a medical responsibility; and the emotional together with social aspect of care enhance the staff's job interest.

Using likert scale:

awareness	aware	uncertain	unaware
Likert scale	4-8	9-12	>12

- Staff's being aware that: Doctors (if or should) use psychological methods (listening and reassurance); discuss emotional problems with patients relatives; use cognitive or behavioural methods of treatment on patients; use of psychotropic drugs on patients and use antidepressants frequently or occasionally on their patients in a general health facility have an influence on the cause and out outcome of physical illness.

On Likert scale:

awareness	aware	uncertain	unaware
Likert scale	6-12	13-18	>18

- Staff's being aware that: They need more contact with psychiatric services, should know more about psychiatry services in the management of medical or surgical patients and what psychiatrists have to offer in general hospitals.

On likert scale:

awareness	aware	uncertain	unaware
Likert scale	3-6	7-9	>9

- Staff's being aware: About treatments in general health facility and that it is their responsibility to treat common psychological problems like depression, acute confusion states, overdoses, chronic drinking problems, disturbed behaviour and emotional care for dying patients suicide, schizophrenia and mania.

On likert scale:

awareness	aware	uncertain	unaware
Likert scale	7-14	15-21	>21

Attitudes of staff towards mental health:

On likert scale:

Attitude	Positive	uncertain	Negative
Likert scale	6-12	13-18	>18

Stigma towards persons with depression (mental ill patients) by staff:

On likert scale:

Stigma	stigmatize	uncertain	No stigmatizing
Likert scale	9-18	19-36	>37

Stigma: General Views on people with depression (persons with mental illness) by general population:

On likert scale:

Stigma	stigmatize	uncertain	No stigmatizing
Likert scale	9-18	19-36	>37

RESEARCH CLEARANCE AND ETHICAL CONSIDERATIONS

Being medical facilities based study; the research clearance was sought from the Kenyatta National Hospital and Research Ethical Committee. The Principal Investigator (PI) and Co- Principal Investigators (Co-PIs) visited each of the sites to familiarise with

the Heads of institutions and the facilities day to day running as well as explain the nature and purpose of the study. The institutional head's authority was also sought to conduct the study, involvement of the staff on data collection in their spare time and staffs participation in the study except in the institutions where 4th and 5th (final) medical students were research assistants. During the visits, an arrangement was made for the training of the data collectors who were to come from the institution (nurses and clinical officers). Consent and consent explanations form were incorporated in all the questionnaires and covered explanation, risks, inconveniences and benefits, voluntary nature of the study and the right to decline or withdraw consent at any time without loss of benefits. These were to be explained to all participants (except the staff) by the research assistants, who would later seek the patients' permission. The staffs were to receive questionnaires with the consent explanation which they self-administered. Confidentiality was to be assured and maintained.

For the children under 18, the consent explanation and informed consent was to be sought from the parent/guardian as required by law. The child participant was then to be asked for assent after the parent/guardian had consented. No names were to be indicated anywhere on the questionnaires.

TRAINING OF RESEARCH ASSISTANTS

This was undertaken in the various institutions except for the medical students who were trained at the AMHF offices in Nairobi. The training lasted one working day and was conducted by the Co-PIs at various dates well before the data collection. The requirements for the research assistants was that they should have a medical background, under normal circumstances allowed access to patients' records and willing to undergo training on instrument administration. Those involved in data collection did not participate in the staff study. The other considerations in minimizing bias was to have some staff collect data from other departments other than their usual working places as well as read to the patient the question as it is. They were only allowed to translate it to the local language which was agreed on during the training session. Language barriers were also limited given that most of the research assistants were already working in the

institutions and illiteracy levels as per the results are also quite low thus majority could understand the questions posed to them.

All the trainers of research assistants had been trained by the PI at AMHF. The medical students were the research assistants for Kenyatta National Hospital, Magadi Hospital, Kikuyu Hospital and the two health centres. The rest of the research assistants were staffs stationed at the respective sites.

THE ADMINISTRATION OF THE QUESTIONNAIRES

How patients were approached

Out-patients: The respondents were greeted and the research assistants introduced themselves with the help of the hospital staff. The patients were then first attended to by the clinician who reminded them to see the research assistants on their way out. Respondents were then explained the nature and content of the research instruments. Consent was requested for in all who had attained the age of 18 years. For children 11 and less than 18 years consent was obtained from their parents/guardians and assent also requested from the children. Only those who consented and/or assented were included in the study.

In-patients: The research assistant got permission from the charge nurse. The patients who on the advice of the charge nurse were too sick to participate were not approached. The same process of obtaining consent and assent as for the out-patients was followed.

Administration of the instrument

The instruments were distributed by the research assistant. The social-demographic data and clinical diagnoses were extracted by the research assistant from the patients' case notes. All the other instruments were self-administered except the Mini-Mental State Examination Test which was administered by the research assistant. Where the patients were not able to read or write the exact statements were read to the patient either in English or Swahili or in the local dialect without attempt to interpret the meaning to the patient and his/her responses recorded by the research assistant.

The Staff

The instrument for the staff was self-administered, at their own time and collected by the research assistant on agreed time for collection. The types of staffs have already been explained. However all psychiatrists and residents in psychiatry were excluded.

DATA MANAGEMENT

All completed questionnaires were returned to the offices of Africa Mental Health Foundation where they were entered into statistical Data base (SPSS version 11.5). The data entered was checked by AMHF staff for cleaning purposes. The whole data base was analysed by descriptive statistics for various percentages on various variables and presented in short narratives for the executive summary, bar- and pie- charts, and detailed narratives and tables to suit the needs of the reader interested in the details. In keeping with the intended readership of this report, inferential analysis is not here included but will be in scientific reports.

RESULTS

ADULT PATIENTS

The results on adult patients are summarised in Tables A1 to A35 in the appendix 2 and in bar- and pie-charts here in the text and some in the appendix 1.

Not all the patients responded to all the items resulting to the varied nature of the value of N and n in the different tables. This being a descriptive report and not analytical and unfermented report, it was decided to analyse the available data to determine the general patterns.

SOCIAL-DEMOGRAPHIC RESULTS

A total of 2856 adult patients participated with the following breakdown: KNH (1828) 64%, Embu (181) 6.3%, Kiambu (162) 5.7%, Kikuyu (200) 7.0%, Kajiado (61) 2.1%, Kibera (34) 1.2%, Makindu (126) 4.4%, Naivasha (93) 3.3%, Magadi (127 (4.4%) and Karuri (44) 1.5%. However, the response rates for the various variables, including the socio-demographic ones, varied widely from site to site, even on the data routine collected at the time of admission from which the socio-demographic data is based.

Age (Table A1) and Figure FA1



Figure FA1

Out of the total above, only 2797 patients reported their ages which ranged from 18-90 years with a mean age of 34.16, medium 30, and mode of 30. This was a young population with 52.8% aged 30 or less.

Gender (Table A2) and Figure FA2

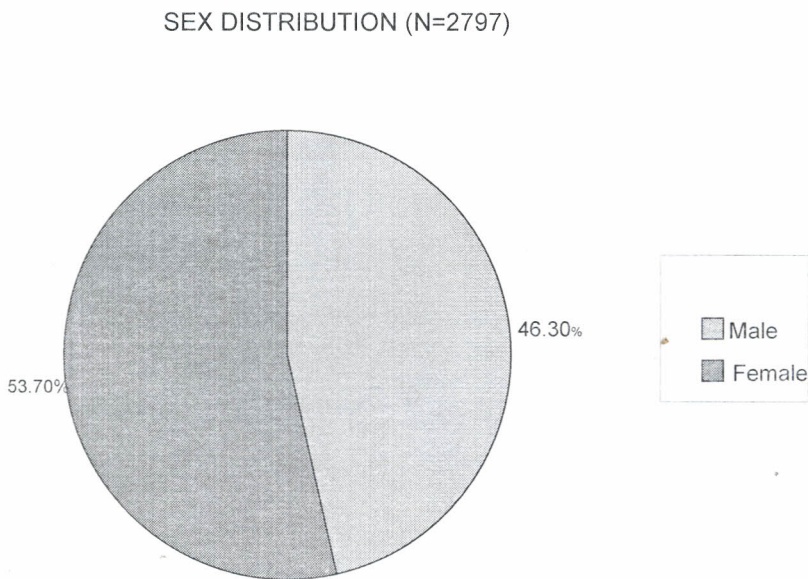


Figure FA2

Only 2799 indicated their gender with 46.3% being males and 53.7% females. In other words, there were more females except in Kiambu, Kajiado and Kibera where males were 65.4%, 66.7% and 51.5% respectively.

Religion (Table A3) and Figure FA3

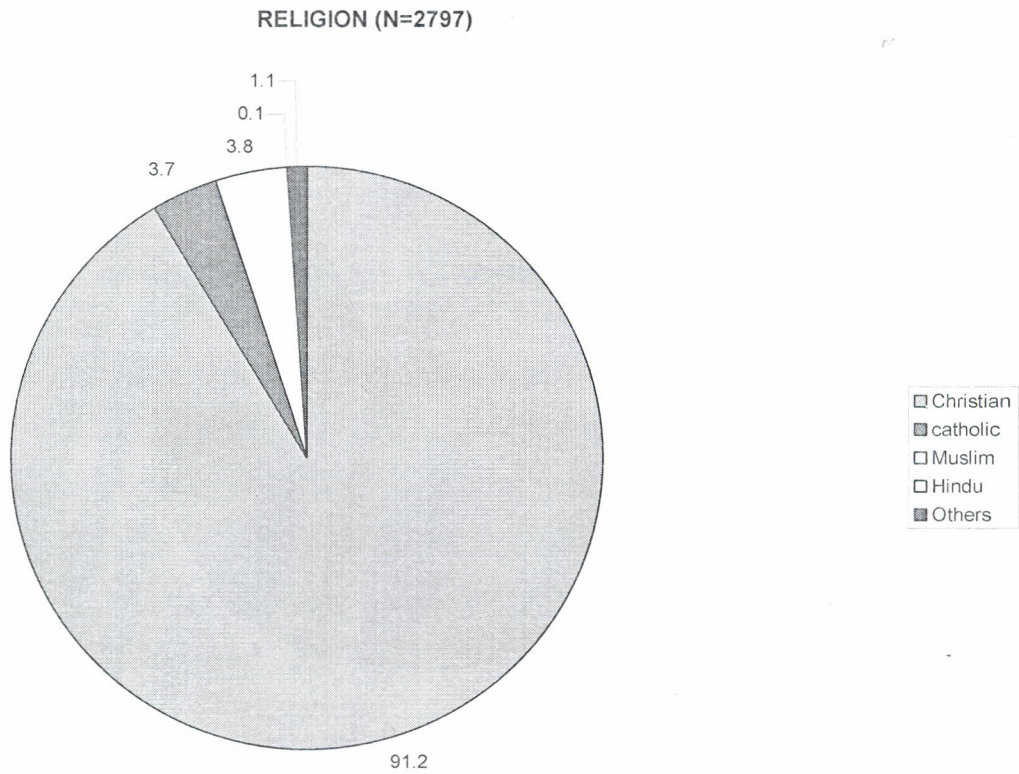


Figure FA3

The predominant religion was Christianity; 2490 out of 2730 (91.2%) for all sites with Karuri and Embu registering 100%. Islamic; 104 out of 2730 (3.8%), was the second commonest and was highest in Kibera (25.8%) followed by Kajiado (15.8%). Hinduism (0.1%) overall was much more practiced in Kajiado and Magadi at 1.6%. Other religions were also noted.

Education (Table A5) and Figure FA5

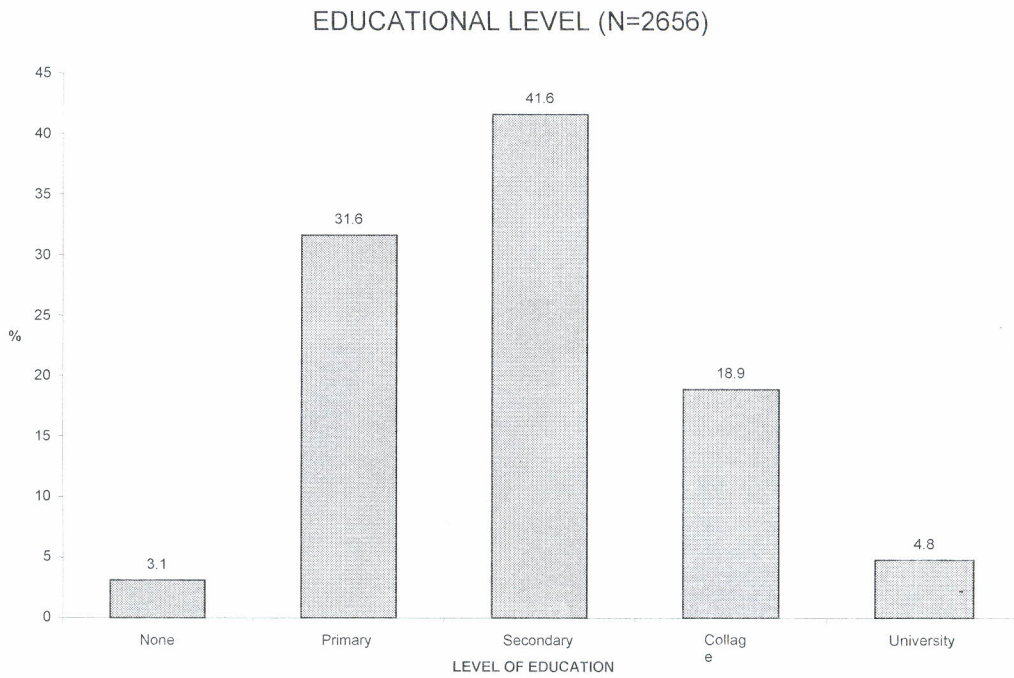


Figure FA5

There was high non-education level among patients from Kajiado (31.1%) followed by Magadi (17.6%). The overall non-education level was only 82 /2656 (3.1%). 1681/ 2656 (63.3%) had gone beyond basic education (primary) though only 172/ 2656 (4.8%) had university education. Majority in Makindu (81.9%) had only attained primary level of education.

Occupation (Table A6) and Figure FA6

PERCENTAGE LIVELIHOOD (N=1392)

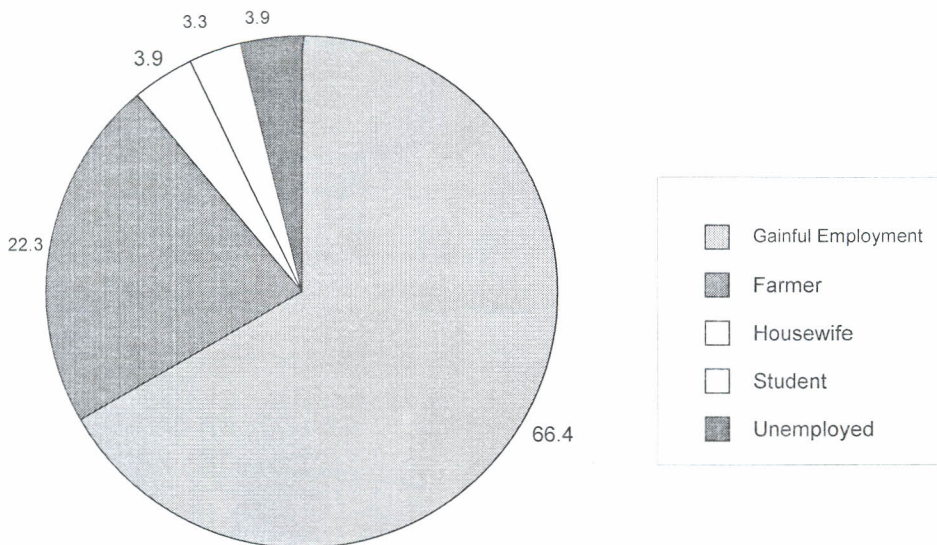


Figure FA6

(66.4%) were in gainful employment. 308/1381 (22.3%) were farmers and 54 out of 1381 (3.9%) were housewives. However, in Embu the proportion of those in gainful employment and farming were equal at 44.2% each. Makindu had half of the people depending on farming (50%) despite of the adverse whether conditions experienced in this area. Unemployment, 54 out of 1381 (3.9%), was marked at Kibera (13%) and Karuri (10%) which are mainly located within the Nairobi city.

Occupation of spouse (Table A7) and Figure FA7

PERCENTAGE OF SPOUSAL OCCUPATION (N=666)

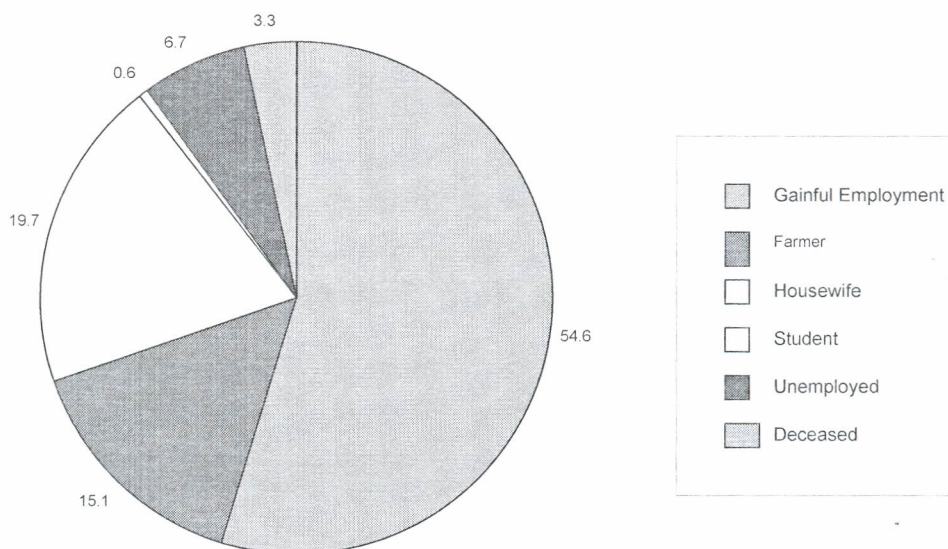


Figure FA7

The occupation of the spouses for those married was also mainly gainful (54.6%) of which the nature of work was almost similar to that of the patients interviewed except that there were more in gainful employment in Makindu (66.9%) in keeping with the finding on Table A2 on gender, where majority of patients interviewed were females (53.7%). The overall number of housewives also increased from 3.9% (table A6) in patient to 19.7% among the spouses.

Number of Children Under 18 Years (Table A8) and Figure FA8

NUMBER OF CHILDREN UNDER 18 YEARS N=2364

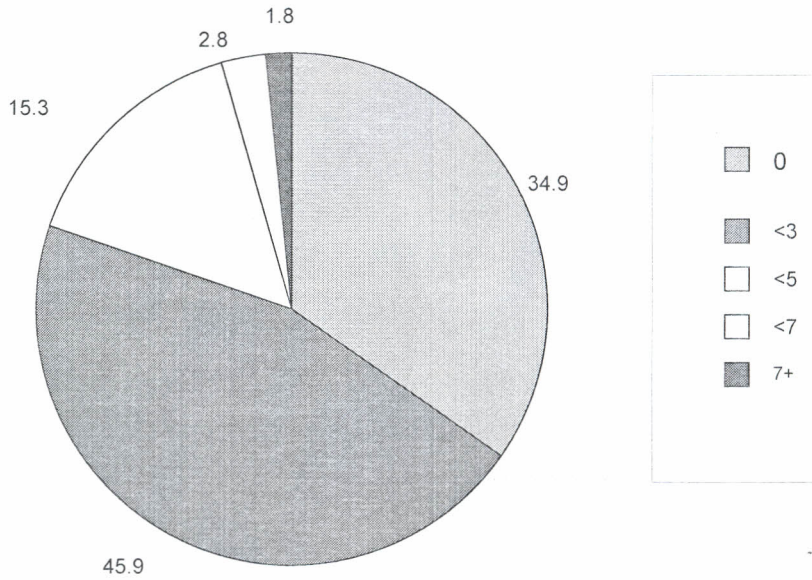


Figure FA8

Only 2364 patients responded to this item of which 825 out of 2364 (34.9%) did not have any children. Majority had 1-2 children, 1085/2364 (45.9%) with only 108/2364 (4.6%) having more than 4 children.

Duration of Illness (Table A9) and Figure FA9

(%) DURATION OF ILLNESS (N=2487)

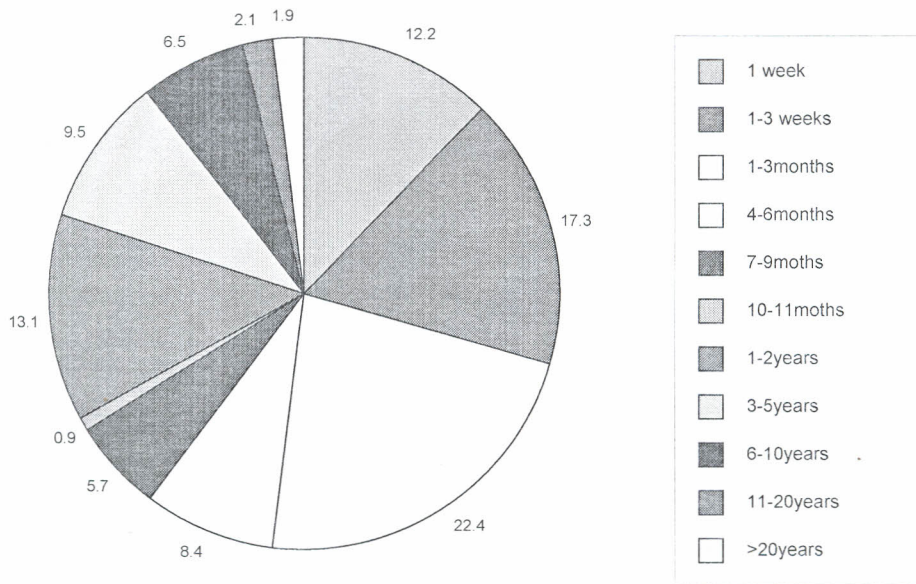
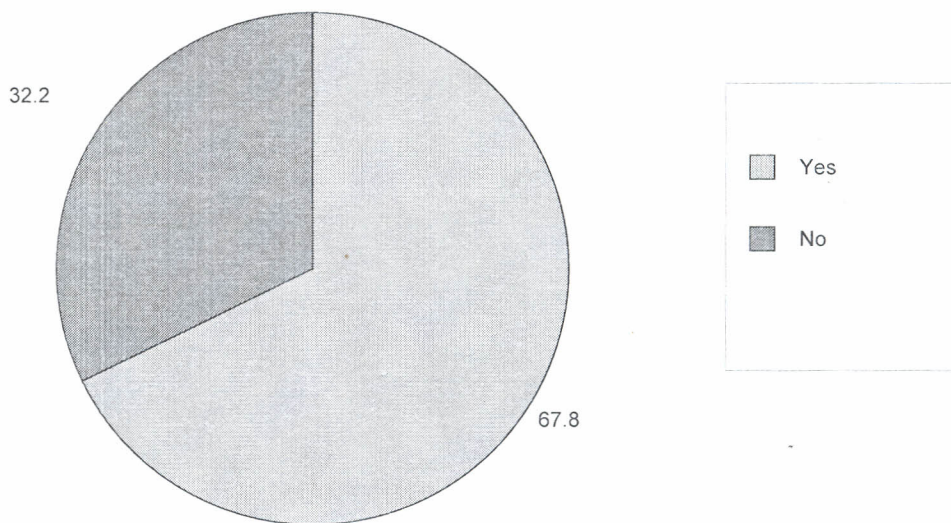


Figure FA9

When asked about how long they had had their current condition for which they were being treated or seeking help; 734/2487 (29.5%) indicated they had been ill for only less than a month, though many from Makindu (43.3%) and Magadi (78.1%) tended to seek help within one week of symptom presentation. Whereas more patients from Magadi (98.4%), Kibera (81%), Kiambu (62.1%) and Karuri (56.8%) had been ill for less than a month, the figure was much lower for KNH (23%) and Embu (29.9%). Kikuyu (25.8%) also had a lower rate. Otherwise patients had sought help for illness that they had had for 1 years and even upto 20 years and above. These were mainly seen at KNH (36.9%), Embu (36.6%), Kikuyu (38.5%), Kajiado (50%), and Naivasha (44.5%). Compare these with Kiambu with (3.3%) and (9.9%) for Makindu and (18.9%) for Magadi, (13.6%) for Karuri and Kibera (4.8%).

Did the Doctor Give You A Chance to Ask Your Diagnosis and were you told your diagnosis? (Table A10 and A11) and Figure FA10 and FA11

(%) IF DOCTOR GAVE CHANCE TO PATIENT TO ASK ABOUT DIAGNOSIS (N=2668)



(%) IF DOCTOR REVEALED DIAGNOSIS TO PATIENT (N=2708)

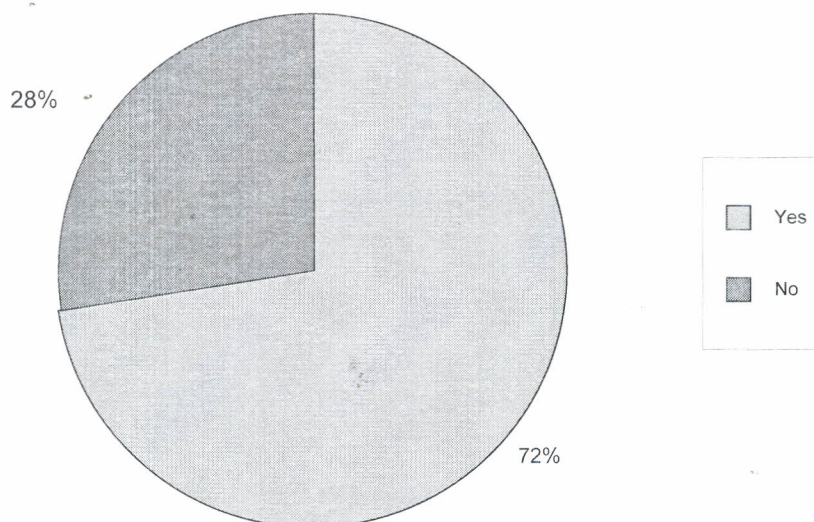


Figure FA10 and FA11

Majority, 1809 out of 2668 (67.8%) of patients were able to ask their clinicians about their diagnoses with Kibera (86.7%) and Naivasha (80.5%) having highest rates (Table

A10). However, best practice of clinicians communicating to the patients their diagnosis was highest at Kibera (93.5%) followed by Kajiado (86.9%) and KNH (77.7%) (Table A11). There was an overall rate of 1960 out of 2708 (72.4%) of clinicians communicating to the patients their diagnosis. However, Magadi (39.2%), Karuri (51.2%) and Makindu (51.6%) had the lowest level of communication to patient.

Patients Own Diagnosis (Table A12), Clinician’s verbal communication (Table A13) and record in the file (Table A14) and Summary for Mental Disorder (Table A15) and Figure FA12

Tables A12, A13, and A14 are summarized on Table A15. Please note the variables are too many for Tables A12, A13 & A14 to be summarised in figures. However, Table A15 is also summarised by figure FA12.

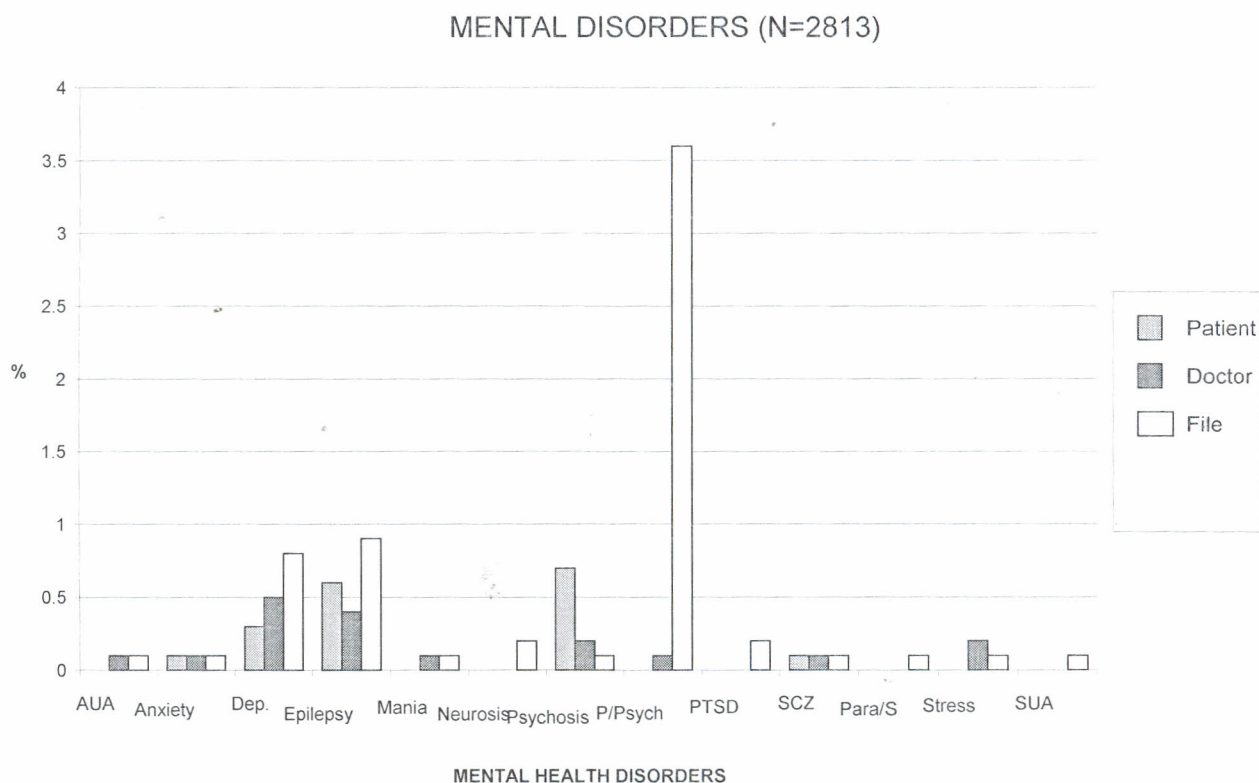


Figure FA12

There is a higher tendency for patients to report their emotional symptoms as psychosis at higher rate of 0.7% compared to the file diagnosis of only 0.1%. The patients also did

not relate their symptoms to be substance or alcohol related: Thus 0% in these two disorders (AUA and SUA), although the doctors had either communicate or indicated in the notes at (0.1% in both domains for AUA and (0.1%) in the file only I the case of SUA. Schizophrenia and anxiety were reported in the three domains at 0.1%. The clinicians had indicated a mental disorders as diagnoses in the patients files but did not communicate this to the patients; for example 3.6% vs 0.1% for puerperal psychosis; 0.9% vs 0.4% epilepsy and 0.8% vs 0.5% depression. The two terms, psychosis and stress, were reported by the doctor more than indicated in the file.

Medical Insurance Cover, Income and Financing of Health Care (Tables A16 to A20) and Figures FA13 and FA14

Only an average of 18.2% of the study sample had NHIF cover (this is a National Health Insurance Cover mainly for those in employment and only covers for in-patient services thus not accessible to those on out patient treatment even if they are members) (Table A16 and Figure FA13). Only 5.3% had other private/insurance medical cover (Table A17 and Figure FA14). Majority, over 80% in all sites, had no cover (Tables A16 and A17)).

PERCENTAGE MEDICALLY INSURED BY NHIF (N=2606)

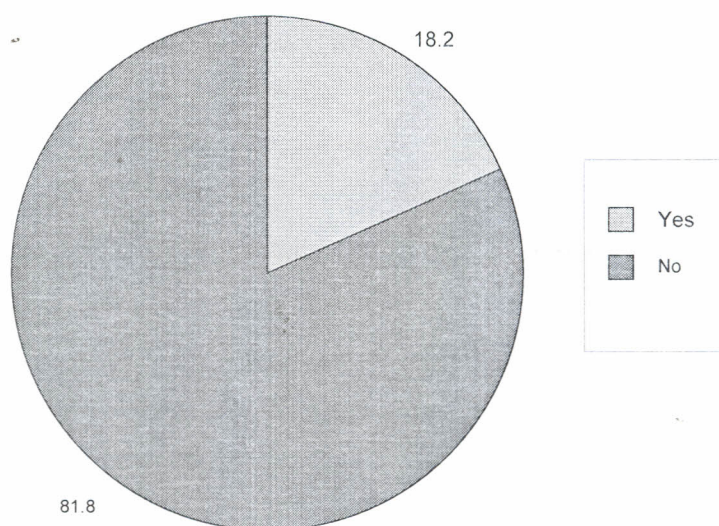


Figure FA13

Only 39.2% were able to finance their own healthcare, the rest depending on others for assistance. However, the variables are too many to reproduce in a figure but are summarised in Table A19. The assistance was mainly from the spouse (17.5%) and parents (15.0%). Employers' input was very low except for Magadi (57.8%). The waiver though available in many sites recorded very low percentages and was only found in Kajiado (6.5%), Naivasha (3.6%), Embu (1.4%) and KNH (0.1%) (Table A19).

Majority of patients in Karuri (92.9%), Kikuyu (75.6%), Magadi (73.5%), had no difficulty in meeting their healthcare costs. Those with the highest difficulties included Naivasha (64%), KNH (66.9%) and Kiambu (51.9%). These revelations do not tally with the high incomes in some of the sites probably due to the high costs of healthcare vis-a-vis patients other basic needs such as food, shelter, security etc (Table A20) and Figure FA16.

DIFFICULTIES IN PAYING FOR HEALTH CARE (N=2764)

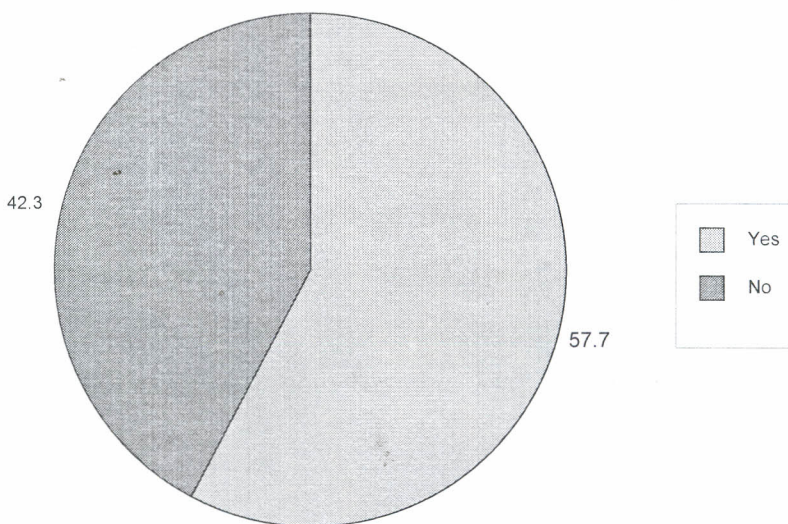


Figure FA16

MENTAL DISORDERS AS ASSESSED BY DIFFERENT PSYCHOMETRIC INSTRUMENTS

BDI- Becks Depression inventory (Table A21) and Figure FA17

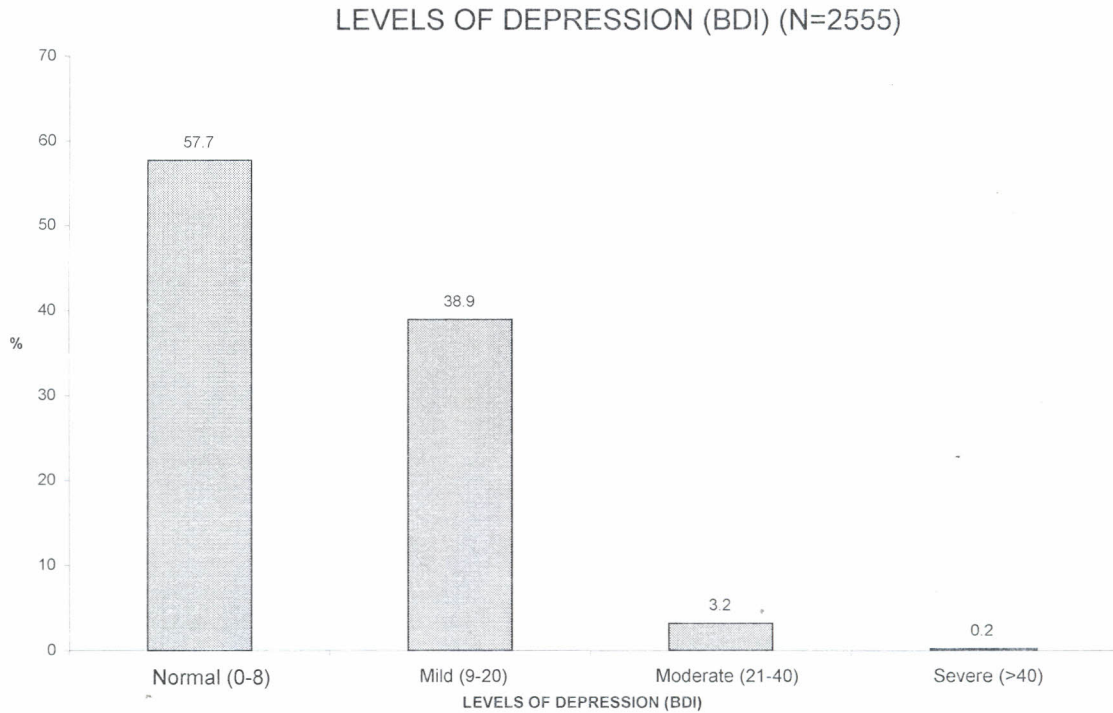


Figure FA17

42.3% average for all centres suffered from depression. However, higher rates were noted in Naivasha (66.2%), Makindu (63.5%), Embu (52.9%) and Kajiado (53.0%) suggesting depression. The file diagnosis (Clinicians pick rate) for depression was very low ranging from none in Embu, Kiambu, Makindu, Magadi and Karuri to 16.4% in Kajiado (Table A14).

NOK- Ndetei-Othieno-Kathuku Scale (Table A22) and Figure FA18

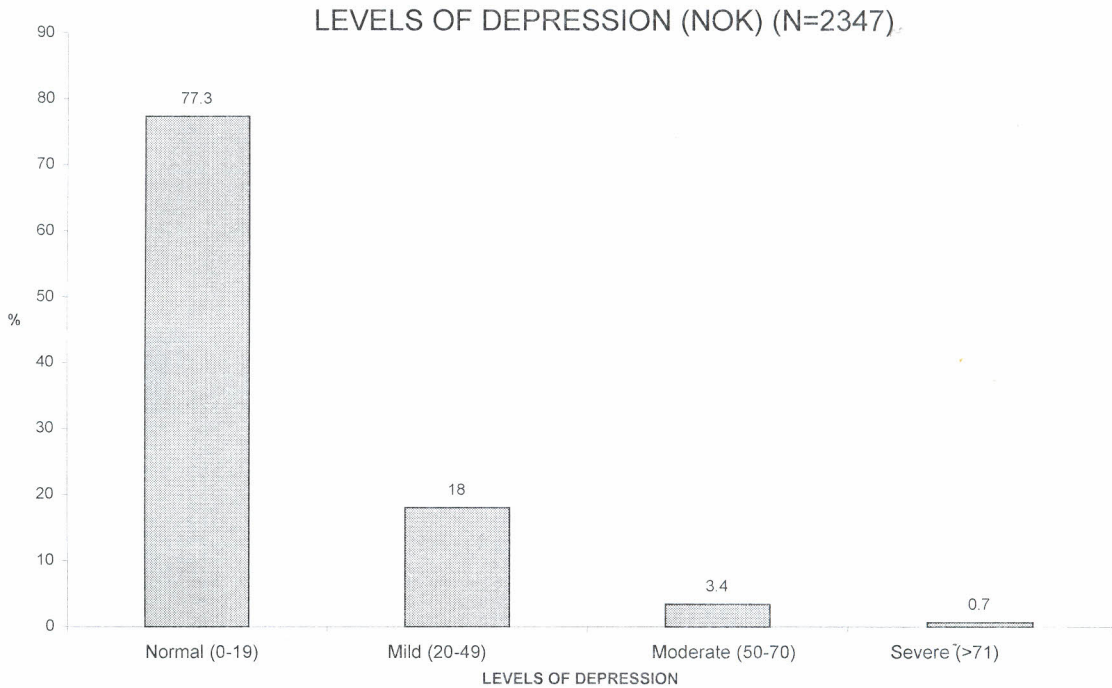


Figure FA18

Positive scores were least in Kikuyu (1.5%) and Karuri (5.6%) with the others being less than 35%. The highest positive scores for NOK were in Makindu (74.3%), Kajiado (51.7%) and Embu (49%).

Additional/Psychosis (Table A23)

Only 82 patients responded to this item. All had either query psychosis (61%) or frank psychosis (39%). However, compared to file diagnosis (Table A14), psychosis was only recorded by Kibera (2.9%) and Embu (0.6%). It is not necessary for visual clarity to give these results in a figure.

AUDIT- Alcohol Use Disorder Identification Test (Table A26) and Figure FA21

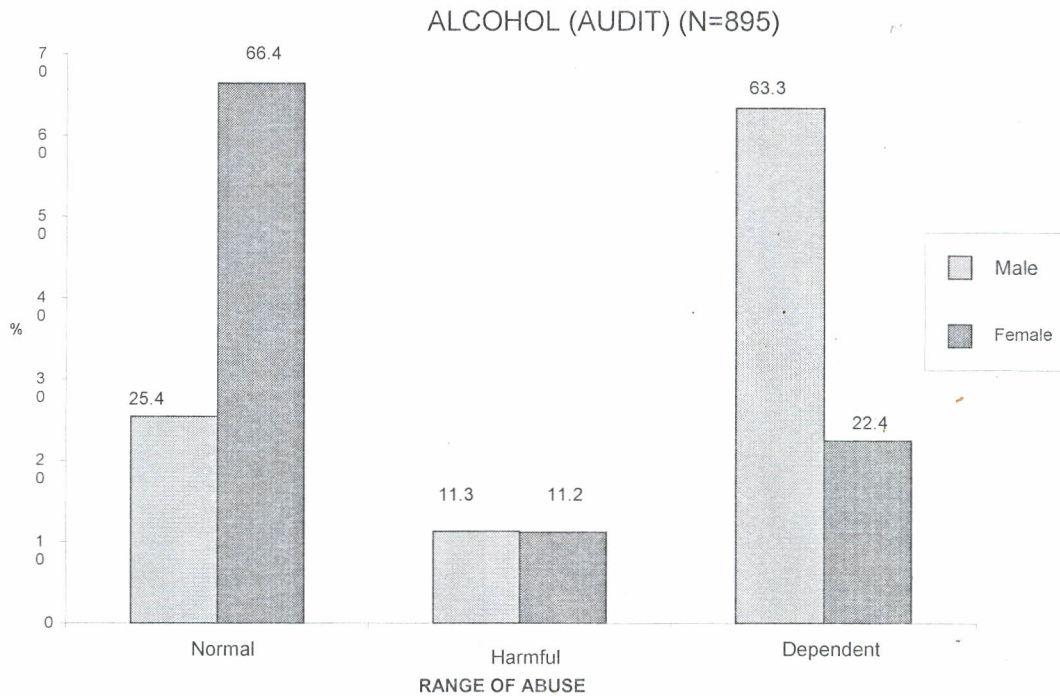


Figure FA21

Overall user rate was 24.8% with 63.3% of males and 22.4% of females being dependent on alcohol; KNH with 657 (36.6%) of which 69.6% were males and 30.4% females. Out of these 28.8% males and 1.8% females were harmful users. Dependence was high at 44.9% for males and 28.7% for females. The responses from the other sites were very low for this item, making percentages not so useful.

WHO-ASSIST-Alcohol, Smoking and Substance Involvement Screening Test (Table A27) and Figure FA22

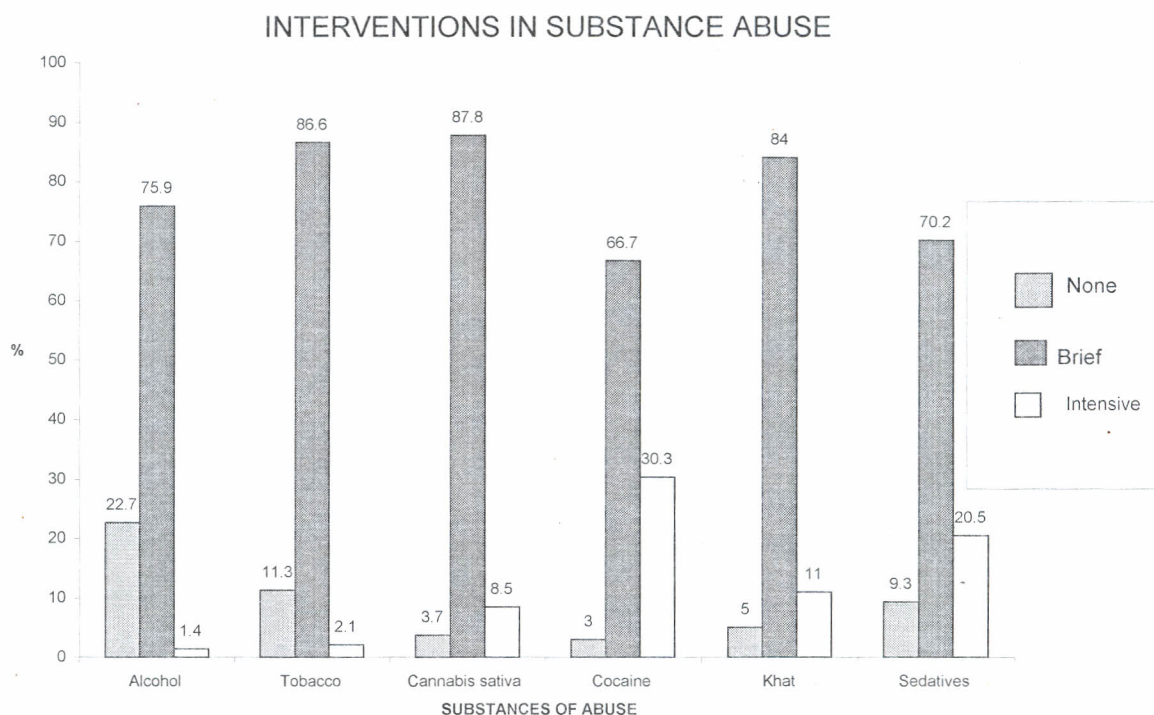


Figure FA22

The most abused substances were alcohol (n=706), tobacco (n=452), cannabis (n=107), cocaine (n=33), amphetamines/khat (n=100) and sedatives (n=64) in that order.

Alcohol- 706 (25.2%) of the total sample used alcohol. Apart from Kibera and Kikuyu, all the other alcohol users in other sites needed some brief intervention at > 70%. However, more intensive treatment was required in Naivasha (21.45) and Karuri (20%). Overall 22.7% of alcohol users did not require any intervention, 75.9% required brief intervention while only 1.4% required more intense treatment.

Tobacco- All sites registered tobacco use with overall consumption rate of 452(16.1%). Of these 11.3% did not require any intervention, 86.6% did require brief intervention and 2.1% more intense treatment.

Cannabis- The response rate for cannabis use was very low at only 107(3.8%). KNH had the highest number of users at 72 with (97.2%) requiring some form of intervention.

Overall usage in the sample was (3.7%) (107/2856) with 3.7% of the users not requiring any intervention, 87.8% brief intervention and 8.5% intense treatment.

Cocaine - Only 33 (1.2%) of all the patients responded to use of cocaine. No use was found at Naivasha and Magadi. Other sites recorded 1-3 users of which 66.7% required brief intervention and 30.3% intense treatment.

Amphetamines/Khat - Only 100 (3.5%) responded to this item. Of these, 71 were from KNH. Overall (95%) required some intervention; (84%) interventions and (11% intensive treatment. All the users in Embu, Kiambu, Kikuyu, Kibera, Makindu, Naivasha, Magadi and Karuri required either intervention or intensive treatment.

Sedatives- None of the patients in Magadi used sedatives. Only 64 out of all patients for all sites (2.2%) used sedatives. All those who responded in Karuri, Makindu, and Kibera required intense treatment. Overall (70.2%) required brief intervention and (20.5%) more intensive treatment; a total of (90.7%).

MMSE - Mini Mental State Examination (Table A27) and Figure FA23

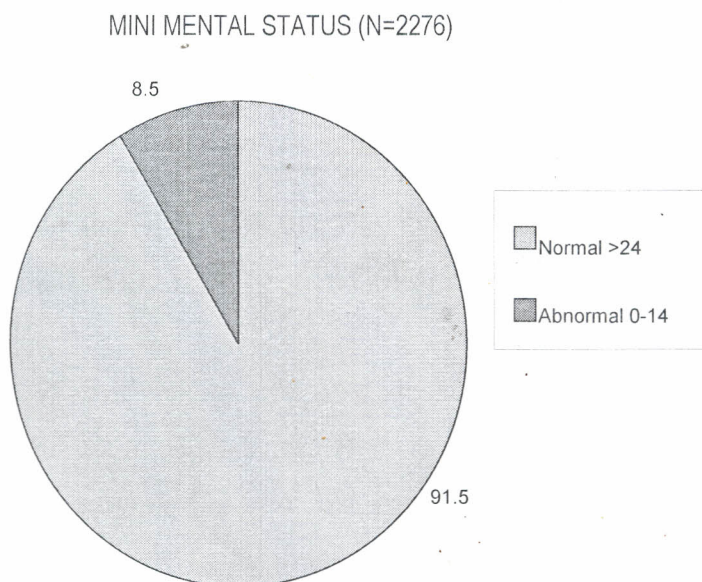


Figure FA23

MMSE was largely normal (91.5%). All patients from Karuri and Kibera who responded to this instrument were all normal. However, Makindu (52.3%), Magadi (24.1%), Kajiado (21.3%) and Naivasha (15.5%) had some abnormal findings on MMSE suggesting cognitive impairment.

CO-MORBIDITY OF MENTAL DISORDERS WITH 18 HOSPITAL DIAGNOSTIC CATEGORIES OF PHYSICAL DISORDERS (TABLE A29)

Note: The co-morbidities of the various mental disorders (except psychosis where n was too small) and physical conditions are also summarized in Figures FA24 – FA37 and attached as appendix 1.

BDI –Patients suffering from cancer and HIV/AIDS had high levels of depression (59.6%) and 52.2% respectively). However, severe depression (a score of ≥ 46) was found only in patients with TB (30.4%) and orthopaedic/soft tissue injury (0.3%).

LSAD-Patients suffering from cancer and HIV/AIDS had higher rates for all the subsets of LSAD, in which the positive scores on the depression scales ranged from 30-40% in these patients whereas those for anxiety scales ranged from 20-30%. Patients with typhoid and cerebrovascular disease (CVD) did not have any positive scores on general anxiety scale.

NOK- Highest rates were recorded among patients with other medical conditions (78.6%) and HIV/AIDS (64.7%). Others like TB (37.1%), cancer (34.5%), PUD (29.4%) and malaria (32.6%) registered lower rates.

AUDIT- All patients who used alcohol exhibited pathological use which bordered from harmful use to dependence. Highest dependence found among patients with TB (64.3%), general surgery (52.6%) and respiratory system (51.4%) diagnosis. All PUD and HIV/AIDS were harmful and dependent users, (52%) for harmful, (48%) dependent fir PUD and (66.7%) and 33.3% respectively for HIV/AIDS.

PSYCHOSIS- This had very few respondents and may not mean much considering the low response. However, still comparing with the file diagnosis there is an indication as to clinicians having missed the diagnosis.

MENTAL DISORDERS AND MALARIA (Table A30) and Figure FA38

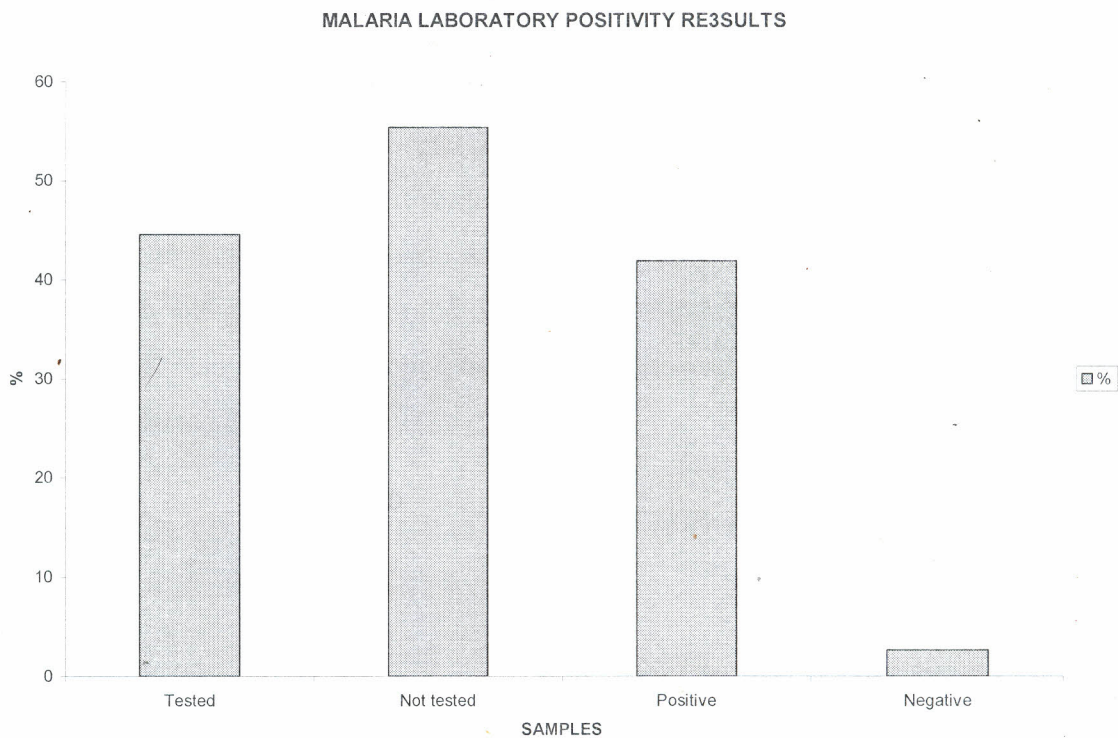


Figure FA38

A total of 186 patients were treated for malaria of which only 83 (44.6%) had laboratory tests done. For those tested the positive slides yield was very high at (94%) 78/83 and only 5/83(6%) tested negative. However, 103(55.4%) were not tested though treated for malaria.

The scores for the different instruments for hospital diagnoses of malaria co-morbid with psychiatric disorders were as follows; BDI (28.6%), LSAD ranged from (13%-26%), (endogenous depression 19.1%, anxiety neurosis 16.2%, general depression 23.6% and anxiety general 13.3%), NOK (32.6%), AUDIT (67.9%), psychosis (100%).

Looking at the mental illness profile among patients treated for malaria, it is evident that depression rate was low 20-30% but alcohol use was high (>68%).

MEDICAL RECORDS AND MENTAL DISORDERS (Table A31)

Note: The variables are too many to summarise in a figure.

Of the several diagnoses listed above only 114(4%) of study subjects had a file diagnosis of mental disorder. These were from KNH 39/114 (34.2%), Kajiado 37/114 (32.5%), Naivasha 24/114 (21.1%), Embu 5/114 (4.4%), Kibera 4/114 (3.5%), and 1/114 (0.9%) each from Kiambu (chronic mental illness), Kikuyu, Makindu and Magadi (mental disorder) and Karuri (bipolar disorder). A range of mental disorder diagnoses was documented at KNH and Kajiado (13 in each site). Kibera 3 (bipolar disorder, schizophrenia and psychosis), Embu 3 (mental disorder, depression and substance use disorder) and Naivasha 6 (alcohol use abuse, depression, epilepsy, other psychiatric illness, stress and suicide).

REFERRALS TO MENTAL HEALTH CARE SPECIALIST/CLINIC (Table A32 and A33) and Figures FA39 and FA40

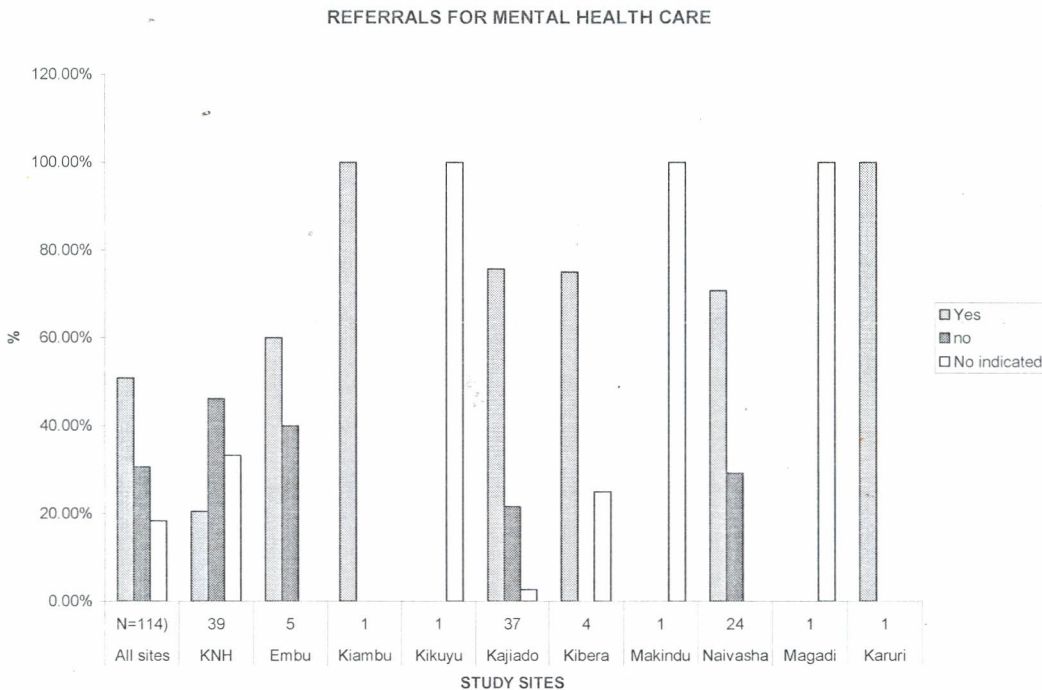


Figure FA39

RESULTS ON THE CHILDREN (TABLE C1-C27)

General Statement

The explanation for varying N and n values and how these were handled have been discussed under the section on Adults. Note: no children were interviewed in Karuri. Also because of the small number for some of the study sites, percentages do not mean much.

Although it was meant to exclude children 18 years and over, some children 18 years of age found their way into the sample for children because of the transition period which is not always clear. Those who found themselves in the sample for children therefore were treated as such and received the same instruments given to all the children.

Also note the results are in three formats – narratives, bar- and pie-charts and tables (in appendix 2). Bar- and pie-charts are only reproduced if this would increase visual perception of the results better than the narratives or tables. Bar- and pie-charts were also not given when the variables were too many to fit in to a figure.

SOCIAL-DEMOGRAPHICS RESULTS

The age structure (Table C1) and Figure FC1

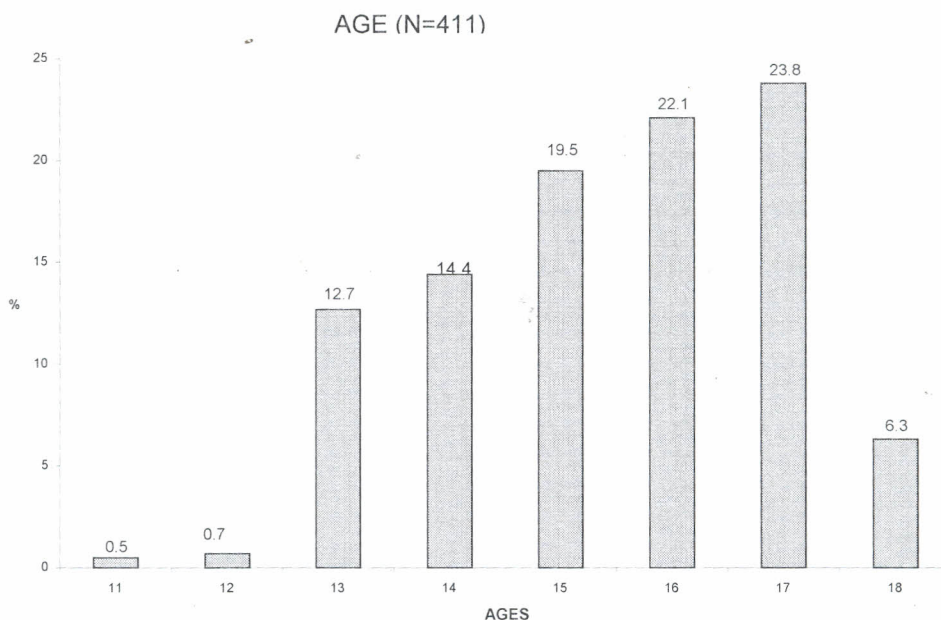


Figure FC1

Although the study had a special target of 13/14-18 year olds, a few children aged 11 and 12 years old participated in the study at KNH and Naivasha and these are reflected in the results. A total of 411 children, with a mean of 15.54, medium of 16, mode of 17 and range of 11-17 participated in the study. The majority of the children were in the age group 15 to some in group 18. When all sites are considered, 13.9% were in the 11-13 age group, 33.9% in the 14-15 age group, 45.9% in the age group of 16-17 and 6.3% in the 18 age group.

Gender (Table C2) and Figure FC2

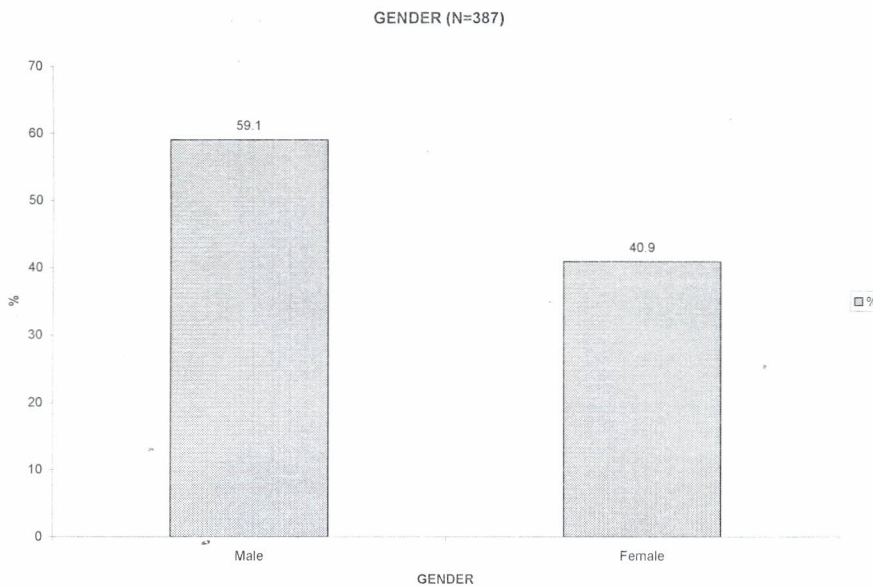


Figure FC2

Overall there were 59.1% boys and 40.9% girls, but there were more boys than girls in all sites except in Kajiado (54.8% females and 45.2% males); Naivasha (57.1% females and 42.9% males). In Magadi there were no males (explained under discussion).

Religion (Table C3) and Figure FC3

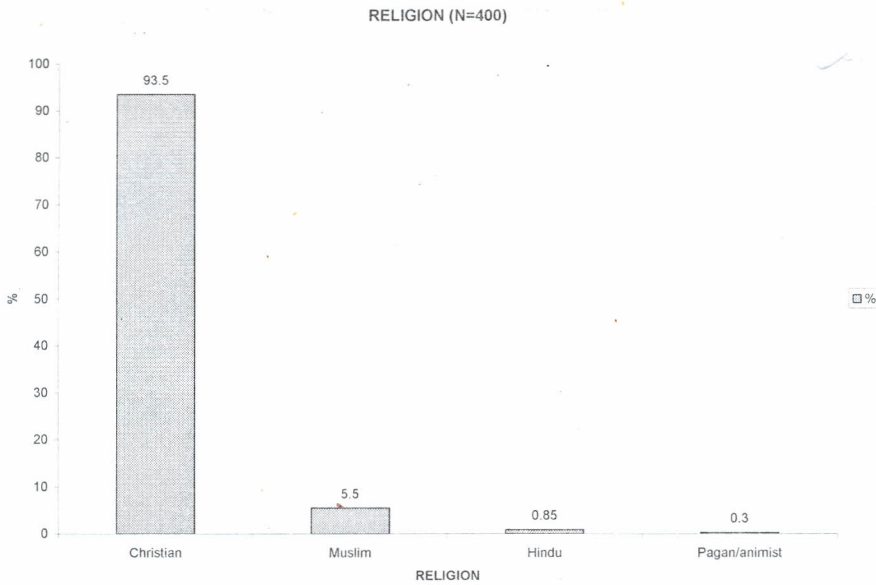


Figure FC3

Christianity (93.5%) was the dominant religion, followed by Islam which accounted for 5.5% and Hindusim 0.85%. There were a few pagans who were all from KNH accounting for only 0.3%.

Educational Level (Table C4) and Figure FC4

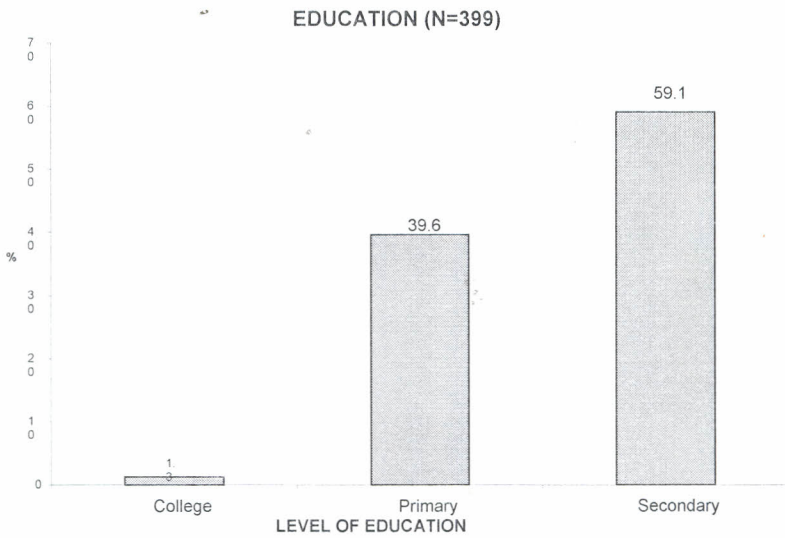


Figure FC4

NUMBER OF BROTHERS (N=369)

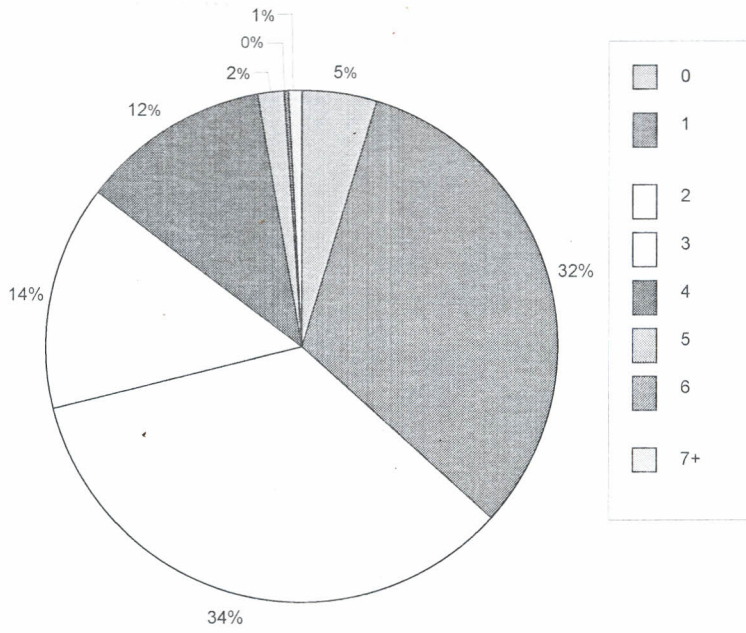


Figure FC5

NUMBER OF SISTERS (N=314)

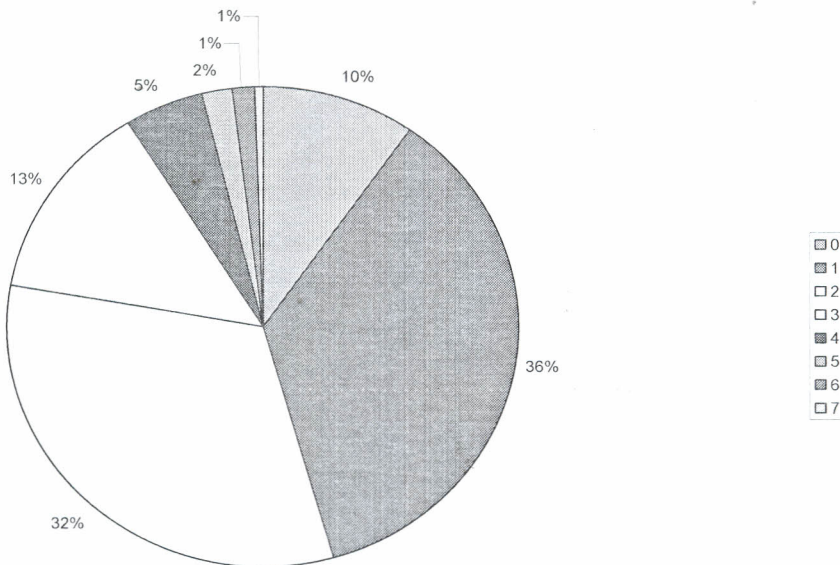


Figure FC6

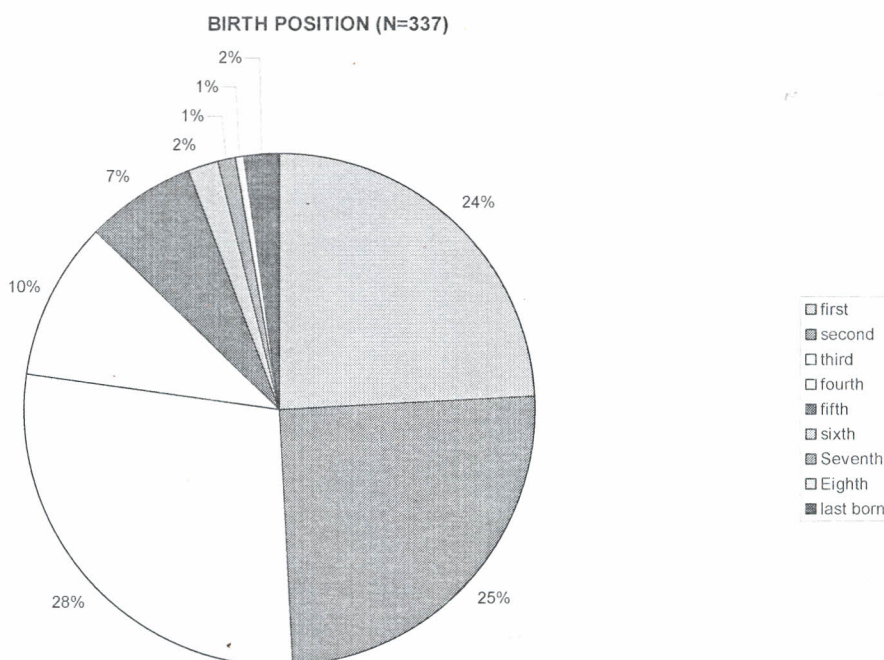


Figure FC7

Occupation of the Person Who Supports You (Table C11)

Majority were in gainful employment (79.4%) except in Makindu where the majority were farmers (60.9%). Overall, only 1.1% was not employed, mainly from KNH.

Diagnoses and Clinical Practice (Tables C12 to C16)

Note: The variables for the self diagnoses were too many to summarise in a figure.

344 responded to these questions. Overall 8.4% did not have an idea of what they were suffering from. Of those who had an idea of what they were suffering from, depression was suspected by 0.6% (i.e. 2 children out of 344), mental problem by 0.3 (i.e.; 1 child), insomnia by 0.9% (i.e. 3 children); epilepsy by 0.3% (i.e. 1 child). (Table C12).

On whether they had been told by the doctor what they were suffering from 322 responded to this question, of which 61.5% had been told. In Kibera and Magadi less than half had been told (Table C13) and Figure FC8.

IF INFORMED BY DOCTOR ABOUT NATURE OF SUFFERING (N=322)

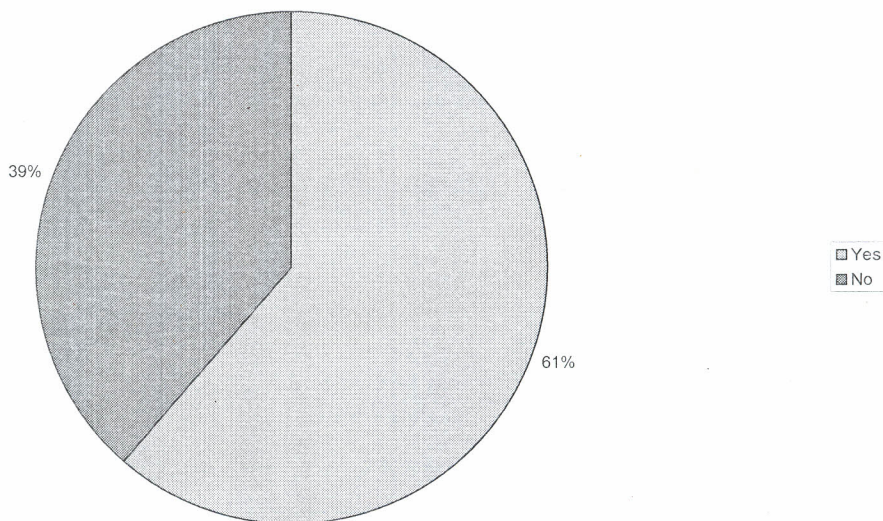


Figure FC8

IF ALLOWED BY DOCTOR TO ENQUIRE ABOUT HIS ILLNESS (N=320)

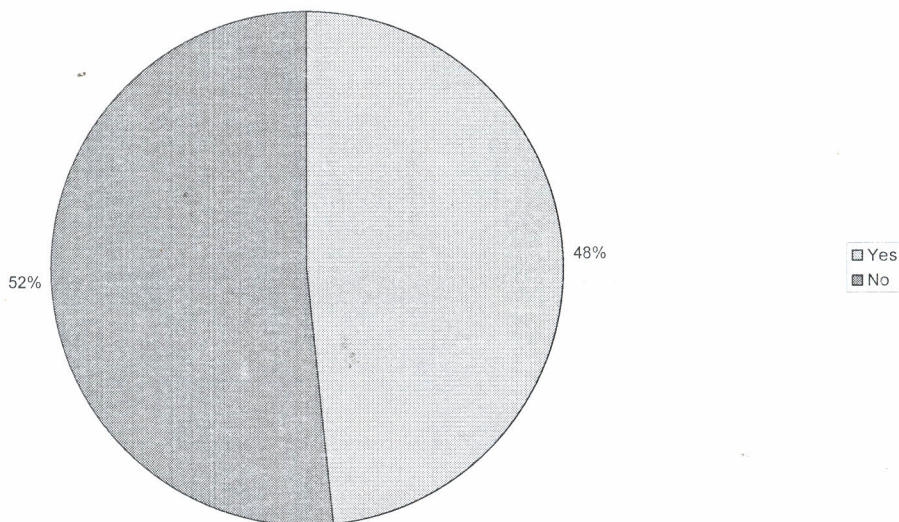


Figure FC9

On whether the doctor had given the patient a chance to ask questions about their condition, 320 children responded to this and less than half (48.4%) responded in the affirmative. However this varied, with KNH giving 62.2% affirmative responses, Kikuyu, (72.2%) and Naivasha 66.7%, but best for Magadi (100%). The worst responses came from Kiambu (15.9%) and Kibera (23.8%). (Table C14) and Figure CF9 above.

On whether the doctor had told the patient of their diagnosis 181 patients answered this. Of the mental health problems, 3 out of 181 i.e. 1.7% were given a diagnosis of depression and 1 out 181 i.e. 0.6% were given a diagnosis of stress (Table C15).

Table C16 summarizes the final diagnoses entered in the hospital patients' records. Overall 332 had this information, 4 (1.2%) received a diagnosis of depression, 2 (0.6%) epilepsy, 1(0.3%) puerperal psychosis (Yes – children aged 18 or less can be mothers), 1 (0.3%) schizophrenia, 1(0.3%) stress and 1(0.3%) substance abuse. This is to say that only 10/ 332 (3.0%) received a psychiatric final diagnosis (Table C16).

Duration of Illness (Table C17) and Figure FC10

For all the sites, a total of 305 patients responded to this and for about one third (30.2%), the illnesses were of acute onset (1-6 days). However KNH had the least number of patients with short duration (only 13.6% with less than 7 days of illness). This was followed by Embu with (20.8%). The highest prevalence of short duration illness was found in Kibera, a Health Centre, with 60.9% with duration of less than 7 days.

DURATION OF ILLNESS (N=305)

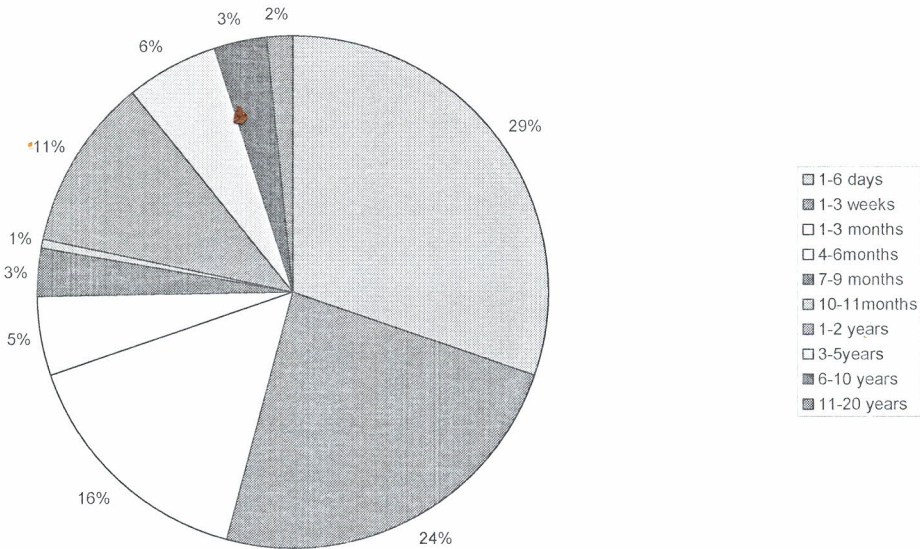


Figure FC10

KNH had also a wide scatter of durations. Overall most children had ailed for less than a month (54.1%) especially from Kiambu (82.5%), Embu (79.1%), Kibera (73.9%) and Magadi (70%). A total of (21.6%) had ailed for more than 1 year (1-2 years, 10.8%, 3-5 years 5.9%, 6-10 years 3.3% and 11-20 years 1.6%), most of them from KHN (37.3%) and Kikuyu (42.8%).

156535/now

MENTION OF MENTAL ILLNESS (N=330)

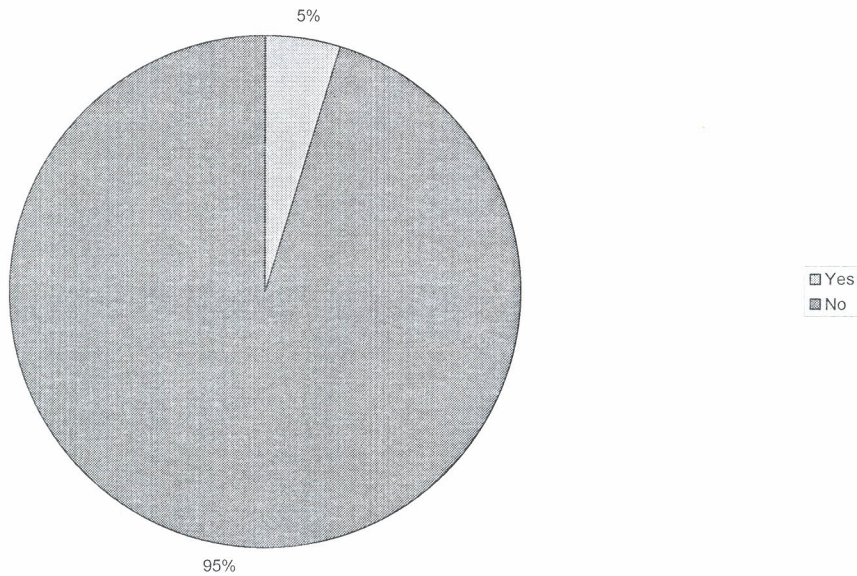


Figure FC11

PSYCHIATRIC DISORDERS AND REFERRALS (Tables C18 to C20)

Some of the information on these tables (Tables C18 and C19) is extracted from the all inclusive diagnoses in Table C16. A mention of mental illness occurred in only 4.8% of all patients and in only 4 sites. A total of 17 psychiatric diagnoses were recorded from all sites, only at KNH (4), Kiambu (1), Kajiado (9) and Naivasha (3); with the following distribution: - 9 depression, 2 epilepsy, puerperal psychosis, rape, schizophrenia, stress and substance abuse (Tables C18, C19). It was only at KNH where 1 of the cases had been referred to a psychiatrist and at Kajiado that 3 and Magadi 2 had been referred to a psychiatric nurse (Table C20).

CDI – Children Depression Inventory Symptoms (Table C21) and Figure FC12

A total of 295 completed this instrument, majority of them (107) from KNH. Of these 98.6% had a positive score on CDI suggesting some degree of depression. Only 4 (1.4%) children scored 10 or less for CDI suggesting no depression, 3 (2.8% for KNH sample) of these from KNH and 1 (5.3% for Kajiado sample) was from Kajiado. With the exception

of KNH and Kajiado who had CDI scores of severe (41-54), (2.8% and 10.5% respectively), all the others were in the mild to (11-26), moderate (27-40) range.

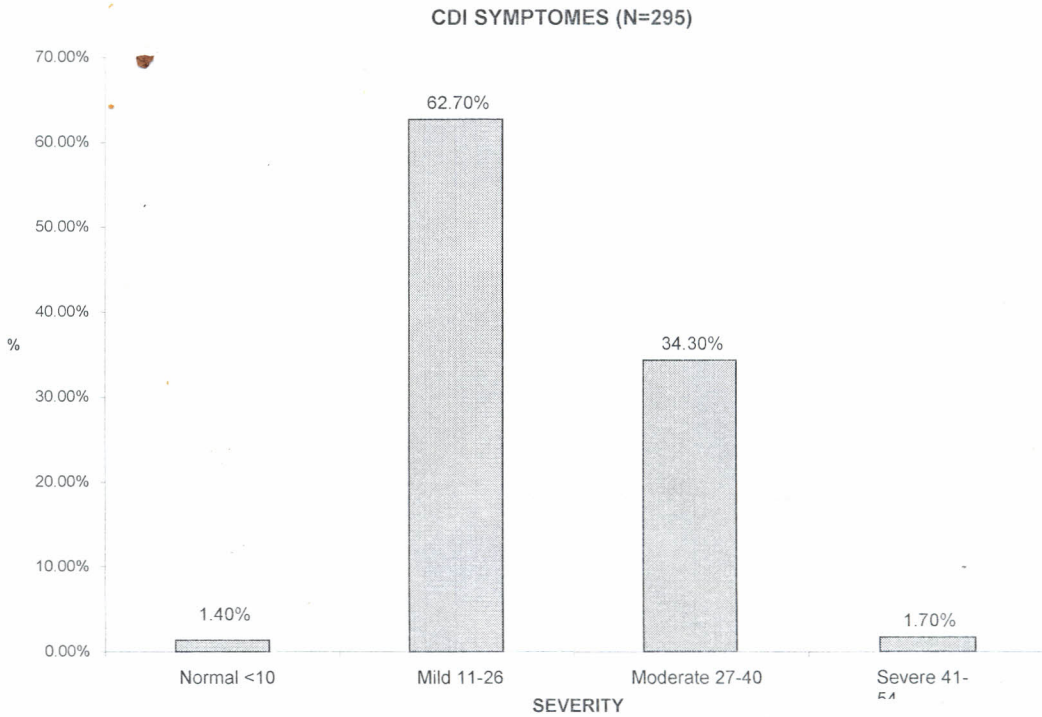


Figure FC12

LSAD- Leeds Scale for Anxiety and Depression (Table C22) and Figures FC13 – FC16

The Leeds Endogenous depression (severe depression) 96.6%, Anxiety Neurosis (severe anxiety) 97.8%, Depression General (mild depression) 95.4% and Anxiety General (mild anxiety) 97.8% were found in the majority of the cases. The respective moderate to severe percentages were (27.2%), (18.4%), (29%) and (15.5%).

ENDOGENOUS (N=327)

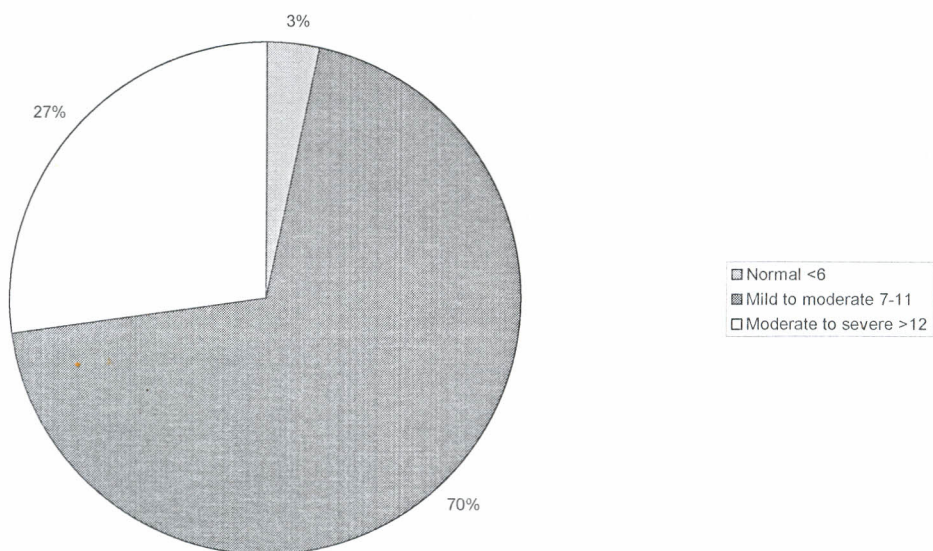


Figure FC13

ANXIETY NEUROSIS (N=321)

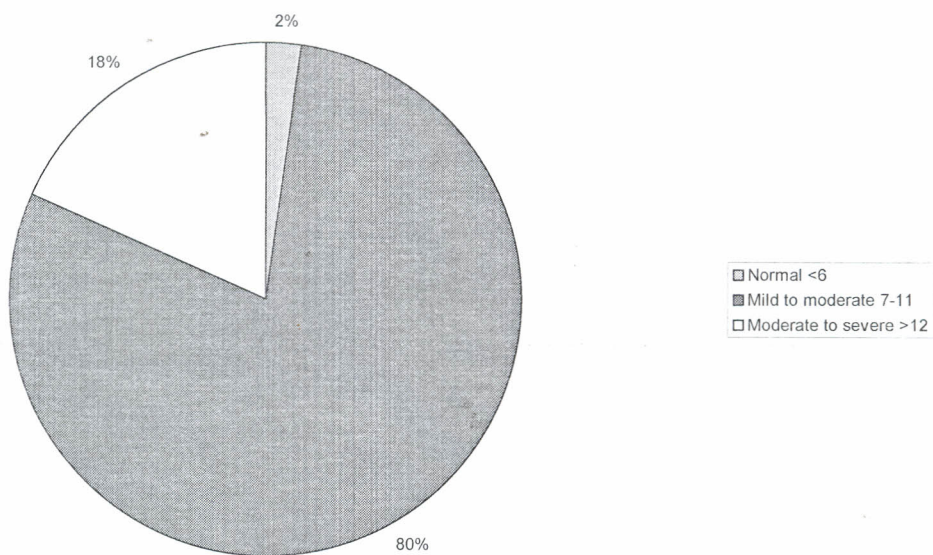


Figure FC14

GENERAL DEPRESSION (N=324)

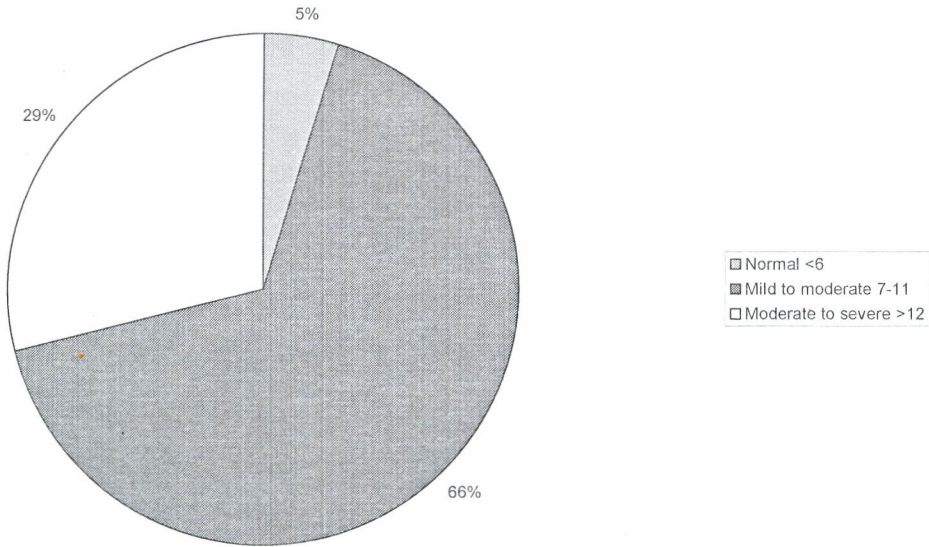


Figure FC15

GENERAL ANXIETY (N=323)

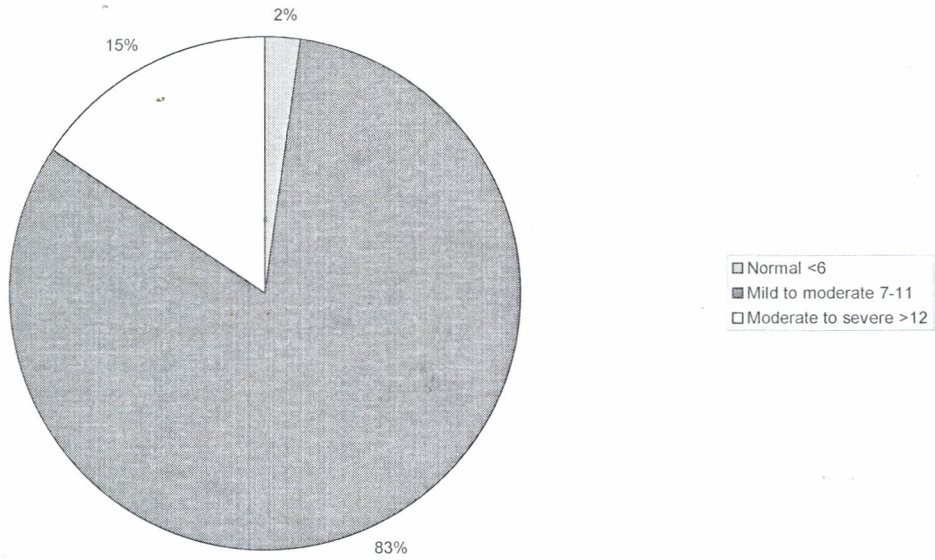


Figure FC16

NOK – Ndetei- Othieno- Kathuku (Table C23) Figure FC17

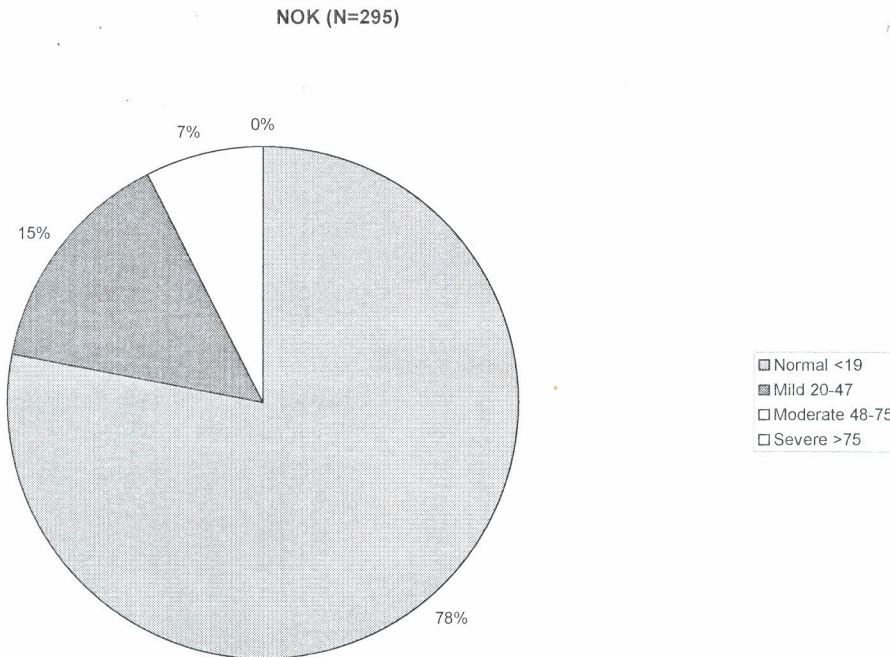


Figure FC17

A total of 295 children completed the NOK instrument. The NOK recorded higher normal scores for both anxiety and depressive symptoms in 78% of all the respondents, which was well replicated in all sites except Embu which showed a higher pathology of 50%. Average anxiety/depression was about (22.1%) for all the sites combined. No severe symptoms were recorded.

Orphans (Table C24)

All the children who were orphaned had very high CDI scores at 41-54 implying severe depression. However, on the NOK scale 30% who did not have their father and 16.7% mother orphans scored 20-47 suggesting mild anxiety and depression.

Psychosis (Table C25)

Only 12 of the entire sample answered this question and all of them scored positive for psychosis.

Alcohol and Drugs Abuse- AUDIT and ASSIST (Tables C26 and C27) and Figures FC18 and FC19

Only 20 youth responded to the AUDIT instrument of which 8 i.e. 40% were dependent on alcohol and 2(10%) were harmful users (Table C26). 342 children responded to the ASSIST. 3.7%-20% required only brief intervention with an overall rate of 7.9% (Table C27).

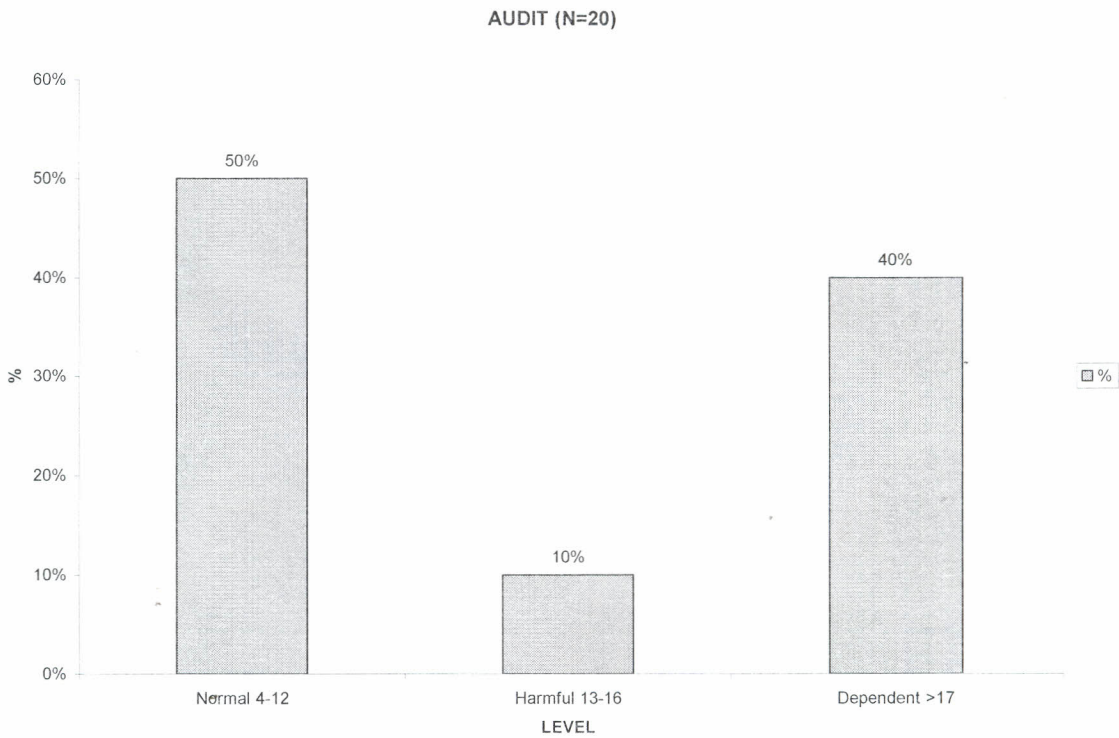


Figure FC18

ASSIST (N=342)

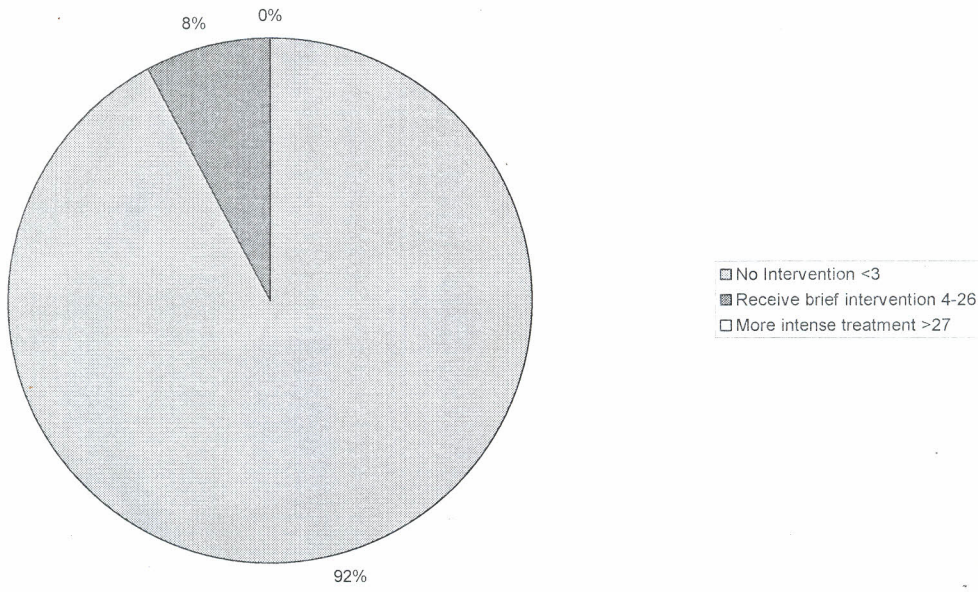


Figure FC19

STAFF RESULTS

SOCIAL DEMOGRAPHICS

A total number of 648 staff working at the 10 study sites participated in the study.

Age (Table S1) and Figure FS1

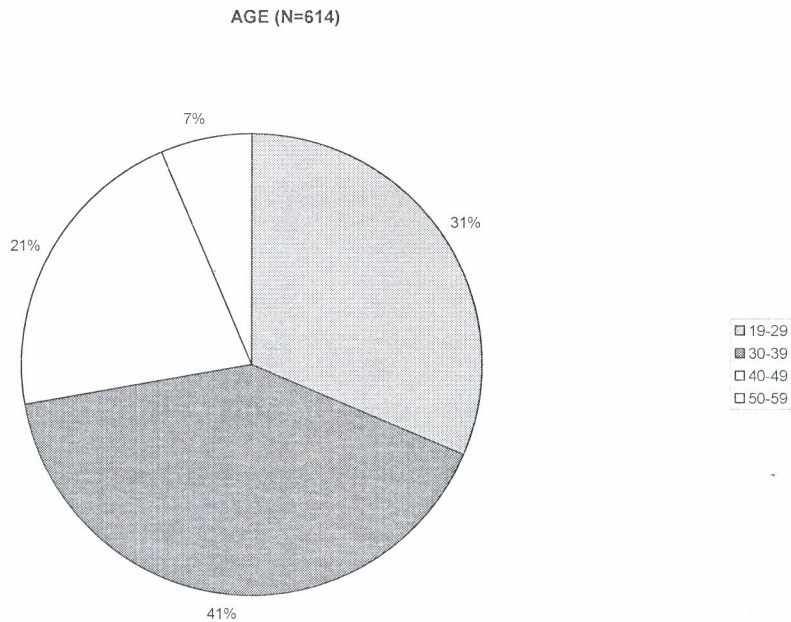


Figure FS1

The age range was 19-59 years, mean age 34.6, median 34, mode 30. From all sites, majority 40.7% were between 30-39 years, followed by those in age 19-29 years (31.4%), then 40-49 years (21.4%) and lastly those between 50-59 years (6.5%).

In KNH, Kajiado, Makindu and Naivasha, majority of the staffs were between 30-39 years whereas majority of those in Embu, Kiambu, Kikuyu, Magadi and Karuri were younger - between 19-29 years of age.

Gender (Table S2) and Figure FS2

41% were males and 59% females. Females were majority working in these institutions except for Magadi where all the respondents were males and Karuri 2/3 (60%) females.

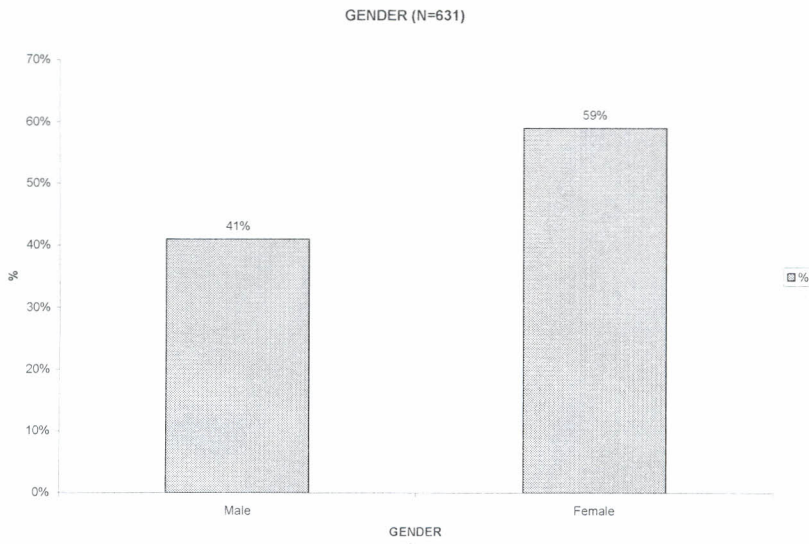


Figure FS2

PROFESSIONAL BACKGROUNDS

Professional Area (Table S3) and Figure FS3

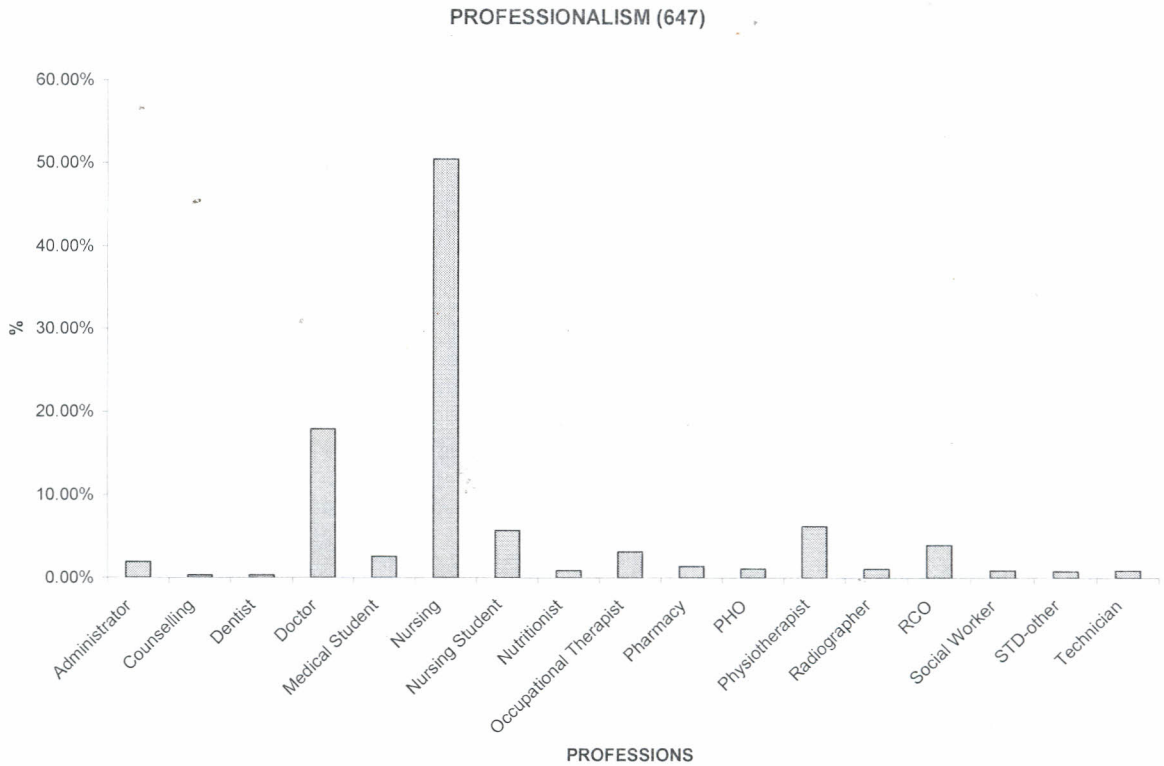


Figure FS3

Nurses were the most in number (50.5%), followed by doctors (17.9%), physiotherapists (6.3%), student nurses (5.7%), registered clinical officers, RCO (4%), occupational therapists (3.2%), medical students (2.6%) and administrators (1.9%).

Basic Qualifications (Table S4)

The basic qualifications are a reflection of the types professionals available, but this also reflects the distribution of the various types of staffs in the various sites. The best human resources were available at KNH, followed by Embu and Kikuyu Hospital. All the details are summarized in Table S4).

Area of Responsibility (Table S5)

Overall, majority (46.1%) of the respondents had nursing responsibilities; with the following site breakdown: KNH 37.5%, Embu 60.7%, Kiambu 58.3%, Kikuyu 70%, Kajiado 63.2%, Makindu 35.7% and Naivasha 54.2%.

This was followed by persons in medical practice: doctors and clinical officers (overall 27.6%, KNH 39.5%, Embu 7.1%, Kiambu 27.8%, Kikuyu 15%, Kajiado 5.3%, Makindu 7.1% and Naivasha 33.3%).

The other responsibilities were as follows overall: 4.4% were physiotherapists, 4.4% administrators, 3.9% counsellors, 3.1% occupational therapists, 2.6% Psychiatric nurses and 2.1% nutritionists.

CLINICAL ASPECTS IN RELATION TO MENTAL DISORDER

Proportion of patients thought by the attending staff to have mental illness out of every 100 patients attended (Table S6) and Figure FS4

Out of every 100 patients seen by each staff, from all the sites the results showed that 26.9% of the respondents thought they were attending to 1-2 patients with mental illness, 23.3% attending to 3-5 patients, 19.0% attending to 6-10 patients, 14.0% attending to 11-20 patients, 1.4% attending to 61-100 patients while only 6.4% thought they were not attending to any patient with mental illness.

PREVALENCE OF MENTAL PATIENTS OUT OF 100 GENERAL PATIENTS (N=562)

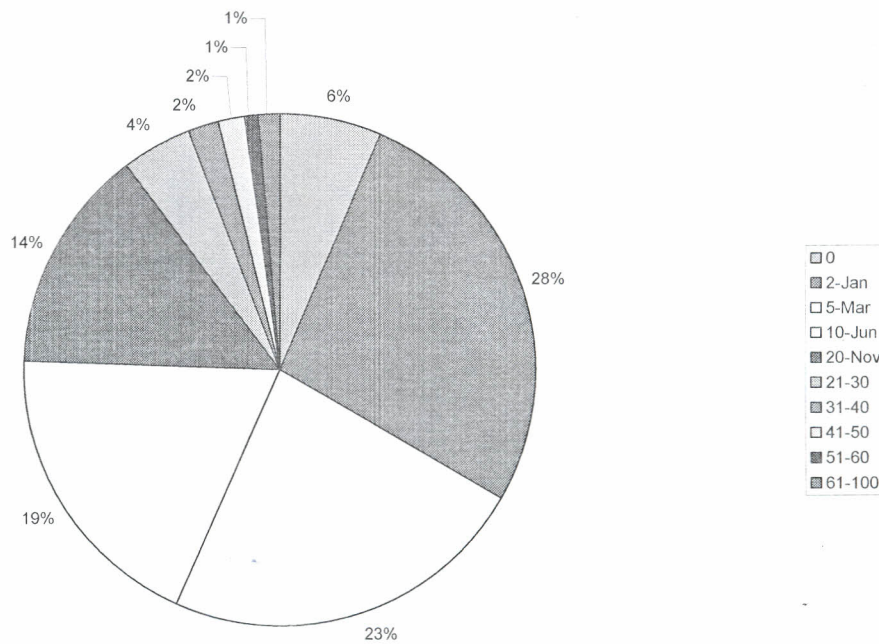


Figure FS4: Note: 2-Jan = 1-2; 5-Mar = 3-5; 10-Jun = 6-10; 20-Nov = 11-20.

25.8% of the staff at KNH thought that out of every 100 patients they were attending 3-5 patients had mental illness, while in Embu 23.5% were attending to 6-10 patients with mental illness, Kiambu, Kikuyu, Kajiado, Kibera, Makindu, Naivasha, and Magadi (respectively 45.5%, 33.3%, 30.8%, 100%, 33.3%, 34.8% and 25%) were attending to 1-2 patients out of every 100 patients under their care. (See table for more details). (Note: KNH had psychiatrists; Embu had had a psychiatrist just prior to the study; Kajiado, Naivasha and Makind had psychiatric nurses).

Patients with a significant psychiatric component in addition to the physical condition
 (Table S7) and Figure FS5

PREVALENCE OF SIGNIFICANT MENTAL ILLNESS AMONG EVERY 100 GENERAL PATIENTS
 (N=569)

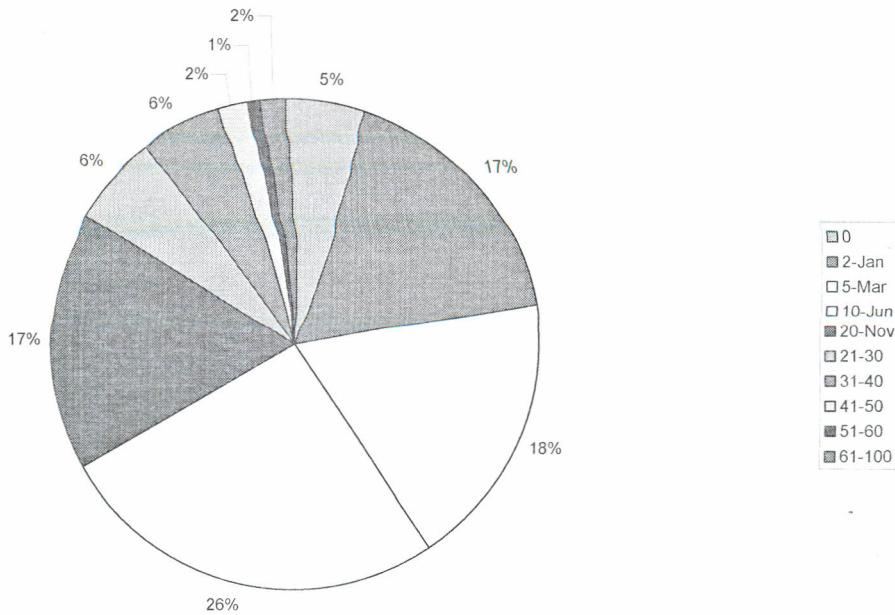


Figure FS5: Note: 2-Jan = 1-2; 5-Mar = 3-5; 10-Jun = 6-10; 20-Nov = 11-20.

Only 5.3% of the overall staff did not attend to any patient they thought had a significant mental health component out of every 100 patients they attended to.

From all the sites, 26.0% of the staffs indicated that they had 6-10 patients with a significant psychiatric component in addition to the physical illness out of 100 patients they saw, followed by 18.5% staff that had 3-5 patients, 17.2% of the staff who saw between 11-20 patients, 16.9% of the staff who saw 1-2 patients, 6.2% of the staff seeing 21-30 patients 5.6% staff seeing 31-40 patients, 1.9% seeing 41-50.

From the different sites 6-10 patients in 100 seen by majority of the staff had a significant psychiatric component in addition to their physical illness; KNH 26.7%, Embu 24.1%; Kajiado 21.6%, and Makindu 33.3%, Naivasha 47.6% of the staff. In Kiambu 36.5% of the staff saw between 1-2 patients in 100 who had a significant psychiatric component in addition to the patients' physical illness, Kikuyu 28.6% of the staff seeing 3-5 patients.

In Magadi 50% staff did not see any patients with a significant psychiatric component, Kibera 33.3% of the staff saw 1-2, 3-5 and 6-10 patients in hundred respectively while in Karuri, 40% of the staff saw 1-2 and 3-5 patients in 100 having a significant psychiatric component.

Proportion with mild psychiatric component in addition to the physical illness out of every 100 patients seen by the staff (Table S8) and Figure FS6

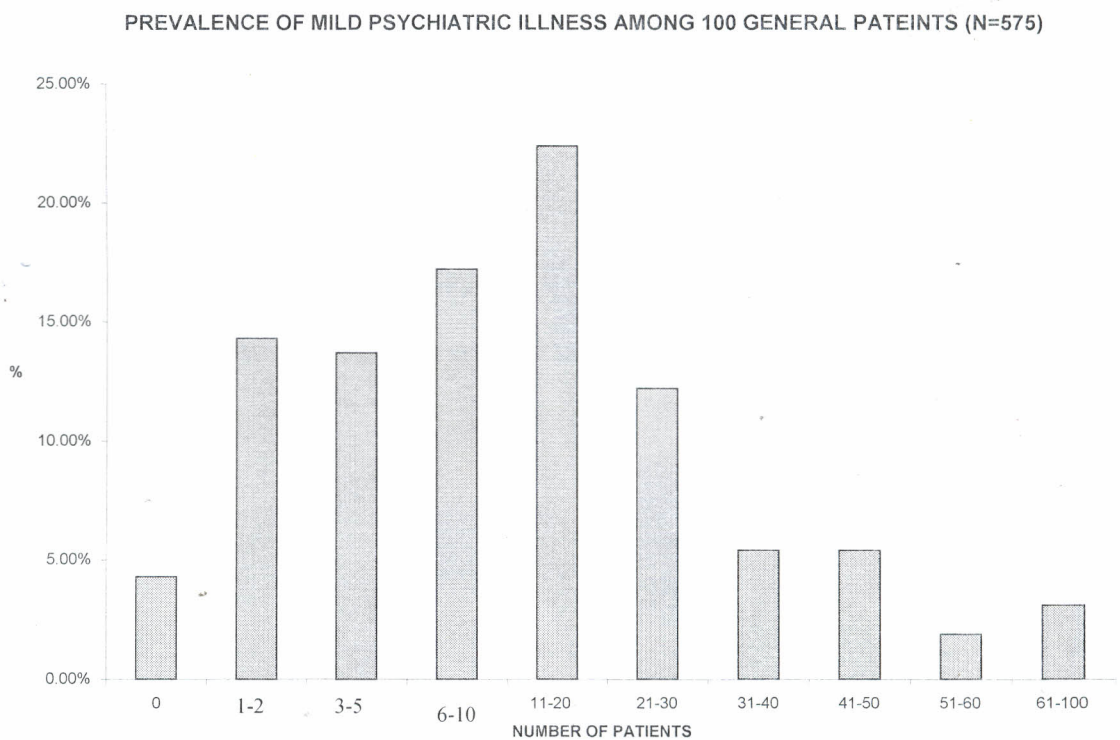


Figure FS6

From all the sites, 22.4% of the staff indicated that they had 11-20 patients with mild psychiatric component in addition to the physical illness out of 100 patients they saw, followed by 17.2% who saw 6-10 patients, 14.3% who saw between 1-2 patients, 13.7% who saw 3-5, 12.2% who saw 21-30, 5.4% who saw 31-40 and 41-50 patients in 100 each, 1.9% saw 51-60 patients and 3.1% of the staff saw 61-100 patients in 100 having mild psychiatric component. Only 4.3% did not see any patient with a mild psychiatric component.

From the different sites 11-20 patients in every 100 patients seen by majority of the staff had mild psychiatric component in addition to their physical illness as follows: - KNH 24.8%, Embu 22.2%, Kikuyu 21.7%, Makindu 28.6%, Naivasha 38.1% and Kibera 66.7% of the staff.

In Kiambu, 28.1% of the staff saw between 6-10 patients in 100 who had mild psychiatric component in addition to the patients' physical illness. In Magadi 25% of the staff did not see any patient with a significant psychiatric component while the remaining 75% (25% 25% & 25%) saw 1-2, 3-5 and 6-10 patients in 100 with mild psychiatric component respectively. In Karuri, (20%) of the staff saw 1-2, (60%) saw 3-5 patients and 26% saw 6-10 patients.

Patients without any psychiatric component (Table S9) and Figure FS7

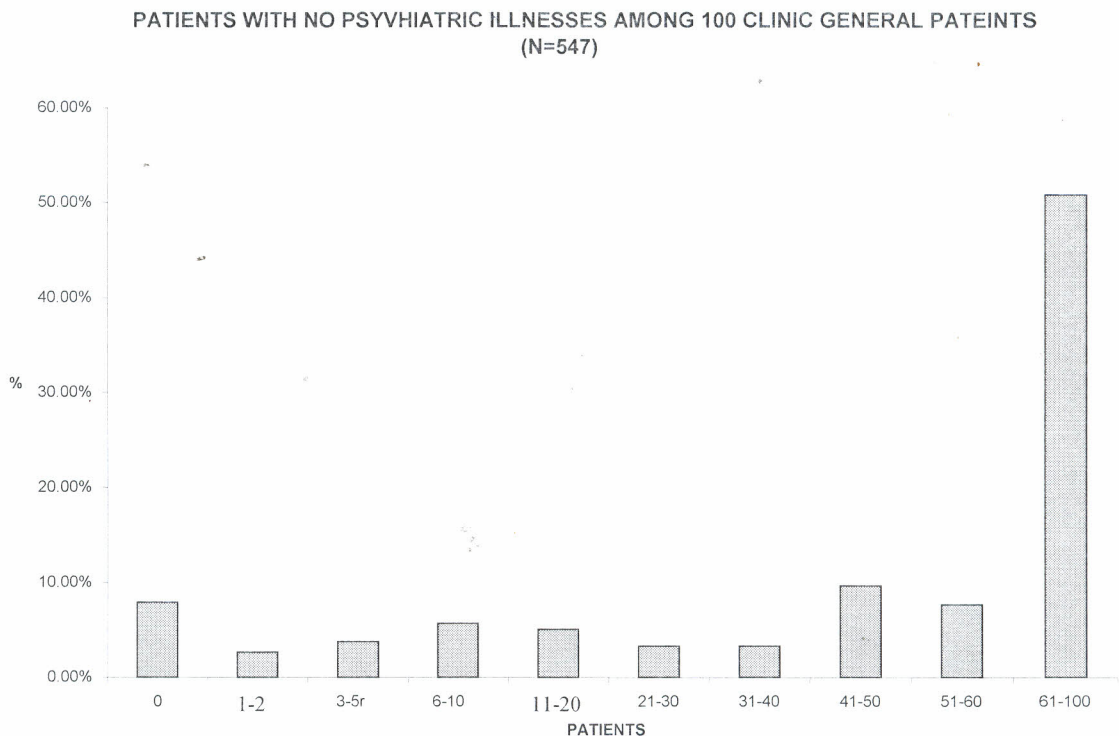


Figure FS7

50.8% from all sites, 56.5% KNH, 37.3% Embu, 67.9% Kiambu, 52.4% Kikuyu, 26.5% Kajiado, 33.3% Kibera and Magadi, 38.1% Makindu and 40.0% Karuri and Naivasha

10% did not see any psychiatric component in 61-100 patients in every 100 patients they saw. Only 2-10% of the staff from the study centres thought that 1-2, 3-5, 6-10, 11-20, 21-30, 31-40, 41-50 and 51-60 patients in every 100 patients they saw did not have psychiatric components.

The majority of the staff were therefore able to recognise a psychiatric component among the patients they saw; some seeing 1-2 patients having psychiatric components in every 100 patients they saw and others able to see as many as 51-60 patients with psychiatric component together with other physical illness in every 100 patients they saw.

Proportion of patients identified with psychiatric component referred to specialists out of every 100 patients attended by the staff (Table S10) and Figure FS8

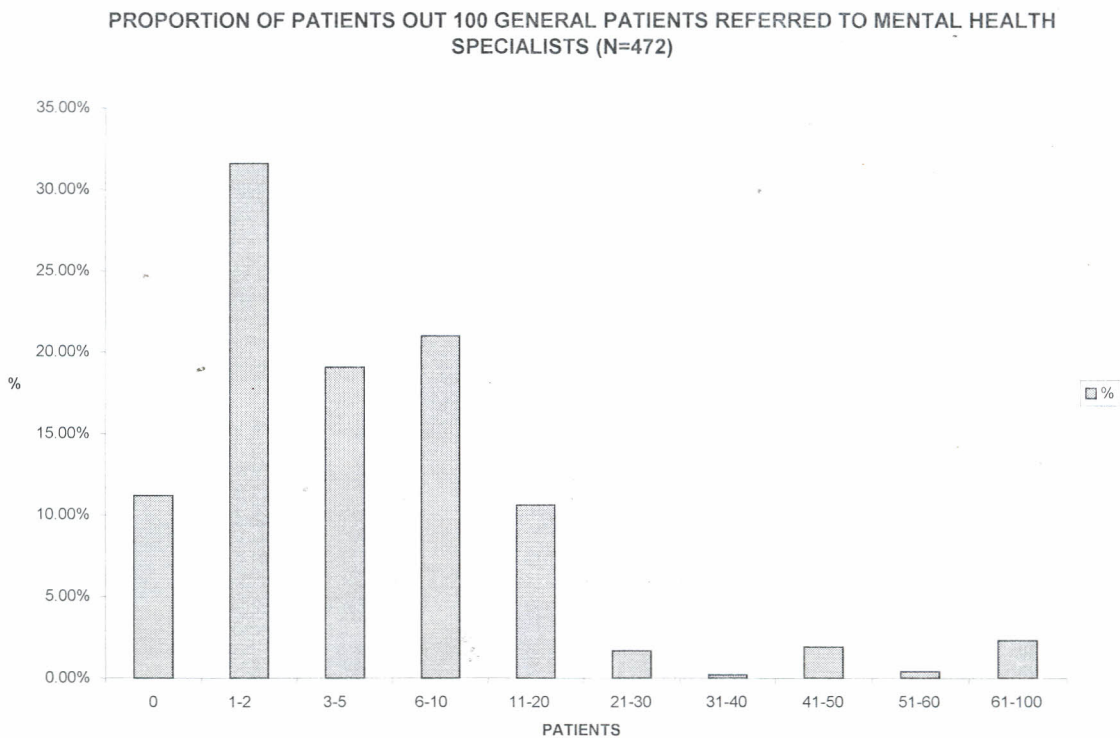


Figure FS8

Overall 31.6% of the staffs referred 1-2 patients they saw as having mental illness to a mental health specialist in every 100 patients they attended to, with following individual site variations: KNH 22.4%, Embu 35.6%, Kiambu 51.2%, Kikuyu 30.4%, Kajiado 43.8%, Kibera 100%, Makindu 35.0%, Naivasha 33.3% and Karuri 100%.

66.7% of the staff from Magadi and 30.4% from Kikuyu did not refer any patients to a mental health specialist.

Access to mental health worker (Table S11) and Figure FS9

ACCESS TO MENTAL HEALTH WORKER (N=633)

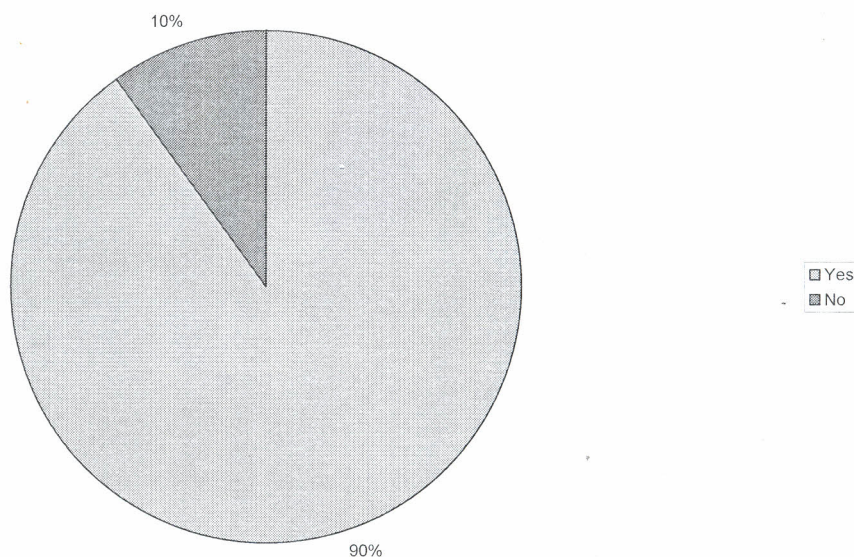


Figure FS9

From the sites the results showed that majority of the staffs had access to mental health workers in case they needed to refer; KNH 92.7%, Embu 90.2%, Kiambu 91.8%, Kikuyu 67.7%, Kajiado 90.9%, Kibera 66.7%, Naivasha 95.8%, Karuri 100%, Magadi 25% and Makindu 88.5%.

Location of mental health specialists (Table S12) and Figure FS10

64.5% of mental health specialists were located in the public institutions, 33.8% in both public and private and 1.7% being in the private sector. The respective site access to only public versus only private sectors are as follows: - KNH 53.1% and 1.9%; Kiambu 57.8% and 2.2%; Kikuyu 47.6% and 14.3%.

LOCATION OF MENTAL SPECIALIST (N=577)

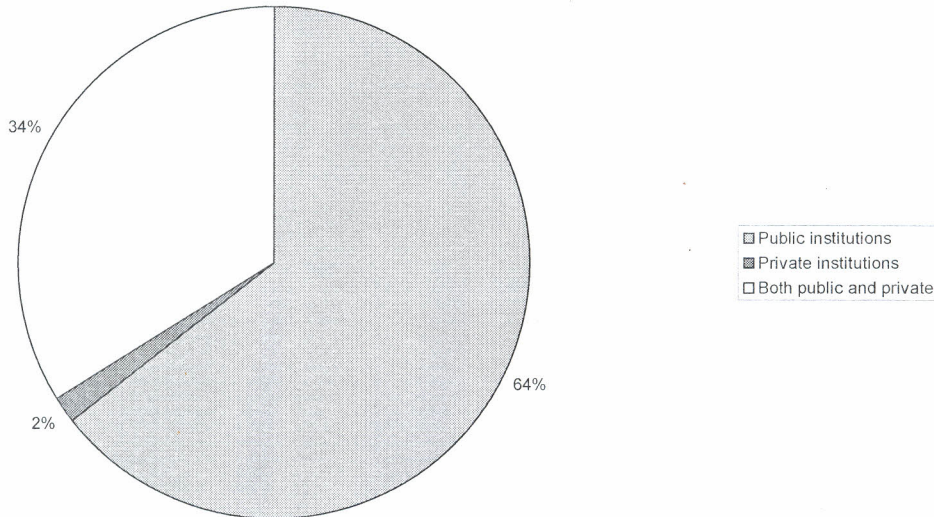


Figure FS10

Embu, Kajiado, Makindu, Kibera and Karuri had no health specialist strictly in private sector (0%), but majority worked in public institutions; 82.1% Embu, 75.5% Kajiado, 86.4% Makindu and Kibera 50%. Naivasha and Karuri had no mental health specialist in private sector or operating in both public and private institutions.

How comfortable were the staffs with managing psychiatric patients (Table S13) and Figure FS11

Very few of the staffs were very comfortable to manage psychiatric patients; all sites 3.6%, KNH 4.6%, Embu 3.1%, Kiambu 1.0%, Kikuyu 3.1% and Kajiado 10.7%. In the remaining sites Kibera, Makindu, Naivasha, Magadi and Karuri none of the staff respondents were very comfortable managing psychiatric patients.

SERVICE PROVIDERS' COMFORT WHILING SERVING MENTAL PATEINTS (N=643)

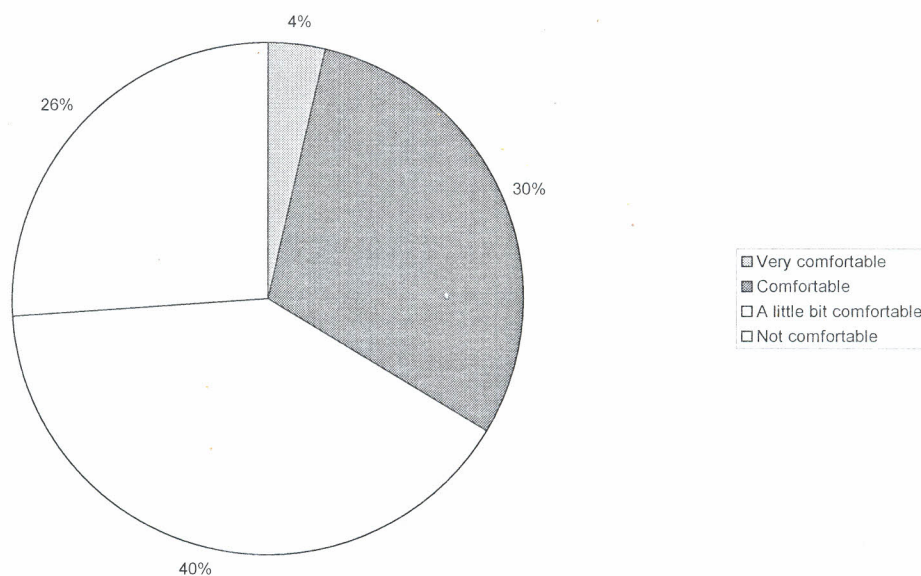


Figure FS11

Other staffs were a little bit comfortable managing patients with psychiatric illness: For all sites 40.2%, KNH 33.8%, Embu 44.6%, Kiambu 50%, Kikuyu 40.6%, Kajiado 44.6%, Kibera 67.3%, Makindu 40%, Naivasha and Magadi 50% each and Karuri 40%.

About a quarter of the staffs were not comfortable with managing patients with psychiatric illness: All sites 26.1%, KNH 33.1%, Embu 10.8%, Kiambu 25.5%, Kikuyu 28.1%, Kajiado 16.1%, Makindu 24.0%, Naivasha 20.8% and Magadi 50% .

Whether the staff thought psychiatric input is required during training (Table S14) and Figures FS12 and FS13

Majority of the staffs indicated that psychiatric input is required both at college, undergraduate and postgraduate level during the training. KNH, Kikuyu and Naivasha staffs (24.7%, 31.8% and 31.8% respectfully) indicated that this training is not required at postgraduate level. Overall the felt need for training at college and undergraduate level was 95.3%, compared with 82.6% at postgraduate level.

PRACTITIONERS' (BELOW UNIVERSITY EDUCATION) CONCERN FOR NEED FOR PSYCHIATRIC REVIEW (N=502)

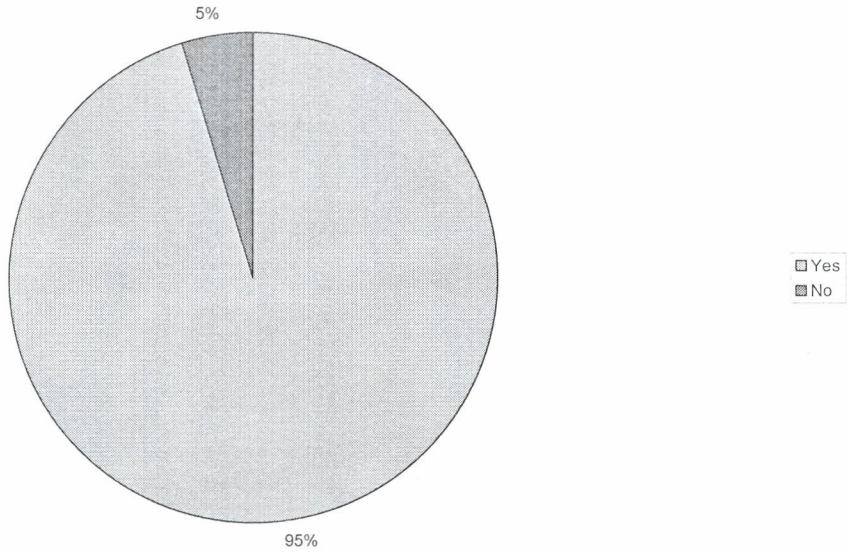


Figure FS12: Note: *Psychiatric review = Psychiatric training input*

UNIVERSITY EDUCATED PRACTITIONERS' CONCERN FOR PSYCHIATRIC REVIEW (N=430)

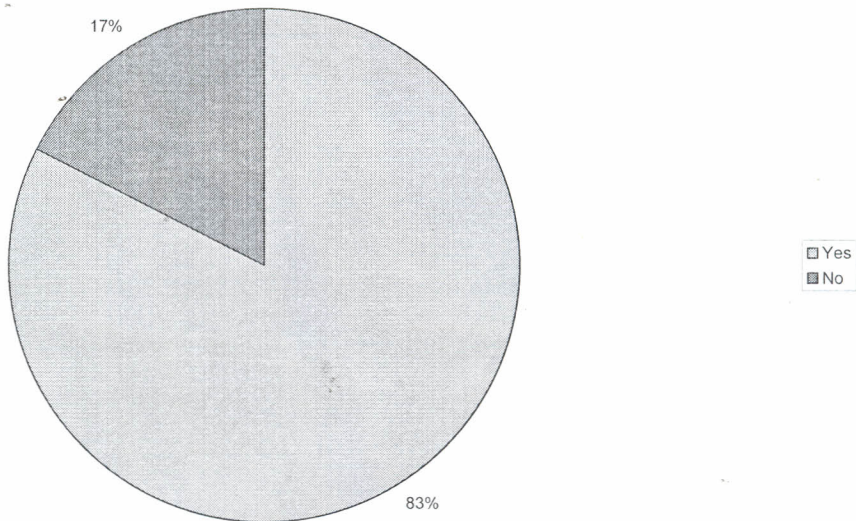


Figure FS13: Note: *Psychiatric review = Psychiatric training input*

Whether has had a chance to attend a refresher course in Mental Health (Table S15) and Figure FS14

IF PRACTITIONER HAD A CHANCE TO UNDERGO MENTAL HEALTH TRAINING (N=640)

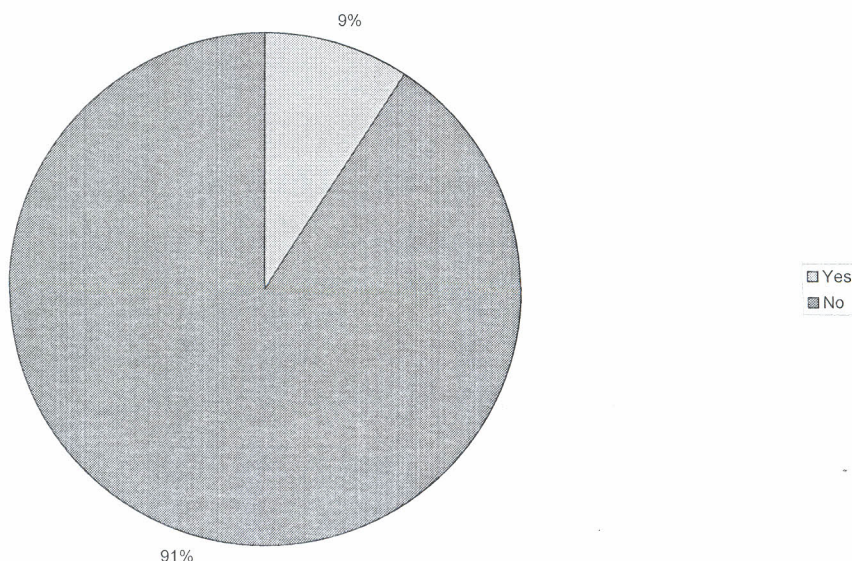


Figure FS14

90.8% of the staffs from all centres had not had a chance to attend a refresher course in mental health; KNH 89.9%, Embu 85.9%, Kiambu 90.8%, Kikuyu 90.6%, Kajiado 89.3%, Kibera 100%, Naivasha 91.7%, Magadi 75%, Karuri 80% and Makindu 100%.

Any Consideration for Going for a Refresher course in Mental Health (Table S16) and Figure FS15

All staffs (100%) from Kajiado, Kibera, Magadi and Karuri were considering going for a refresher course in mental health. Those not considering were: Overall 21.6%, KNH 34.2%, Embu 7.7%, Kiambu 21.1%, Kikuyu 22.4%, Makindu 4.8% and Naivasha 8.3%.

PRACTITIONERS' CONSIDERATION FOR REFRESHER COURSE (N=596)

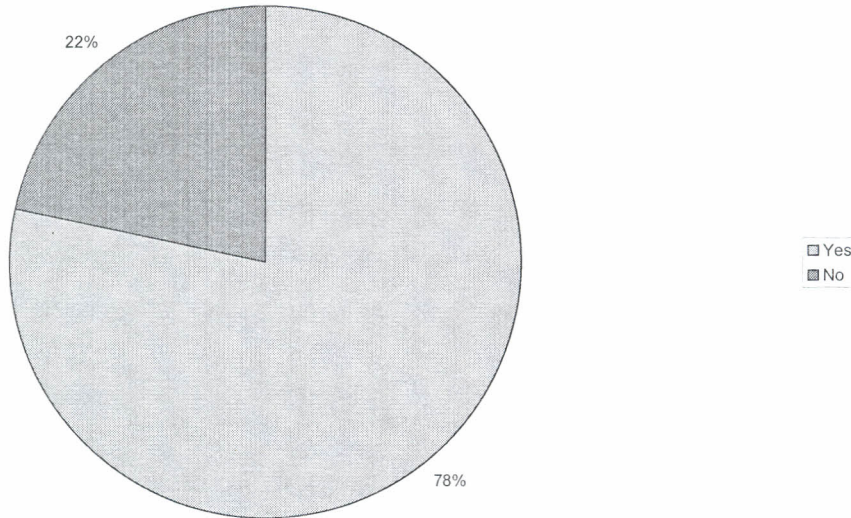


Figure FS15

Reasons for Not Going for a Refresher Course in Mental Health (Table S17) and Figure FS16

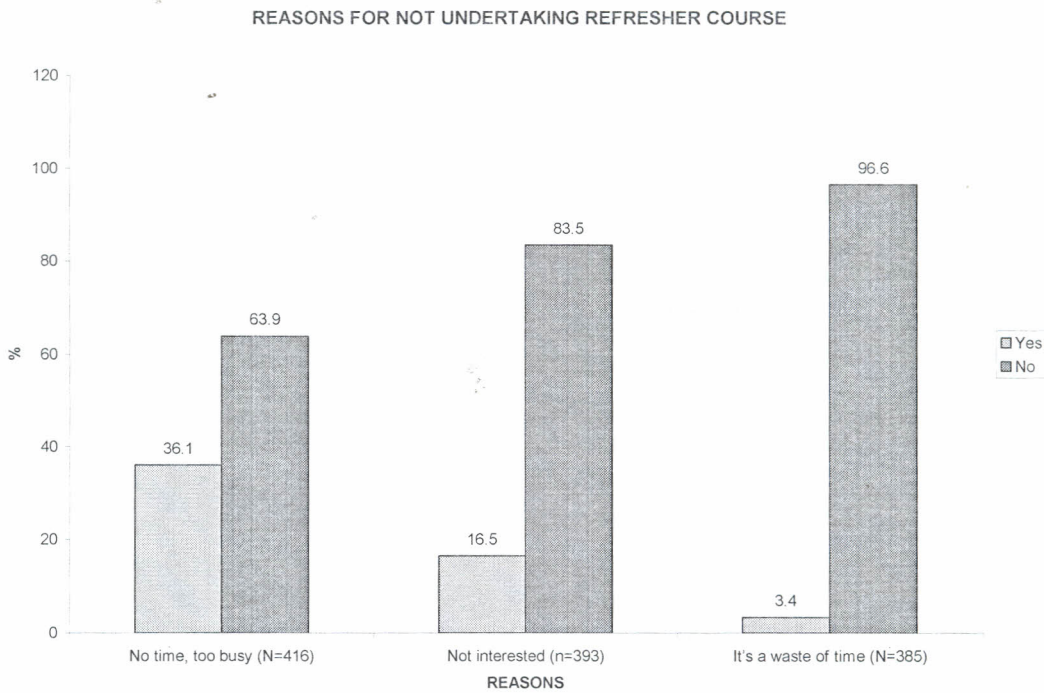


Figure FS16

From the study sites, majority indicated that time was a factor hindering them from going for refresher courses in mental health: Overall 36.1%, KNH 40.4%, Embu 33.3%, Kiambu 37.1%, Kikuyu 22.7%, Kajiado 44.4%, Kibera 100%, Makindu 18.8%, Naivasha 31.8%, Magadi 50% and Karuri 100%.

Few of the staffs indicated that either it was a waste of time (3.4%) or lacked interest (16.5%) in going for a refresher course in mental health apart from Kiambu where the staff indicated that going for this course was a waste of time (17.8%) or had no interest (41.7%).

Reasons for Going for a Refresher Course in Mental health (Table S18a, b & c) and Figure FS17

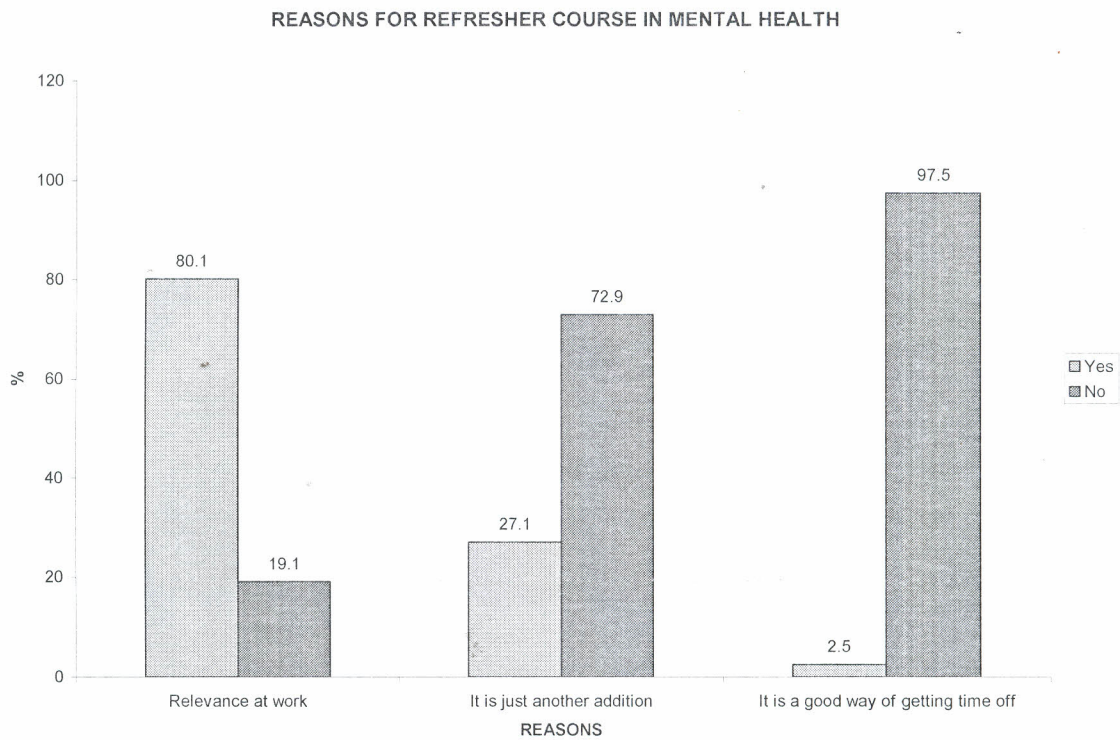


Figure FS17

Majority of the staffs (>80.1% from most sites) needed a refresher course in mental health because mental health is relevant to what they see at work; apart from KNH and Magadi (33.9% and 33.3%) who felt it was not relevant.

Few staffs (2.5%) felt going for a refresher course in mental health was a good way of getting time off. Kikuyu, Kibera, Makindu, Naivasha, Magadi and Karuri had 0% response rate on this. The highest rating site which indicated that going for refresher course in mental health was a waste of time was Kiambu with response rate of 10.2%.

Slightly more than a quarter (27.1%) of staffs from all sites indicated that going for refresher course in mental health was just another addition with Kibera having the highest response (100%), followed by Embu and Magadi (50%) each, Makindu 42.9%, Kiambu 37.9%, Kajiado 27.5%, then Naivasha 25% and KNH 19.2%.

KNOWLEDGE, ATTITUDES, PRACTICE AND STIGMA IN RELATION TO MENTAL DISORDERS

Attitudes of Staffs on who should manage patients with Illness (Table S19, i-iv) and Figure FS18

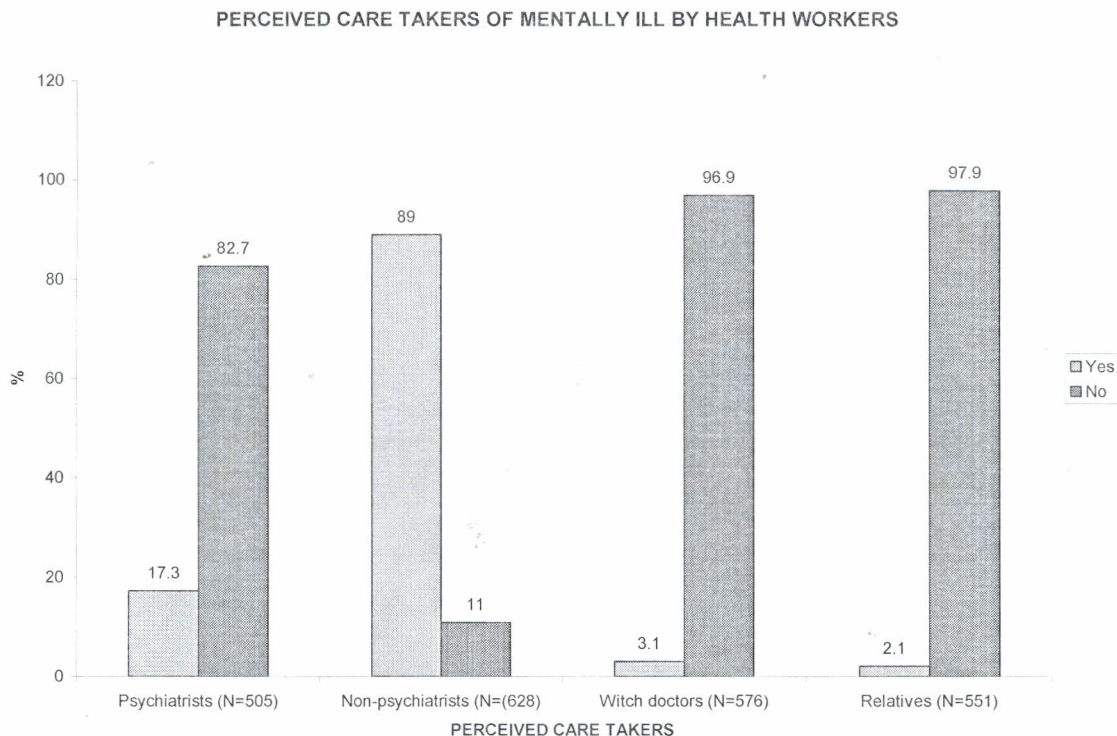


Figure FS18

Only 17.3% of the staff from all sites indicated that mental illnesses can only be treated by psychiatrists. KNH staff had the highest indication (22.7%), followed by Kajiado

21.3%, Embu 15.4%, Makindu 14.3%, Kikuyu 12.5%, Naivasha 9.1% and Kiambu 7.8%. Kibera, Magadi and Karuri, where they had no staff with mental health training, indicated that mental illnesses can be treated by non psychiatrists (Table S19i).

89% of staff from all sites and over 75% or more in each of the sites indicated that non-psychiatric doctors have important role to play in treating patients with mental illness (Table S19ii).

Witchdoctors had no role in managing patients with mental illness as indicated by the results; from all sites, with only 3.1% of the overall staff who indicated that these patients can be managed by witch doctors. Higher rates were reported in Makindu (4.8%), KNH (4.5%) and Kiambu (3.4%) (Table S19iii).

On whether mental illness is a problem only of patients' relatives, majority of the staff (97.9%), disagreed with that statement with (2.1%) saying yes. Makindu (4.8%) and Naivasha (4.2%), KNH (2.6%) and Kiambu (1.1%) agreed with the statement, with the rest of the sites disagreeing with the statement in 100% of the respondents. KNH was third in disagreeing with the statement with (2.6% saying agreeing and (97.4%) disagreeing (Table S19iv).

Attitudes of Staffs on the Setting for Managing patients with Mental Illness (Table S20, i-iv) and Figure SF19

From all the sites, 22.1% of the staffs indicated that patients with mental illness can only be managed in a psychiatric hospital. Magadi's staff indicated this by a 33.3% response rate from the staff, followed by Embu (30%), KNH (26.8%), Kikuyu (21.9%), Karuri (20%), Makindu (18.2%), Kajiado (17.0%), Kiambu (13.5%) and Naivasha (8.3%). KNH had one of the highest rates i.e. (26.8%) that mental illness can only be managed by psychiatrists (table S20i).

HEALTH STAFFS' PERCEPTION OF IDEAL SETTING FOR MANAGEMENT OF MENTALLY ILL PATIENTS

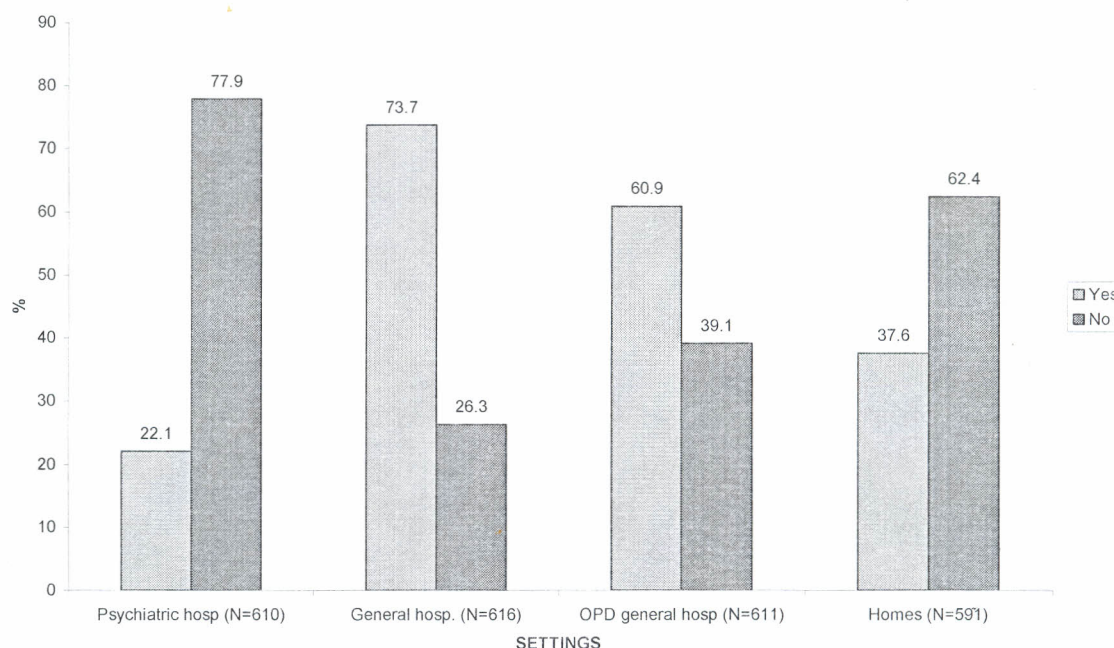


Figure SF19

Many (73.7%) however, affirmed that mental illness can successfully be managed in general hospitals; Kibera had the highest affirmation of 100%, followed by Kiambu (92.8%), Naivasha 83.3%, Kajiado 78.8%, Makindu (78.3%), Embu (72.1%), Kikuyu (71.9%) and KNH had one of the least of all the sites – (65.1%) just a head of a small private hospital (Magadi 50%) and one of the health centres, Karuri (40%) (Table S20ii).

60.9% of the staffs agreed that the patients with mental illness can be managed as out patients in general hospitals. Kiambu had the highest positive response of 71.7%, followed by Naivasha 70.8%, then Kajiado, Kibera and Makindu (69.4%, 66.7%, and 66.7% respectively), KNH 56.7%, Embu 53.6% and Magadi 50%. KNH the premier hospital was 7th on a positive response rate (Table S20iii).

Karuri indicated a high negative response rate of 80% that these patients cannot be managed as out-patients as well as not able to be treated successfully in their homes at a rate of 100% (Table S20iv).

On the other hand a third to a half of the staff indicated that the patients could successfully be treated in their homes; all sites 37.6%, Magadi and Kibera 50%, Naivasha 45.8%, Kajiado 43.2%, Kiambu 41.1%, KNH 38%, Kikuyu 35.5%, Embu 35.2% and Makindu 27.3% (Table S20iv).

Knowledge, Attitudes, Practice and Stigma of 17 different Types of General Hospital Staffs On Persons with Depression (Table S21) (a-h)

Note: The numbers of some of the different types of staffs are too small to make visual representation of the variables i.e. knowledge; attitudes, practice and stigma meaningful, and therefore figure on these are omitted. Only doctors and nurses will have visual representation later on because of their significant numbers and importance.

There were 17 different professional groups. The most numerical ones were doctors, nurses, nursing students, physiotherapists, occupational therapists, medical students and RCO. These are also the ones most likely to make clinical contacts with patients now and in the future, especially in the case of medical and nursing students. The administrators were few but very significant in that they are in positions of influencing policies. Only the results of the above cadres will be summarised in narrative. For the rest the details are in the table.

For each of the different aspects of knowledge and attitude, the undecided proportions are important as potentially fruitful targets of interventions. These are detailed in the table.

(a) Knowledge about mental disorders: The areas of awareness were in the following aspects: -

- Psychological factors can influence the cause and outcome of physical disorders,
- Emotional and social aspects of care enhance job interest in the patient,
- Management of emotional issues are solely a medical responsibility and
- The emotional together with social aspects of care enhance their job interest.

The medical students had the highest level of awareness (a score of 4-8) at (52.9%), followed by doctors (50%), nursing students (44.4%), nurses (34.2%), occupational therapists (42.9%), physiotherapist (27.5%) and RCO (33.3%). The administrators had awareness in (33.3%). However, in all of them, including other staff, a significant proportion was uncertain.

(b) Practice: Responsibility for following common types of psychological disorders: Awareness (a score of less than 15) was highest in the medical students (76.5%), followed by occupational therapists (66.7%), nurses (66.2%), doctors (66.3%), nursing students (60%), physiotherapists (55.3%), RCO (52.2%) and administrators (25%). Again there were significant proportions that were undecided.

(c) Practice: Assessment of psychological disorders and time as constraint: The doctors had the highest level of awareness (a score of less than 13) at 38.1%, followed by nursing students (21.2%), medical students (17.6%), nurses (15.6%), occupational therapists (14.3%), physiotherapists (15.8%), administrators (11.1%) and RCO (8%).

(d) Knowledge on treatments in general hospitals/facilities: The medical students were the most knowledgeable (a score of less than 13) at 66.7%, at same level with occupational therapists at (66.7%), followed by doctors (54%), nursing students (45.5%), the RCO were at (40%), administrators (33.3%) and the nurses (5.2%).

(e) Knowledge on psychiatry in general: The nurses scored highest (26.1%) (a score of less than 7), followed by medical students and nursing students at (18.8%) each, physiotherapists (16.2%), RCO (16%), doctors (12.2%), occupational therapists (9.5%), and administrators (0%).

(f) Attitudes of staffs in general hospitals toward mental health: This measures following variables: -

- Emotional problems of the patients are part of the doctors work,
- Psychological disorders are important in the course of physical illness,

- Emotional and social care do enhance interest in patients,
- General practitioners do assess emotional problems in new patients and
- Management of emotional problems in patients is a nursing procedure.

The doctors had the best positive attitudes (a score of less than 13) at (46.1%), followed by RCO (48%), medical students (43.8%), physiotherapists (43.6%), nursing students (39.3%), nurses ((30.8%) and administrators (0%).

(g) Stigma towards persons with depression: This measure following variables: -

- People with depression could snap out if they so wanted,
- That depression was a personal weakness,
- That depression is not a real medical illness, persons with depression are unpredictable,
- There is need to avoid persons with depression in order not to get depressed too,
- They would tell anyone if they were depressed and
- Would not vote for a politician if they knew he was depressed.

The highest negative, i.e. stigmatising attitude (a score of less than 19) was found in nursing students (9.1%), medical students (6.3%), doctors (3.5%), occupational therapists (5%), physiotherapists (2.6%), RCO (0%) and administrators (0%), with substantial uncertain proportions. The scores for not stigmatising (36-45) were as follows: Doctors (63.5%), physiotherapists (23.7%, administrators (22.2%), occupational therapists (20%), nurses (19.5%), RCO (15.4%), medical students (12.5%) and nursing students (9.1%).

(h) Stigma – general views on people with depression: This had no negative (stigmatising) (a score less than 19) all across the various staffs except for nutritionists (66.7%), occupational therapists (20%). The doctors had the highest rate of non-stigmatising (69.9%) followed by the nurses at (7.6%).The rest were uncertain.

DOCTORS AND NURSES COMPARED

Knowledge, attitude, practice and stigma vs age ranges for doctors and nurses (Table S22 (a-h) and Figures FS20-FS27)

Note: Figures SF20-FS27 focus only on the doctors and nurses because of their significant numbers and their clinical significance in their contacts with their patients. The numbers of the other staffs are too small to make visual representation meaningful.

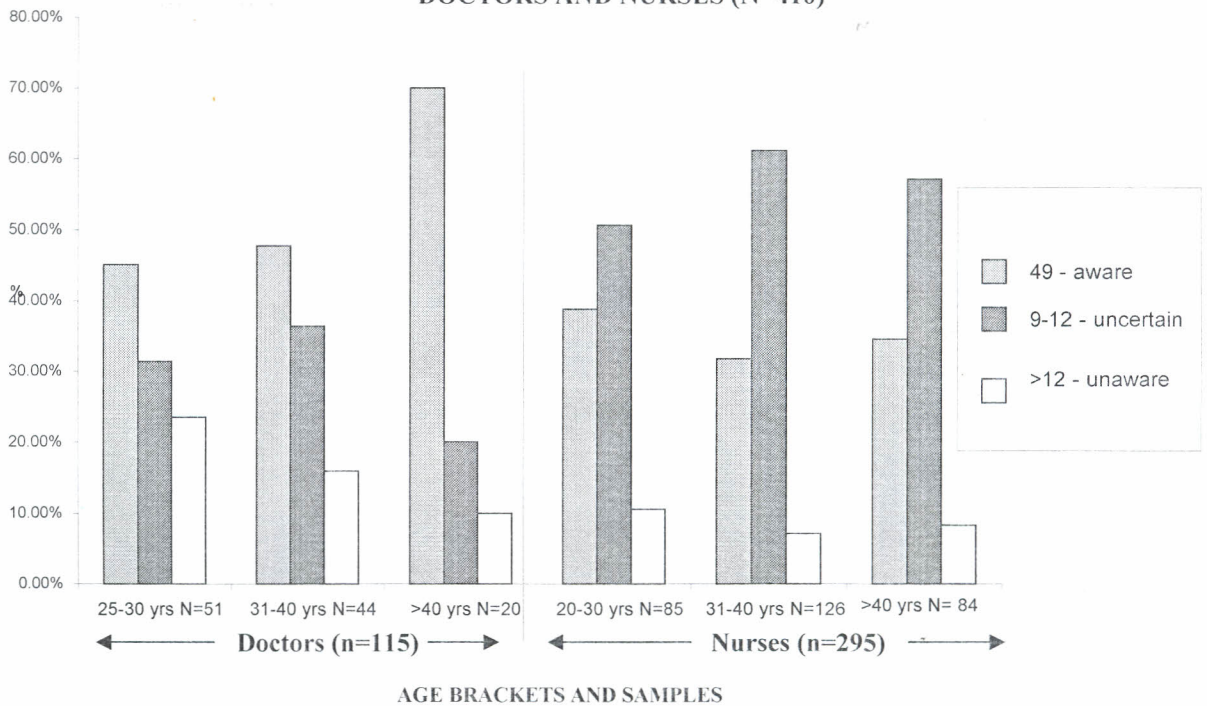
The doctors and the nurses are not only the most numerical, but also the ones who interact the most with patients. They also have role model and clinical influence on both medical and nursing students.

Table S22 a-h is an extraction from Tables S1 and S21, to focus specifically on the doctors and nurses in relation to their ages and practices, attitudes, practices and stigma.

(a) Age: The doctors were generally younger than the nurses, with the nurses showing a peak in the 31-40 age bracket, while the doctors showed a peak in the 25-30 age group. Note: The doctors finish their studies at later age than nurses.

(b) Knowledge about mental disorders: This measure of awareness increased with age in case of doctors from (45.1%) in the 25-30 years to (70%) in the >40 years and by implication with experience, also reflected by decreasing unawareness with age. In the case of the nurses, apparently age did not have an effect on the levels of awareness, uncertainty even unawareness, 38.8% in the 20-30 and 34.5% in the >40. The doctors had a higher awareness than the nurses 45.1% in the >40.

KNOWLEDGE ABOUT MENTAL DISORDERS AMONG NON-PSYCHIATRIC DOCTORS AND NURSES (N=410)



Figures FS20

Overall doctors had a higher awareness than the nurses (45.1% - 70%) range in doctors and (31.7% - 38.8% in the nurses), and uncertainty was much less in the doctors than in the nurses (20% - 36.4% in the doctors; 50.6% - 61.1% in the nurses). Unawareness was higher in the doctors (10% - 23.5%) than in the nurses (7.1% - 10.6%).

(c) Practice - Responsibility for following common types of psychological disorder:

Awareness increased with age in the case of the doctors, (58.8% - 75%) with a peak in the more than 40 years of age of (75%) whereas this awareness was higher in the nurses in the age groups 20-30 and 31-40, it dropped in the age group >40 (67.1% - 61%).

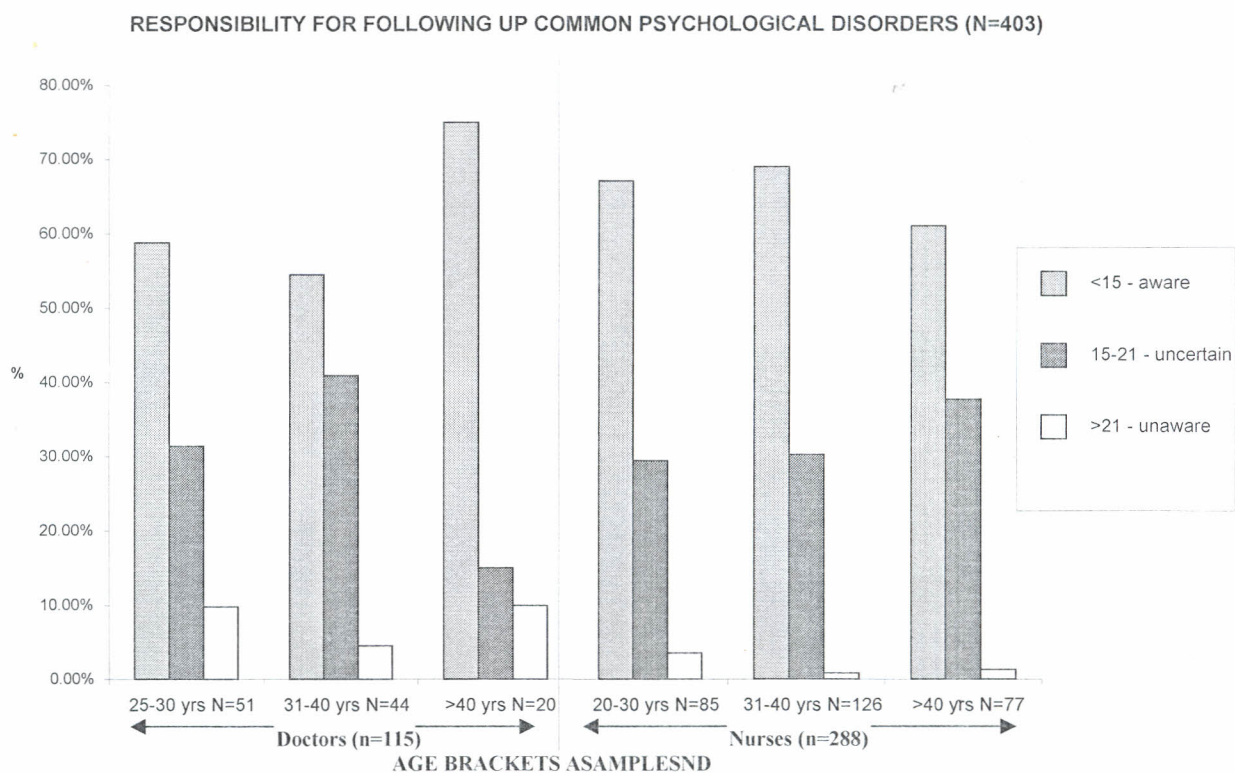


Figure FS21

Unawareness was however lower in the nurses than in the doctors and decreased with age in the nurses (3.5% - 1.3%) unlike in the doctors (9.8% - 10%) where it changed little.

(d) Practice - Assessment of psychological disorders and time as a constrain: Whereas awareness was higher in the doctors than in the nurses (range: 33.3% - 23.8%) than in the nurses (range 22.5% - 13.7%), in both doctors and nurses there was an overall gradual reduction with age (doctors from 33.3% in 25-30 years to 25% in the >40 and nurses 22.5% in the 20-30 years to 14.6% in the >40). In both cases it is a reflection of perhaps less clinical time for individual patients with age.

PRACTICE; ASSESSMENT OF PSYCHOLOGICAL DISORDER AND TIME AS A CONSTRAINT
(N=399)

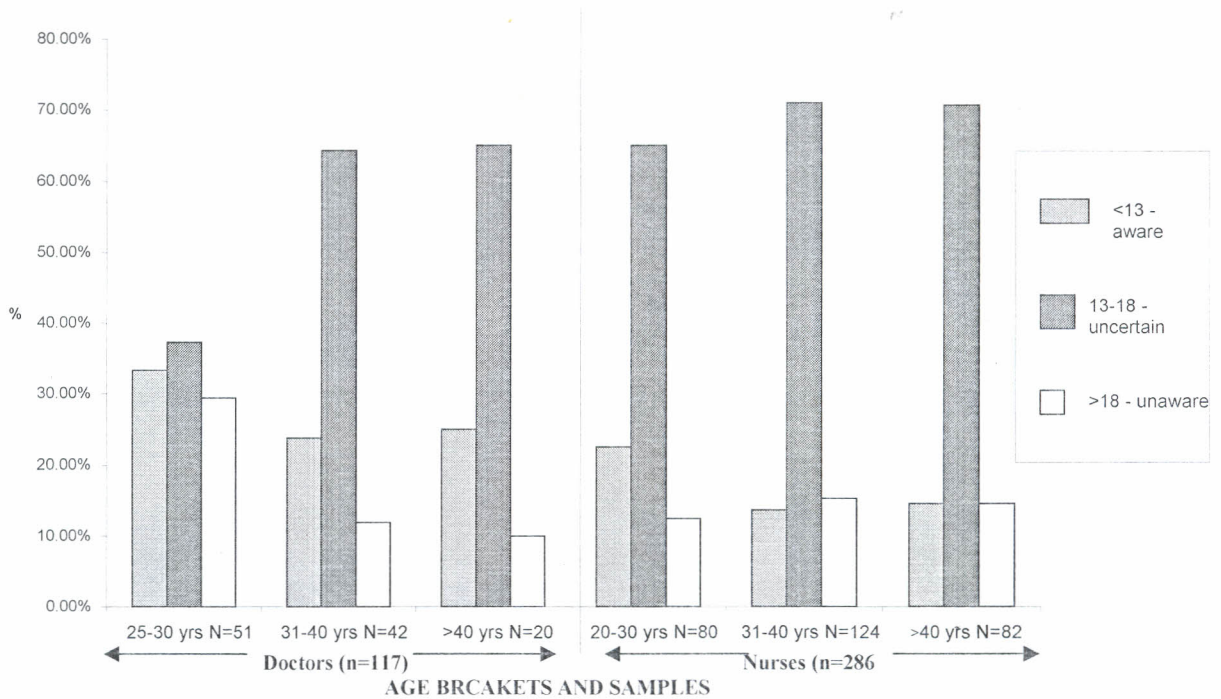


Figure FS22

(e) *Knowledge on treatment hospital facilities:* This was higher in the doctors (50%-56.8%) than in the nurses (24.6% - 49.4%) and in both decreased with age (54.2% to 50%) in the doctors and (49.4% - 31.6%) in the nurses. In both cases this is probably a reflection of less training on mental health with age, which is further a reflection of training curriculums over time, with more mental health inputs in the more recent curriculums.

In both doctors and nurses, uncertainty was consistently higher (38.6% - 45%) for doctors and 42% - 65.8% for nurses than unawareness 2.1% - 5% for doctors and 2.6% - 12.7% for nurses though higher in the nurses for awareness (see above) and lower in the doctors (see above).

KNOWLEDGE ON TREATMENT OF MENTAL DISORDERS IN GENERAL HOSPITALS/FACILITIES (=395)

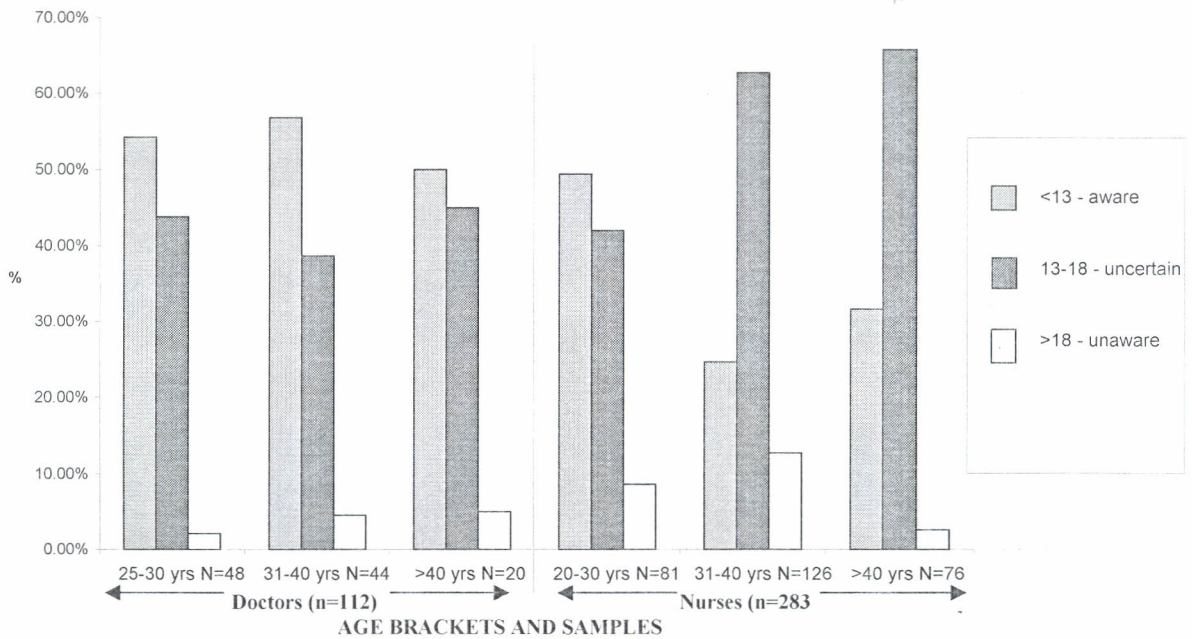


Figure SF23

(f) *Knowledge on psychiatry in general:* Awareness in the doctors increased substantially from 9.8% in the 25-30 age group to 25% in the >40 age group whereas there was an overall decline in the nurses from (33.3%) in the 20-30 age group to 26.6% in the >40, though with a dip to 20.7% in the 31-40 age group. Uncertainty was higher in the doctors (range 65%) – 76.5% than in the nurses (52.4% - 66.4%) but unawareness was similar in both groups 10% - 16.3% for doctors and 7.6% - 14.3% in the nurses.

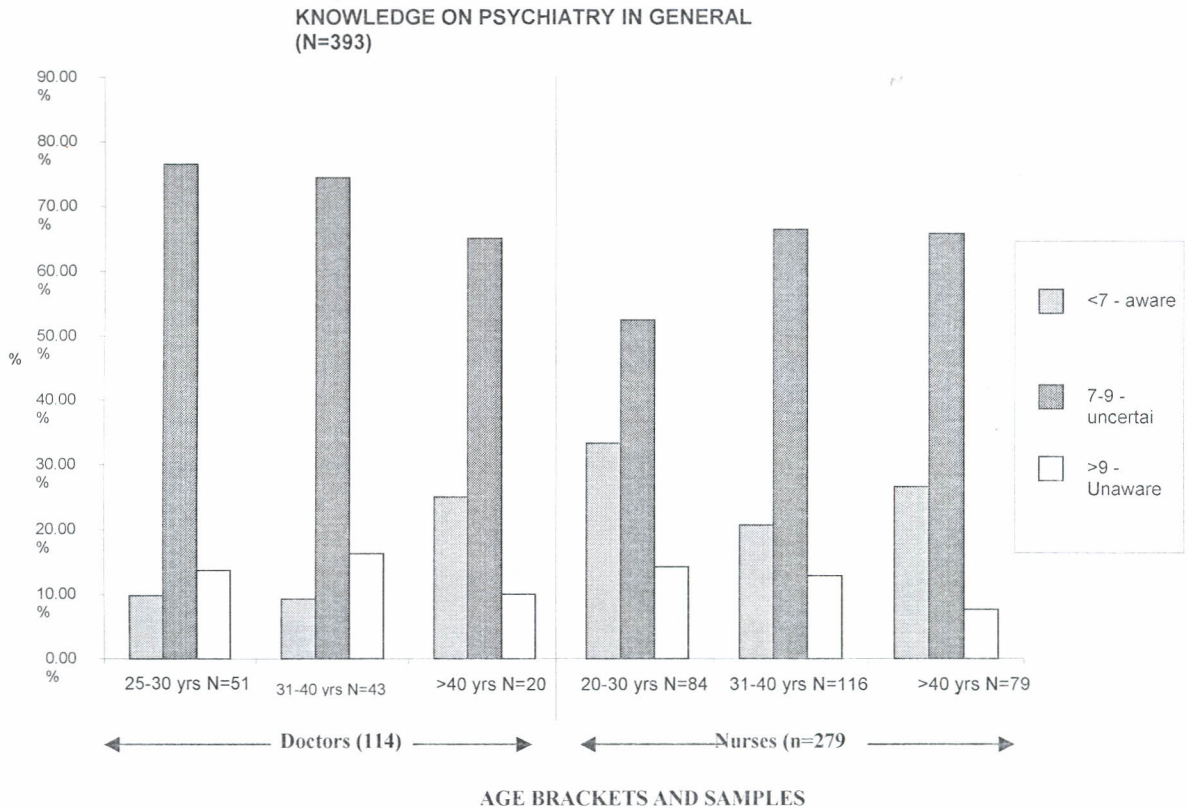


Figure FS24

These findings suggest a general need for CME to tap on the high level of uncertainty in both doctors and nurses

(g) Attitudes of staffs in general hospitals/facilities towards mental health: The positive attitudes increased with age in the case of the doctors (40% in 25-30 to 65% in >40, with a dip to 18.2% in the 31-40 years), but decreased with age in the case of the nurses (45.8% in the 20-30 age group to 30.8% in the >40, and like with the doctors, with a dip to 20.3% in the 31-40 year age group).

Uncertainty was lower in the doctors (range 20% (in the >40) to 38.6%) than in the nurses (47% in the 20-30 to 67.5% in the 31-40, with a dip to 57.7% in the >40). Negative attitudes were more in the doctors (15% - 43.2%) than in the nurses (7.2% - 12.2%).

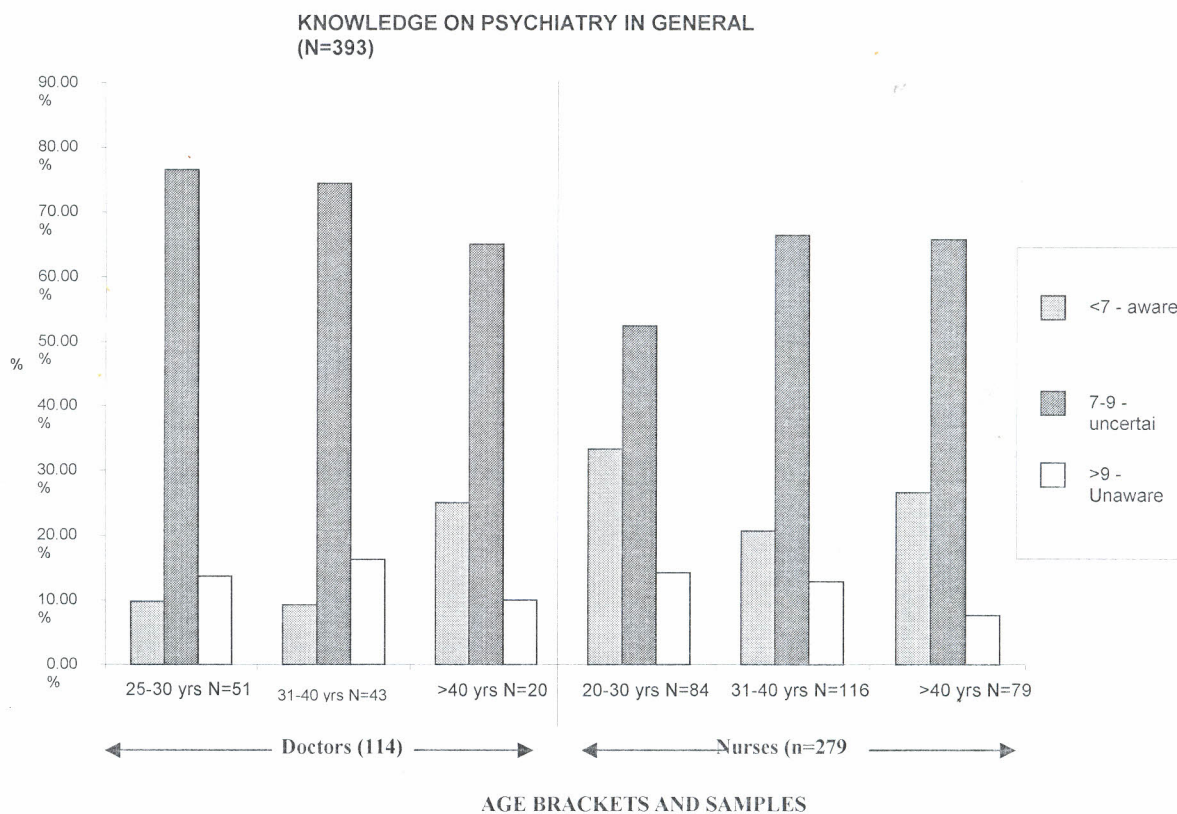


Figure FS24

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Uncertainty was lower in the doctors (range 20% (in the >40) to 38.6%) than in the nurses (47% in the 20-30 to 67.5% in the 31-40, with a dip to 57.7% in the >40). Negative attitudes were more in the doctors (15% - 43.2%) than in the nurses (7.2% - 12.2%).

The significant proportions of uncertain which way for both doctors and nurses provide fertile grounds for CME.

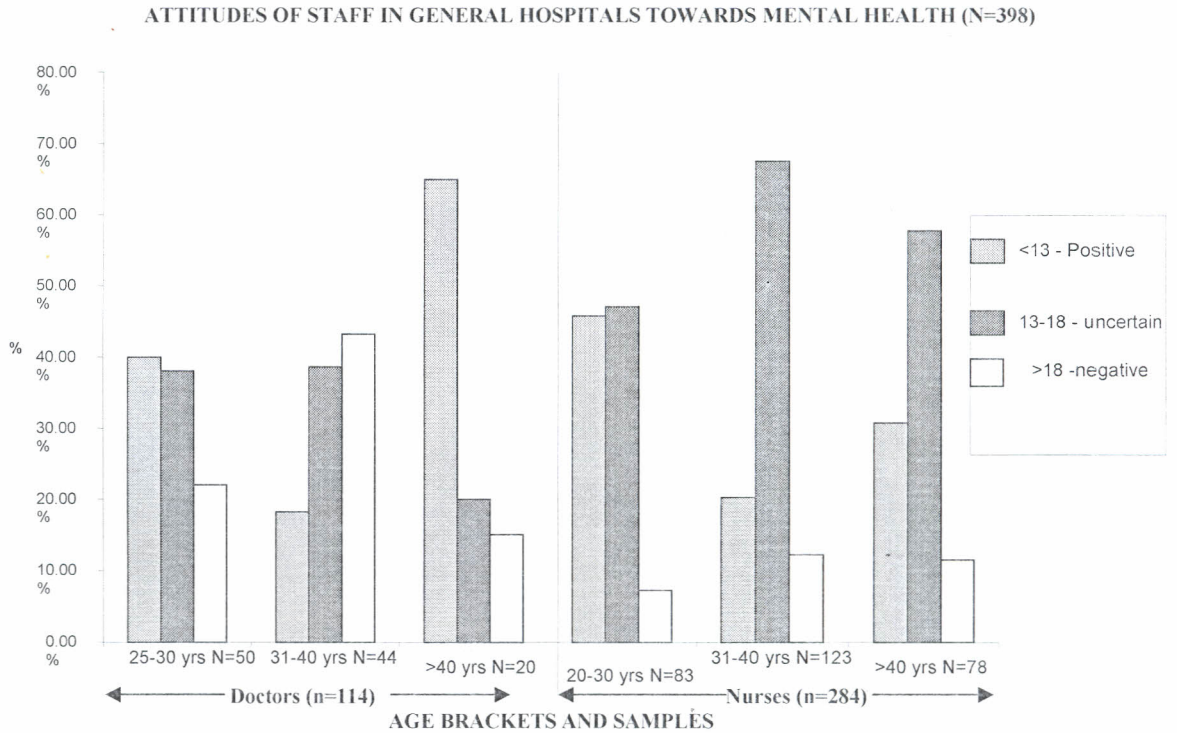


Figure FS25

(h) Stigma towards persons with depression, stigma: Stigma increased with age in the doctors (2% in the 25-30 to 5% in the >40) but decreased with age in the nurses (6.0% in the 20-30 to 1.3% in the >40). However the doctors had a higher level of not stigmatising i.e., no stigma (56.8% - 75% range) than in the nurses (17.1% - 22.6% range). Conversely the doctors had a lower uncertainty of 8.6% - 32% compared to 71.4% - 82.5% range in the nurses.

STIGMA TOWARDS PERSONS WITH DEPRESSION (N=407)

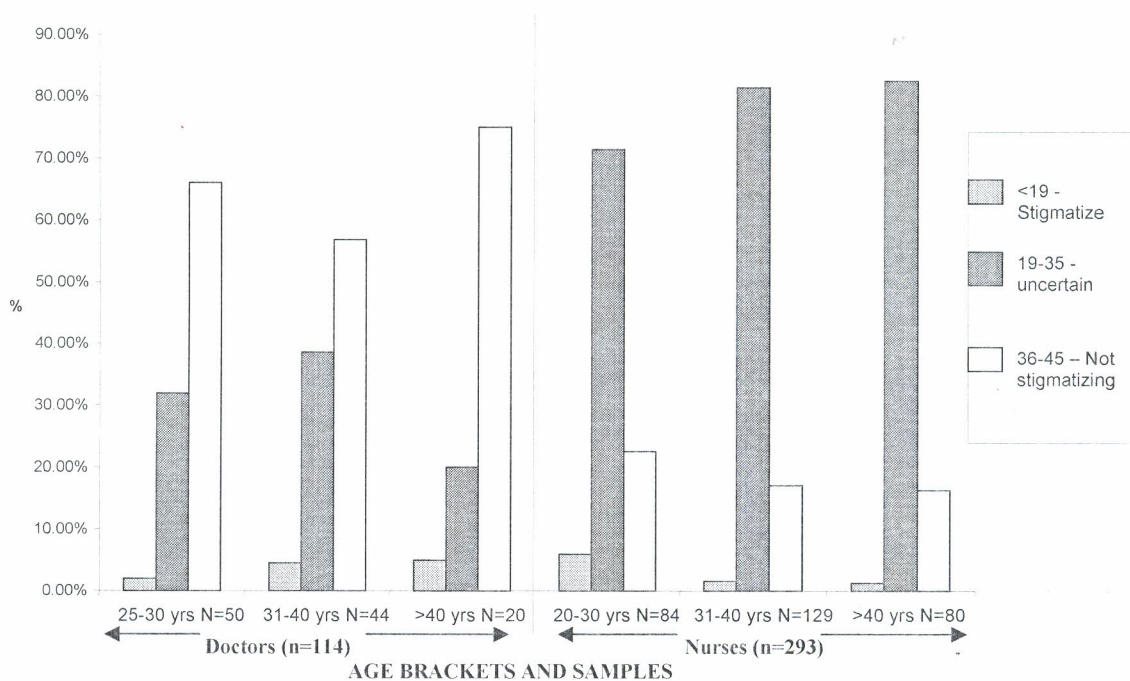


Figure SF26

Thus the nurses more than the doctors are a more fertile ground for CME, targeting on the uncertain who in the case of nurses are more than the combined stigmatising and non-stigmatising.

- (i) **Stigma – General views on people with depression:** Unlike in S22(h) above which is more targeted on a patients with depression S22(i) targets on depression in general. Whereas there was peak of stigmatising in the 31-30 age group in the doctors, there was a general decline on stigmatising from the hard written text 16% in the 25-30 age group to 5% in the >40. The level of stigmatising was highest in the nurses (range 72.2% - 54.7%), but like in the case of the doctors decreased with age, from 54.7% in the 20-30 age group to 27.2% in the >40 age group.

The doctors had the highest level of non-stigma (47.7% - 70%), compared with the nurses (2.7% - 6.2%). Further in the case of doctors the level of non-stigmatising increased with age (from 60% in the 25-30, to 70% in the >40, though with a dip to 47.7% in the 31-40 as opposed to the nurses where there was little change with age

5.8% in the 20-30 and 6.2% in the >40, though with a dip to 2.7% in the 31-40 age group. Conversely there was less uncertainty in the doctors of 22.7% - 25% range, compared with the nurses much higher uncertainty in the range of 39.5% - 69%, with the lowest in the younger nurses (39.5% in the 20-30, 69% in the 31-40 and (66.7%) in the >40 age group).

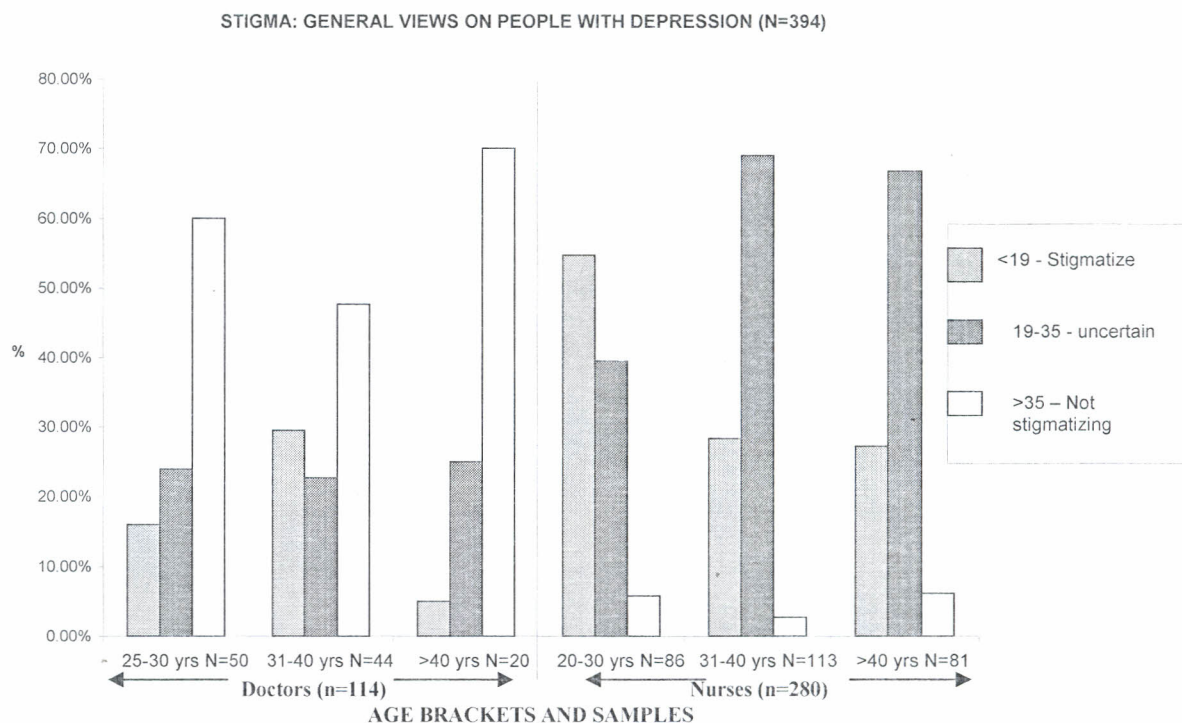


Figure SF27

Once again there is more need for CME in the older than younger nurses and doctors and more for nurses than doctors. These different trends for age and type of profession could be a reflection of exposure to mental health teaching at undergraduate level.

DISCUSSION

ADULTS DISCUSSION

Socio-demographic Characteristics

The age distribution in this study is similar to the general population trends. The patients were mostly young with over 74% being below 40 years of age. There were more females than males in the study which could be due to a recruitment bias or just a reflection of the attendance mainly in general hospitals. Majority were Christians (94.9%), still a trend reflected in the general population where over 80% of Kenyan population are Christians. Over half of the patients were married with only 1.4% reporting being in a polygamous union. The highest rates for polygamy were found in Makindu and Kajiado, mainly rural areas where culture probably accounts for this finding. Literacy levels were high in most areas except Kajiado where one third of subjects had no formal education; this could be attributed to the environment and their economic way of life which is mainly migratory pastoralist. Majority had one or two children of their own below age 18 years or none at all but considering the nature of extended families and the high unemployment rate, that may not equate to low dependence.

Duration of illness

Those with shorter duration of illness were mainly attendants at the first level of care. Only less than 30% of those seen at KNH and Embu hospitals had been ill for less than one month because these mainly serve as referral hospitals though utilised by the neighbourhood as first level of care.

Patients with chronic illnesses lasting more than 2 years were mainly seen at KNH, Embu, Kikuyu, Kajiado and Naivasha. These are mainly sites with specialist personnel to provide out-patient follow-up, unlike in Kibera, Magadi, Karuri and Makindu which have only medical officers and clinical officers. Kiambu like other hospitals with specialists should have chronic illnesses, which was not the case. A probable explanation is that being in close proximity to the National referral hospital patients may prefer to attend the latter equipped with many more specialist personnel and equipment.

Best practices

72.4% of the patients were informed by the clinician of their diagnosis even though only 67.8% did ask the clinician. This is a good practice that should be encouraged and improved upon to bridge the remaining percentages since it means the patient will also be part of the management and it also reduces anxiety or hypochondriac tendencies in the patients in the face of ignorance as to their illnesses. That upto 67.8% of the patients asked clinicians about their conditions could be attributed to the awareness about health issues promoted by public health education in the print and electronic media.

Comparing the findings from the file diagnosis on what the doctor told the patient and what the patient thought he/she was suffering from, there was major discrepancy in the case of mental disorders. Apart from those patients who had been on long term follow-up for their mental illness such as schizophrenia, many did not think they were suffering from mental illness. On the other hand many clinicians also did not communicate to the patient their diagnosis when it was mental illness. This finding is not likely attributed to the stigma associated with mental illness by the patients themselves or in the staff and/or unawareness by the staff and/or the patients.

Healthcare Financing

Insurance cover for healthcare is very low. This is mainly because the NHIF covers only inpatient care. The private medical insurance is very expensive and with some diseases not covered, thus not appealing to general population also because of bureaucracy when it comes to payment of expenses. There is also element of sustainability given that a few insurance firms that have tried offering healthcare covers have gone under.

Thus healthcare costs are met by the individuals and their families rather than government as seen in Table A19. The insurance firms only paid for 1.2% of the patients' health care costs in this study, employer 5.5% and only 0.4% by state through the waiver system. However, it is worth noting that the healthcare services offered in government public facilities are much discounted through the cost sharing system and patients are not denied treatment on basis of financial difficulty.

Most patients at Magadi hospital have their healthcare financed by the employer, because the hospital is owned and managed/run by the employer for its employees and neighbouring communities. They also receive high incomes only comparable to patients who attend Kikuyu hospital, a solely private mission (faith-based) hospital. The other sites even though located within the city have over 40% with incomes less than one hundred dollars a month with families and other basic needs such as shelter, food, and education to cater for. Thus of 57.7% have difficulties in financing their healthcare needs. However, the difficulty in Karuri is least (7.1%) in spite of the not so high salaries, probably because the health centre is government owned and cost of services are much more subsidised for the incomes reported in Table A18. Indeed the government waived payment of healthcare at this level to a maximum of only twenty Kenya shillings (a third of a dollar) for all services rendered.

Mental Illness

BDI - The BDI results for all the sites revealed a mild depression rate of 38.9%, moderate 3.2% and severe of only 0.2% (Table A21). However, the clinician or the patients' recognition for depression was very low, giving an overall prevalence of 42.3% for depression of varying degree of severity. However the in-patients had an overall higher prevalence of 56.5% compared with 33.5% out-patients (Table A34).

NOK- Overall only 22.7% of patients had some degree of anxiety/depression which was also quite low in the file diagnosis.

Psychosis- 3.0% of total sample had frank psychosis and 2% query psychosis which may be an under estimate given that only 82 patients answered to this item.

LSAD-Endogenous and General Depression each had a prevalence of 21.4% and 26.5% respectively which are all high and in keeping with findings from the BDI thus confirming internal consistency. Anxiety neurosis and general anxiety had an average of

about 11.5% though a bit lower for NOK findings but much higher compared to 0.1% which was recognised by the clinicians and thus constituted the file diagnosis.

All these findings using different instruments point to the lack of recognition of mental illness which may be attributed to the clinician's lack of knowledge, on the one hand, and/or lack of awareness on the part of the patients on the other hand.

Edinburgh Postnatal Depression Scale (EPDS) - All mothers who responded to this item had some degree of postnatal depression except for 4.1% who were mainly from Embu (31.3%) and KNH (0.7%). This is similar to other studies reviewed under the introduction which had found high levels of depression in different groups of patients. This high prevalence of probable post-natal depression contrasts with clinicians reported puerperal psychosis at 3.6%. Even in those whom the clinician made this diagnosis, they were not informed of their condition or diagnosis.

AUDIT- Alcohol overall user rate was 24.8% with 14.3% of the patients having harmful use or dependence. This is still much higher compared to previous findings of 4.4% by Acuda (1979), 4.8% Dhadphale (1982) in Kisii and almost similar to 12.7% Dhadphale (1984). 36.1% of all males used alcohol and a total of 15.4% of the males in the total sample had dependence whereas 15.4% of all females used alcohol, though only 2.0% had dependence. Comparing with the clinicians' diagnosis, 17.4% should have had a diagnosis of alcohol use disorder which was not the case since only 0.1% was recognised.

WHO- ASSIST - The most commonly abused substances were alcohol, tobacco, cannabis, cocaine, amphetamine/khat and sedatives (sleeping pills). Majority of these patients required brief or intense treatment implying that they were abusers rather than users. Apart from cocaine and sedatives many required brief rather than intense treatment which is probably due to the high addictive nature of these two substances. The clinician diagnosis of these disorder was very low probably due to failure on the clinicians to ask about them or patients refusal to volunteer information for worry of being denied

treatment for their ailments; or even failure of the clinician to associate the physical symptoms of withdrawal or abuse or complication of the substance abuse.

Mini Mental State Examination (MMSE)

There was some cognitive impairment in 8.5% of the patients. These could have been linked to the other diseases such as CVD, and physical conditions that impair cognitive functions.

CO-MORBIDITY OF MENTAL AND PHYSICAL DISORDERS

Looking at various diagnoses against the different screening tools ; cancer, HIV/AIDS, genitourinary, gynaecological and tuberculosis had higher scores on all the depressive and anxiety scales probably because of their chronic nature and for some the feeling of imminent death and need for extra supportive care in these diseases. More often than not patients tend to lose independence at the later stages of these illnesses thus being dependent on others for basic human needs such as feeding, bathing, dressing and bowel and bladder controls.

From Table A29, it is evident that many patients with physical illnesses have some underlying or co-morbid anxiety and depressive symptoms that are hardly recognised nor managed during their visits to the health facilities. Patients with diabetes which has been associated with psychiatric morbidity had a higher rate of depressive than anxiety symptoms which has been attributed to the change in cortisol levels with the high blood sugars.

Paradoxically, substance use was present in quite a number of patients across the board probably as a negative coping mechanism or in self-treatment for their depressive or anxiety symptoms or independently on its own and which have not been recognised and managed by the clinicians.

MALARIA

Cerebral malaria being one of the commonest causes of organic psychosis in the general health care needed further evaluation. There was also labelling of almost all psychoses as malaria. Evaluation was therefore made of the mental illness among those who were diagnosed to have malaria and also compared those with positive slides with those with negative slides. Mental illness among those treated for malaria was an average of 20% for all the instruments used. However, the study did not compare the proportion of those with positive slides against those with negative slides or not tested at all for mental illness because of the small number of those who tested negative.

MANAGEMENT OF MENTAL DISORDERS IDENTIFIED BY THE CLINICIANS

The commonest disorders identified by the clinicians in this population were depression (21.9%), (much higher than rates seen at KNH as referrals for psychiatric review), substance abuse and stress (7.9%), epilepsy (6.1%), psychosis and anxiety (5.3%), bipolar disorder/mania, neurosis, other psychiatric disorders (4.4%). The commonest illnesses; depression, stress, epilepsy are conditions that are manageable and would require specialist care only when dealing with severe cases, but looking at the severity in this study most patients had mild to moderate disease.

Only 50.9% of the 114 patients identified with mental disorders were referred to mental health care specialist or clinics. This is in the background of very few specialists in these institutions. Indeed at the time of the study it was only KNH that had Psychiatrists; Embu has an in-patient unit run by psychiatric nurses, Naivasha and Kajiado each had a clinic that operated daily and run by psychiatric nurses, Makindu had a clinic that was run by psychiatric nurses once a week, and Kikuyu, Kiambu, Magadi, Karuri and Kibera did not have a clinic nor psychiatric nurses. Therefore the patients who were referred to the various clinics or units of the general hospitals were managed by psychiatric nurses apart from the 12.9% referrals to KNH and Mathari. It is therefore imperative that some intervention be made to offer these patients a holistic managed healthcare that encompasses the physical, psychological, social and spiritual care.

The referrals were made but from the data it was difficult to ascertain whether the patients really sought the treatment at the various referral centres or not. Some of these patients were still in the hospitals waiting for the discharges so that they could seek the next level of care which was far away from their current residence such as KNH or Mathari hospitals. The study revealed shortage of services offered to the referred clients *and it is not possible to ascertain whether it was the appropriate care for their mental illnesses.*

Most significant however was not the small number of patients who were identified by the clinicians to have mental illness, and even the percentage of these who were referred, but the much higher numbers and percentages of the patients who suffered from various types of mental disorders, and in particular depression, anxiety and substance abuse who were not recognised as such by the clinicians and or the patients, and therefore not managed in any way.

CHILDREN DISCUSSION

SOCIO-DEMOGRAPHICS

A total of 411 children between the ages 11-<18 were enrolled in the study of which 117 were from KNH, 68 Kiambu, 33 Kajiado, 27 Makindu, 23 Kibera, 14 Naivasha, 10 Magadi and none from Karuri even though there were children attending the facility. These numbers were determined by other factors such as the interviewers skills in dealing with children, whether parents wished to enrol their children into the study and finally the severity of illness among the children.

The age structure

There was a variation in the most predominant age groups with the 16-17 age group being the most predominant in most areas followed by 15-16. Thus the majority of the children were in the 15-17 age brackets. That the 18 years age group accounted for much smaller percentages compared with the previous years which are more a reflection of uncertainty or a perception of whether 18 is a child or an adult.

There were more boys than girls which is rather different from the adult populations enrolled in the same facilities, and even the general population trends. This could be probably explained by the nature of some of the commonest diagnosis in this study (orthopaedic/soft tissue injuries which are much more common in boys than girls in this age group).

That there were more girls than boys in Kajiado, Naivasha and Magadi is not surprising. These areas are nomadic and at the time of the survey there was a nation-wide drought. The livestock had been moved further away in search for pasture. It is the boys who are traditionally assigned the roles of looking after livestock.

Religion

The percentage of religion for Muslim is less than that found in the general population where Muslim account for about 10% of the Kenyan population (Kenya Population Census, 1999).

Educational Levels

These is in keeping with the age group since children start primary education at the age of 6 years and spend eight years before joining secondary school for another 4 years around age 14. However, some of those who do not join secondary school do enrol in some vocational training colleges after primary education hence the 1.3% in college. The levels of education are similar to those reflected in the National demographic surveys.

Place of abode

Many did not respond to this question, but they mainly live with their parents with a small percentage staying with their spouse. This implies that a small proportion are already married, a phenomenon which is quite common among young girls in particular communities. This is a trend that the government has been discouraging by introducing free primary education as well as implementing the Children's Act since this amount to child abuse. Most of the children lived with a parent or a close relative and therefore any mental health problem may not be accounted by broken family systems.

Family Structure

Especially in relation to number of siblings the family structure is again consistent with social-demographic surveys results. The number of siblings was in the range of one to four except for a small proportion with 5 or more siblings. The patients were mainly first to third born a reflection of relatively young families as in the general population trends. Many of the children's guardians or parents were either in gainful employments especially those working in towns or farming for those in rural areas.

DIAGNOSES AND CLINICAL PRACTICE

Most of the respondents to this question had their own ideas of what they were suffering from with Malaria being a leading suspect followed by OM (Other Medical Conditions) taking 10.8% and 10.5% respectively. What is noteworthy is that depression was the only suspected psychiatric condition in only 0.6% (Table C12). A small proportion of patients mentioned mental illness which more often than not is a diagnosis of exclusion in these set-ups. Given the short duration of illness the clinicians tend to treat common ailments, infections and may not necessarily think of mental illnesses. The psychiatric diagnosis recorded is very low 17/411 (4.1%). Of these 52.9% had depression, 11.8% epilepsy and the rest; panic attacks, puerperal psychosis, rape, schizophrenia, stress, and substance use disorders were 5.9% each. It was not specified whether this was first episode or a follow-up.

It is therefore apparent that the recognition of mental illness was low considering the high scores in the structured tools that were administered – CDI, LSAD, NOK, AUDIT and WHO-ASSIST.

Though not related to mental health, on average for all sites, only in about 2 out of 3 (61.5%) of the patients did the doctor tell the patients what they were suffering from (Table C13) and even less (only 48.4%) where the patients were given a chance to ask questions about their conditions. However this varied greatly, with the best practices found in the private facilities like Magadi and Kikuyu in this study (Table C14). These findings call for improved clinical practice on the part of the doctors to establish a dialogue and communication with the patients.

Of the 181 patients who gave an answer as to what the doctors had told them about their diagnosis, the only psychiatric disorders were depression (1.7%) and stress (0.6%). This would suggest that most psychiatric disorders were missed by the doctors, a finding confirmed on the diagnosis entered in the records, which recognized only depression in 4 patients (1.2%), puerperal psychosis 1 (0.3%), schizophrenia 1 (0.3%), stress 1 (0.3%) and substance abuse 1 (0.3%), a total of 8. The clinical implications are that the

clinicians had very low suspicion index for psychiatric disorders, for it is most unlikely that only 2.4% of the children had psychiatric disorders. The clinical notes and diagnosis once again reflect little on psychiatric disorders, implying that the clinicians thought little about mental illness to their patients. All of these are in sharp contrast in the highly prevalence's obtained on using screening and diagnostic tests for mental disorders, discussed below.

DIAGNOSTIC TOOLS ASSOCIATED PSYCHIATRIC DIAGNOSIS

Both the CDI and LSAD Scales gave high percentages of depression at over 95%. They are also both comparable. NOK an instrument developed in the same social-cultural context gave a lower percentage of 22% which is rather similar in all sites and previous studies done in Kenya (Kangethe, 1988). This suggestion that NOK may be more appropriate than CDI and LSAD requires further investigation. It could also be a reflection of a selective bias towards physical symptoms although LSAD also has psychosomatic symptoms. Taken together CDI, LSAD and NOK Scales suggest a high level of psychiatric morbidity in children attending general medical facilities which is not recognized by the clinicians.

AUDIT and WHO- ASSIST were not well answered in this study implying that either the tools were not well understood or the substance user rate was very low which is contrary to previous findings (NACADA, 2004) where use of alcohol, tobacco and cannabis were found to be high both in youths in and out of schools. Some studies have even documented substance use among children as young as 5 years (Ongecha-Owuor et al 2004). The other possible explanation would be the setting of the interview whereby patients were interviewed in presence of their guardians or parents, hence making them deny some negative behaviour that is not socially sanctioned.

The same explanation applies to the questions on psychoses which would be interpreted as suggestive of madness. Only 12 answered this questionnaire.

It can be concluded that there is a higher psychiatric morbidity in children seen in general out-patient Kenyan facilities and that this morbidity is not recognized by clinicians.

While this calls for increased vigilance in looking for psychiatric morbidity in children, it is unlikely this will be achieved in the short-term since it is unlikely to sensitize all the clinicians enough to start looking for psychiatric morbidity. Although continuing education may help, it is necessary to give more emphasis on child and adolescent mental health in all medical and paramedical curriculum so that they can be effective not only in general medical facilities but even more importantly, in primary and community based facilities. The importance of this should be seen against the evidence that unless treated early child and adolescent mental health problems have a carry over effect on spectrum of emotional and personality development.

Though not central to the objectives of this study but still relevant, it can be concluded that clinical practice that involves the patients in the understanding of his/her condition should be endorsed. A significant percentage of the patients had had no communication from their doctor on the type of illness they were being treated for and more significantly the doctor had not given the patients a chance to ask them questions about their conditions. This clinical practice could easily apply in psychological disorders if they were properly and sufficiently diagnosed.

For purposes of documenting psychiatric disorders in children and adolescents in Kenya and in countries with similar socio-cultural contexts, there is a need to develop appropriate instruments or better still, for purposes of cross-cultural and international comparison, adopt and document the psychometric properties of the various benchmark instruments in use. This is an urgent need. The instruments should be brief, self-administered by children who are able to read and write, culture-appropriate and should be used routinely in all clinical settings, at least for screening purposes, and thereafter appropriately diagnosed and managed. This is again an urgent routine clinical practice priority.

STAFF DISCUSSION

Out of 614 staffs who indicated their age, majority were less than 40 years (72.1%); composed of mainly nurses (47.4%), doctors (18.7%), followed by registered clinical officers (5.1%), staffs involved directly in the care of the medical and surgical patients. These staffs were still young in profession and they can be aspired to provide bio-psycho-social care to the patients who attend the general health facility. They were able to recognise or suspect mentally ill patients in different proportions, showing heightened awareness of psychiatric components among physically ill patients and refer the patients to a mental health facility (Tables S5 to S11) that they have access to.

In addressing how comfortable the staffs were in managing mental illness among their patients, very few of the staffs were very comfortable in handling these patients; there appeared a reduced primary sense of responsibility towards persons with mental illness as most of the doctors and nurses from all the age groups were not interested in psychiatric services, did not want to know more about what psychiatry could offer in the management of medical or surgical patients and were of opinion that psychiatrists had little to offer in general hospitals (score >9).

To increase confidence in the staffs in managing mental illness amongst their patients, further inputs in psychiatry is required to be either incorporated during training or/and going for refresher courses or at the two levels. This confidence can further be realised if the staffs are allowed time to be away from work and attend refresher courses, since what is seen in the general hospital among the patients requires the staffs to be trained in mental health as it is relevant to their work.

Over 75% of the staffs affirmed that mental illness can be managed by non-psychiatric doctors/personnel and these patients can be managed successfully in a general health facility as in-patients/out patients or in their homes. These gives support to the policy of integrating mental health services within the general healthcare facilities.

Knowledge about mental health

Hospital staffs were aware that psychological factors can influence the cause and outcome of physical disorders, management of emotional issues are solely a medical responsibility and the emotional together with social aspect of care enhanced their job interest. In addition majority were aware that doctors should be able to use psychological methods (listening and reassurance), discuss emotional problems with patients' relatives, use cognitive or behavioural methods of treatment on patients, and use psychotropic drugs on patients and anti-depressants frequently or occasionally on their patients.

In this study, there is evidence that doctors and nurses in different age groups had differences in this level of awareness; as it emerged, doctors above 40 years (70%) were more aware as compared to those between 25-30 years (45.1%) unlike nurses. Among nurses, those in age group 20-30 years (38.8%) were more aware than those above 40 years (35.7%). Thus older doctors would use experience to manage persons with mental illness.

Practice: The widespread responsibility of making follow-up on patients with common types of psychological disorders by the medical personnel was encouraging, as a claim by substantial majority to address the increased awareness on the effect of mental illness in managing medical and surgical illnesses. It was discouraging however, that minority of the staff did not create time to assess patients psychologically; a contrast to their increased responsibility in following common types of psychological disorders. There also was a contrast in their use of knowledge in the management of patients by applying psychological methods and psychotropic drugs and their lack of interest in psychiatric services together with their not wanting to know what psychiatry could offer in the management of medical and surgical patients.

Attitudes of staffs in general hospitals towards mental health

Hospital doctors' attitudes towards psychological factors showed heightened awareness in the relevance of using emotional care to manage patients as being a key element of their work. However, nurses indicated a reduced role in managing psychological, social

and emotional difficulties of patients (score <13 among different age groups). The senior doctors (above 40 years of age) were more likely than their juniors to see mental illness as an aspect in the management of the patients; hence them having less negative attitudes towards mental illness (65% of them score <13).

Stigma towards persons with depression

Very few nurses scored above 35 across the different age groups as compared to the doctors, indicating that they stigmatised patients with depression. Stigmatising mental illness in general reduces the role of psychiatric input by the staffs toward better management of patients, and this is consistent with the negative attitudes in their role in managing psychological, social and emotional difficulties of the patients.

The negative attitudes and stigma associated with mental illness renders the health workers ineffective in their psychiatric interventions; hence it is a barrier to psychiatric care. However, there are other barriers as indicated in the study; lack of time to psychosocially be involved in care and psychosocially assess the patients for any mental illness which co-exists with either the surgical or medical conditions.

One can then conclude that improved training of all medical and paramedical staffs to cover mental health would allow them function like they do in the other disciplines of medicine such as paediatrics, internal medicine, surgery and gynaecology so that even if not able to manage serious cases, are able to assess, diagnose and manage minor mental illnesses and refer the severe ones to specialists. There is also need for change of attitude among staffs offering primary care services so as to enable them deal with patients presenting with mental illnesses in their set up.

LIMITATIONS AND STRENGTHS OF THIS STUDY

Limitations

This study had several limitations.

1. The instruments used have been used extensively in other cultures except Kenya and their psychometric properties, though extensively documented elsewhere, have not been used in Kenya with the exception of NOK (which was developed in Kenya) and the psychometric properties studied in Kenya.

The BDI has been adopted for the Kenyan situation. However this instrument has been used in cultures so diverse and its properties found to be so consistent that it is unlikely they would be inappropriate in the Kenyan context. BDI-II, which was used here, makes DSM-IV equivalents for some types of depression.

2. This was not a clinical epidemiological study neither was it a phenomenological or psychiatric symptomatology study. Thus the instruments used could only pick a limited range of the wide spectrum of psychiatric disorders. They also could not pick the profile of psychiatric symptoms. It was limited to clinical diagnoses of depression, anxiety, substance abuse and cognitive dysfunctions. However, these are the commonest conditions to co-morbid with physical disorders in general medical facilities. The reasons why the CIDI and SCID were not found to be applicable in this study have already been discussed under Methodology.
3. With the exception of BDI for which there was Swahili translation, all the other instruments were in English. As for BDI, besides adoption limitation discussed above, there is a possibility that some of the patient did not understand the questions despite the fact that most people in Kenya speak Swahili.
4. The response rate varied extensively from one question to another even when from the same instrument. Thus the percentages area based only on those who responded to the particular questions under study.

Strengths of the Study

1. This was a multi-level study involving all levels of general health care facilities in Kenya and therefore allows multi-level comparisons that have not been documented in Kenya before.
2. The study allows comparisons of co-morbidity of mental health disorders with different broad diagnostic categories in physical medicine not hitherto documented.
3. The multi-medical discipline comparisons of the staffs suggest clearly what should be done as regards mental health education in line of it being part of formal medical education or continued medical education programme.
4. Though the study was mainly on mental disorders, knowledge, attitudes, practice and stigma of the staff, the study revealed other weaknesses in good bed-side clinical practice and in particular clinician – patient two ways communication.
5. The stratified sampling of the study sites and the random sampling of the identified patients enables a clear picture of what happens in the rest of the country, and therefore the results could be used to develop national Policies for Mental Health in General Medical Facilities and Good Clinical practice for Kenya as a whole.
6. Despite the potential problems with the instruments and the language, the research assistants were staffs working with the same patients on a day-to-day routine, and senior medical students with clinical exposure to psychiatry.
7. The results of this study, and the implications thereof could be easily adopted in many other countries in Africa which have more or less similar operational structures in general Medical facilities.
8. This is the biggest study of its kind reported from Africa. It provides reference data for any future studies either in Kenya or other Africa counties.