# PREVALENCE OF HAZARDOUS ALCOHOL CONSUMPTION AND EFFECTIVNESS OF EARLY INTERVENTION AMONG PSYCHIATRIC PATIENTS AT MUHIMBILI NATIONAL HOSPITAL IN DAR-ES-SALAAM

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of Master of Medicine (Psychiatry) of the University of Dar es Salaam.

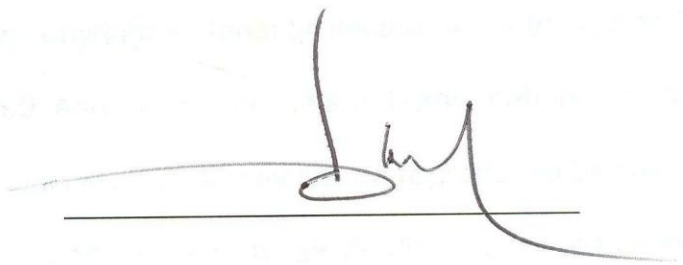
University of Dar es Salaam

December 2003



## CERTIFICATION

The undersigned certifies that he has read and hereby recommends for the acceptance by the University of Dar es Salaam a dissertation entitled *Prevalence of Hazardous Alcohol Consumption and Effectiveness of Early Intervention Among Psychiatric Patients at Muhimbili National Hospital in Dar-es-Salaam,* in partial fulfillment of the requirements for Master of Medicine (Psychiatry).



Prof. P.G. Kilonzo

SUPERVISOR

Date: 1/12/2007

## DECLARATION

## AND

## COPYRIGHT

I, Dr. Daniella Agnes Malulu, declare that this dissertation is my own original work and that it has not been presented to any other University for a similar or any other degree award.

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## DEDICATION

This work is dedicated to my husband Joel, children, late grandmother and my patients.

Joel, thank you for helping me achieve my dream. Above all thank you for your understanding, support and love.

Wivine and Anair, I am sorry for not being able to give you all the attention that you deserve and that I would so dearly have liked to give, and for all the unfulfilled promises.

To my late grand- mother who made me what I am today.

To all my patients without whom this study would not have been possible.

## ABSRACT

**BACKGROUND:** The results of treating the established and heavily dependent drinker have usually been poor. The hazardous level, which is a pre-harmful stage, is a stage where evidence shows that intervention is most likely to be effective. **OBJECTIVES**: The study seeks to determine the proportion of psychiatric patients attending Muhimbili National Hospital in Dar-es-Salaam, involved in hazardous alcohol consumption using the AUDIT (Alcohol Use Disorder Identification Test) as the screening instrument and the effectiveness of the World Health Organization's (WHO) simple intervention technique. **DESIGN:** A hospital based cross-sectional survey using multiple case studies **SETTING:** The study was carried out at psychiatric unit of Muhimbili National Hospital. It is a major referral and teaching hospital and is based in Dar-es-Salaam, which is a major port in Tanzania. **PARTICIPANTS:** The study population includes both inpatients and outpatients. The outpatients consisted of individuals attending the new case clinics and follow-up outpatient clinics of all three Districts in Dar es Salaam (Temeke, Ilala, and Kinondoni). Care was taken so that those individuals who were recruited during their inpatient period were not included in the outpatient category as well. The patients selected were those who were assessed as competent to give informed consent. **INSTRUMENTS:** Patients recruited for the study were administered the demographic, life style, AUDIT, and BPRS questionnaire. They were then assigned to two different intervention groups, the WHO simple intervention and

a standard treatment intervention by a process of simple randomization using the lottery method. Half of patient population were allocated to "simple intervention" group and the other half " to the standard treatment". Patients were requested to come back after three months, after which they were re-administered, the AUDIT and the BPRS. For those who did not return, the research assistant made a follow-up using the tracing card. A comparison was then made between the results obtained at the initial stage of the study and those obtained during follow-up to see if there have been any changes in their drinking patterns and psychopathology. **RESULTS:** A total of 174 males and 25 females were recruited for the study. Of these, 63% (90% male and 10% female) were found to be drinking at a hazardous level. The response rate was low (44%). A larger proportion of patients (76%) drinking at a hazardous level came for the follow up on schedule compared to non- hazardous drinkers (24%). The results showed a significant reduction in both the frequency and number of drinks, irrespective of the type of intervention. **CONCLUSION:** The above findings suggest that integrating a routine program of both screening and intervention at all levels of health care as part of prevention could make a significant contribution in the health delivery services in Tanzania.

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## LIST OF ABBREVIATION

| | |
|---|---|
| **AA** | Alcoholics Anonymous |
| **ALT** | Alanine Transaminase |
| **AST** | Aspartate Transaminase |
| **AUDIT** | Alcohol Use Disorders Identification Test |
| **BPRS** | Brief Psychiatric Rating Scale |
| **CAGE** | Cutting down on drinking, Annoyance with criticisms about drinking, Guilt about drinking, and using alcohol as an Eye opener |
| **GDP** | Gross Domestic Product |
| **GGT** | gamma-glutamyltransferase |
| **GP** | General Practitioner |
| **"H" drinkers** | Hazardous drinkers |
| **MAST** | Michigan Alcohol Dependence Screening Test |
| **MCV** | Mean Corpuscular Volume |
| **MOH** | Ministry Of Health |
| **Non –H drinkers** | Non –Hazardous drinkers |
| **NS** | Non Significant |
| **PA** | Per annum |
| **WHO** | World Health Organization |
| **S** | Significant |
| **"ST"** | Standard Treatment |

| | |
|---|---|
| **UK** | United Kingdom |
| **US** | United States |
| **WHO SIT** | World Health Organization Simple Intervention Technique |

# 1.0. INTRODUCTION

This study seeks to determine the proportion of psychiatric patients attending a major referral hospital who consume alcohol at a hazardous level and to determine the impact of an early simple intervention on this patient population. WHO defines ***hazardous*** level of drinking to be the level of alcohol consumption or pattern of drinking that, should it persist, is likely to result in harm to the drinker. In contrast, ***harmful*** drinking is defined as alcohol use that has already resulted in adverse mental or physical effects (Edwards *et al.*, 1981). It has been observed that patients with hazardous levels of alcohol consumption are much more amenable to simple counselling and advice with a significant proportion reducing their level of consumption to a safe level or reaching abstention, while those with harmful levels of drinking are often very difficult to manage (Babor and Grant, 1992).

If a significant proportion of psychiatric patients attending a major referral hospital like Muhimbili are found to be consuming alcohol at hazardous level, a program could be set up for training doctors, psychiatric social workers, psychiatric nurses and health care workers at the primary health care level, in early identification and provision of the necessary counselling and advice. Early detection and intervention will result in an increased proportion of users adopting safer patterns of alcohol consumption or abstinence. This will lead to a decrease in admissions for alcohol related problems, decrease in relapse rates

and consequent readmissions to hospitals. Frequent readmission can prove very costly.

This study is particularly important considering the fact that the results of treating the established and heavily dependent drinker have usually been poor. This is mainly due to the fact that by the time a patient presents him/her self for help, dependence has already been established, disability is severe and alternatives have to be sought. Hence, more emphasis should be placed on early detection and prevention. Given the extent of alcohol consumption and associated problems, prevention should be every health care person's responsibility. It is hoped that the results of the study will help establish more effective methods for early identification and management of alcohol related problems in patients attending the psychiatric unit. The study would also bring about a better understanding and increased awareness of the nature and extent of alcohol consumption as both a precipitating and maintaining factor associated with psychiatric symptoms. This would result in more efficient and effective management of psychiatric patients with alcohol related problems.

## 2.0. PROBLEM STATEMENT

Thirty years ago admissions to psychiatric wards for alcohol related problems worldwide were less than one percent. This number has increased to 20% now with African countries having comparable figures or even worse (Wig, 1994). While reformers keep urging a total ban on alcohol, the common people are drinking more and more. In developing countries, we have to accept the reality of alcohol drinking in our societies, so that we can approach it realistically. The concept of "sensible drinking" may be a more realistic approach to promote and an approach that is likely to gain more acceptance in developing countries.

On the other hand, while sensible drinking is a more realistic approach, the youth should be equally educated about how much to drink because we know that they are likely to drink recklessly if they are uninformed about the consequences.

The 1990 figures show that psychiatric admissions due to alcohol dependence at the Muhimbili National Hospital varied between 3%-6% (Kilonzo and Pitkanen, 1992). The present study will help detect alcohol consumption at an early stage i.e. those patient with a ***hazardous level*** of consumption before they have reached dependence. In a developing country like Tanzania, this is very important because the country lacks the manpower as well as adequate treatment facilities. Early detection and intervention will enable the patient to

receive professional assistance before psychosocial and medical consequences have become irreversible. In the long run, this will save time, money and effort.

## 3.0. JUSTIFICATIONS AND RATIONALE

It has been reported that of the 140 million people who are alcohol-dependent globally, 78% are untreated cases (Hoppenbrouwer, 2001). Alcohol consumption is on the increase in Tanzania and constitutes visible problems to the health and economic sector. The present study is important, as it helped determine the proportion of hazardous drinkers among psychiatric patients.

Kenya was one of the countries that participated in the WHO project carried out in 1984/5 that looked at the identification and management of alcohol related problems. Since cultural similarities regarding alcohol consumption cut across countries in East Africa much has been learned from that study that is applicable in Tanzania. However, in the Kenyan study only 60% of the patients were recruited from a psychiatric hospital and the rest from a primary health care service (Saunders and Aasland, 1987). The present study focused exclusively on the psychiatric patient population.

This hazardous level, which is a pre-harmful stage, is a stage where evidence shows that intervention is most likely to be effective. In addition, the intervention is neither complex nor very technical. It consists of simple advice. Any member of the health care team could develop necessary skills for it. If the number of patients identified at hazardous levels is significant, it would be important to develop a program of intervention and train health workers of all cadres from

primary to tertiary levels.

Many doctors lack the expertise to assess patients with alcohol misuse. The ***WHO Alcohol Use Disorders Identification Test (AUDIT)***, the instrument used in this study to determine level of alcohol use/abuse, is quick, easy to administer and easy to teach. It is also non-invasive, relatively accurate and inexpensive. The results are also easily interpreted. Therefore, any member of the medical team, including social workers, interns, nurses and students are able to administer the instrument. It was translated into Kiswahili for the purpose of this research.

# 4.0. OBJECTIVES

## 4.1. Broad Objective

To determine the proportion of mentally ill patients who consume alcohol at a hazardous level, to determine the effectiveness of the WHO designed simple treatment as a secondary prevention and to identify any association between hazardous alcohol use and psychiatric symptomatology among those who present at the psychiatric unit, Muhimbili National Hospital.

## 4.2. Specific Objectives

- To determine the proportion of mentally ill patients who use alcohol at a hazardous level among those who present at the psychiatric unit in Dar es Salaam.
- To describe the demographic profile and associated characteristics of patients consuming alcohol at various levels.
- To determine the association between hazardous alcohol use and types of psychiatric symptoms
- To compare the effectiveness of simple treatment intervention with the standard and more extended form of treatment offered in the Department of Psychiatry, Muhimbili National Hospital.

# 5.0. LITERATURE REVIEW

## 5.1. Global patterns of Alcohol consumption

The changing pattern of alcohol consumption is somewhat similar for most of the developing countries in Asia and Africa over the last hundred years (Wig, 1994). Originally, alcohol was not such an integral part of the social scene in most of the non-Christian countries as it was in the Christian communities of Europe. A century ago, alcohol consumption outside of ceremonially sanctioned occasions was condemned and regarded as something foreign to local cultures. But, alcohol consumption has now become very much associated with the concept of "Westernization" and "modernity". In fact, it is now a sign of social sophistication and a symbol of prestige. Today regular and recreational alcohol consumption has gradually spread to most of the communities in spite of the past social stigma and serious cultural reservations. Most of the developing countries have now set up their own breweries and distilleries, and the tax on alcohol is a major source of revenue for many of them. High-pressure advertising by the alcohol companies further speeds up the trend (Wig, 1994).

There is much evidence showing that alcohol plays a significant role in the traditional life of many Africans. For example in Kenya, Platt (1955) who travelled widely in the Rift Valley Region in the early 1950's noted that a typical villager has to get drunk occasionally even if he was short of food as local beer

was a social necessity and not only a source of enjoyment. He also estimated that among the Nandi Tribe in the Rift Valley of Kenya at that time up to one sixth of all grain was converted to alcohol.

For centuries alcoholic drinks, namely local brews, have been consumed in most African communities for various social and cultural functions such as offering thanksgiving after harvest, marriage, birth, initiations, death and for intercession with ancestral spirits (Kilonzo and Pitkanen, 1992). Access to alcohol was usually limited to mature, married males and elderly women (Moses, 1989). However, in many of these countries the above-mentioned pattern has changed. In Kenya for the last five decades both the pattern and habits of drinking has changed. Alcohol is being produced for commercial purposes (Wanjiru, 1979). In Zimbabwe the commercialisation of alcohol was introduced during the colonial era (Wolcott, 1974). It is now an important economic and commercial product.

The same pattern has been observed in Tanzania over the past 30 years or so. Alcoholic beverages are increasingly being produced for commercial purposes and taken for recreational use. In settings where there are few recreational facilities, drinking may be the main source of recreation. These changes are accompanied by increased harmful patterns of alcohol use including non-industrially produced alcoholic beverages (Kilonzo, 1989).

## 5.2. Prevalence of alcohol consumption

WHO (2001) reports that globally 140 million people are alcohol ***dependent*** and that 400 million drink excessively and cause accidents and injuries. It is estimated that globally 33 million people engage in ***binge*** drinking (5 or more standard drinks on one occasion in the previous thirty days), and 12 million are ***heavy*** drinkers (5 or more standard drinks on more than 5 occasions in previous thirty days). Of the 140 million alcohol-dependent individuals globally, 78% do not receive any kind of treatment (Hoppenbrouwer, 2001).

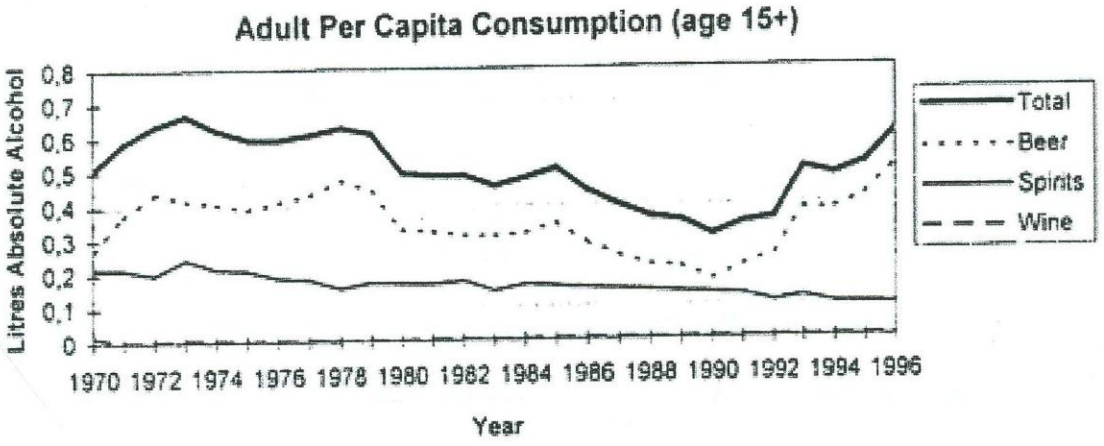
Drinking is considered ***harmful*** when the use (more than 4 standard drinks five times a week for men and three standard drinks four times a week for women) has already resulted in adverse mental or physical effects (Edwards *et al.*, 1981). A ***hazardous*** level of drinking is considered to be the level of alcohol consumption or pattern of drinking that, should it persist, is likely to result in harm to the drinker (more than 3.5 standard drinks for men and 1.75 standard drinks for women daily).

Prevalence of alcohol dependence in any society is directly related to the per capita consumption of alcohol. Overall per capita consumption appears to be related to the price and availability of alcohol. If alcohol is cheap and widely available, per capita consumption is high and alcohol related problems are common. In addition, the number of excessive drinkers is disproportionately

sensitive to changes in alcohol consumption. A small increase in the average consumption produces a much greater increase in the number of problem drinkers (Murray and Bernadt, 1980).

Both the production of traditional (non-industrialized) and non-traditional (industrialized) alcoholic beverages has increased rapidly in the past 35 years. In Nigeria between 1960-1980, per capita of beer produced locally or imported rose from 1.8 to 9.3 litres (an excess of 400%) (Obot, 1989). In the UK per capita annual consumption of absolute alcohol (litres) was 5.3 in 1951 and 9.7 in 1976 (Murray and Bernadt, 1980). In Tanzania 89% of the available alcohol is in the form of home brews. Many of these brews contain unacceptable levels of aflatoxin and fusel alcohols and in the case of illicit spirits, high methanol content (Nikander *et al.,* 1991).

**Figure1: Per capita consumption of alcohol among adults age 15 and above from 1970 to 1996 (Kilonzo *et al.*, 2001).**




Source: Situation Analysis, Mental Health in Tanzania, MOH, 2000.

In Tanzania the figures vary in different parts of the country and for different population groups. A survey conducted in Dar es Salaam shows that for the age group 16 and above 6.5% of males drank occasionally, 9.8% drank on weekends and 6.2% drank daily. Females drink much less, with 5.7% drinking occasionally, 3.8% on weekends and 1.7% on a daily basis (MOH, 1997). In Morogoro and Hai for the daily male drinkers the figure is 14.7% and 47.3% respectively. Corresponding figures for females are 9% in Morogoro and 34.6% in Hai (MOH, 1997). A study carried out among students in Dar-es-Salaam showed that 5.9% of students used alcohol regularly in spite of the fact that

60.7% of them were aware of the health hazards related to alcohol (Kaaya *et al.,* 1992). Among secondary school teachers, 47.4% take alcohol with upwards of a third drinking at a hazardous level (Hussein, 1999).

## 5.3. Early Identification of risk factors

In the disease concept of alcohol dependence early intervention from a medical perspective starts when physical damage is evident. However, social problems such as marital conflicts, family problems, and difficulties at work, accidents, and crimes are the earlier indicators. These are followed by psychological complications such as depression, suicide, phobias and sexual problems. Physical disorders generally occur much later.

Though doctors in hospitals and general practices are increasingly faced with social, psychological and physical consequences of excessive alcohol use, they are not very good at recognizing the hazardous alcohol users early in their drinking habits. A study carried out in England by a general practitioner Rodney Wilkins (Murray and Bernadt, 1980) identified individuals considered to be at risk due to some factors associated with alcohol dependence. He then interviewed all those with one or more "at risk" factors and in a practice of 12, 000 he identified the "at risk" factors to be the following:

- Black outs
- Shakes

- Marital problems in which the wife may complain of the husband's boastfulness, poor sexual performance, and violent behaviour towards herself and the children.
- Problems at work, absenteeism especially on Mondays, and poor work performance.
- Accidents at home, work and on the roads.
- A relative with alcohol dependence; 25% of the male relatives were themselves abusing alcohol.
- High-risk occupations. At particular risk were those concerned in the manufacture, distribution and sale of alcohol, company directors and commercial travellers, seamen and those in the armed forces, journalists, entertainers and doctors.
- Mental disorders, anxiety, depression and attempted suicide.
- Physical disorders, which may be secondary to alcohol abuse and include gastritis, peptic ulcer, pancreatitis, neuropathy, liver disease, tuberculosis and late onset of epilepsy.

## 5.4. Alcohol Related Problems

In the last decade, the problems related to excessive alcohol consumption have increased dramatically in many societies in both developed and developing countries. There are many alcohol problems and many problems of which alcohol is a component. According to the 1993 World Development Report 5%-

10% of the world's population is affected by alcohol related problems each year and they accounted for 2% of the global burden of diseases in 1990 (Desjarlais *et al.,* 1995). It is difficult to estimate the real costs of alcohol-related problems in practice, but it is clear that the social and private costs are significant.

Six categories of alcohol related costs that should be considered in cost calculations include: (i) reduced productivity, (ii) motor vehicular-related property damage and insurance, (iii) imprisonment, (iv) fires, (v) foetal alcohol syndrome, and (vi) child abuse. In the United States, costs associated with alcohol-related mortality were estimated at $9.5 billion or 4.3% of the 1980 US personal health care cost expenditures.

In many developing countries both the social and economic costs of alcohol-related problems are unknown; however evidence from household surveys in Latin America on the prevalence of illicit substances and from the literature in other countries confirms that alcoholism and alcohol-related problems have emerged as priority health concerns (Cercone, 2001).

Excessive alcohol consumption may have many adverse effects. These can be divided into social, psychological and physical.

**5.4.1. Physical:** Physical disorders generally occur much later than the psychological and social ones. In Africa, health problems related to excessive alcohol consumption differ from those seen in the West (Acuda, 1985). Reasons for this difference are unknown, but such factors as genetics, nutrition, impurities and pharmacologically active substances found in traditional brews have been suggested. The most common health related problems are gastritis, haematemesis, and peptic ulcers. Approximately 10% of problem drinkers develop cirrhosis, while neuropathy and pancreatitis are rare.

A study carried out in 1969 in East Africa showed the link between hypoglycaemia and coma after excessive drinking (MacSearreigh, 1969). In the mid-1960's various reports appeared in the medical journals showing the link between cancer of the oesophagus in East Africa and alcohol consumption (Magee and Barnes 1967; Ahmes and Cook 1969; Maglashan 1969; Cook 1971).

**5.4.2. Negative social effects of alcohol:** Alcoholic intoxication resulting in violence is an old issue dating back to the dynastic periods of Egypt when drunken sprees lead to violence. This has been confirmed by a number of studies from different societies. Wife battery as a result of alcohol dependence is also common (Desjarlais, 1995). Acuda (1985) found a strong link between alcohol use and prostitution and theft in East Africa. He suggested that the

linkage seen in Western countries between drug use and crime and its associated violence is probably also apparent in East Africa.

**5.4.3. Alcohol and Accidents**: The number of problems and deaths attributable to alcohol consumption has risen significantly in the last few years. Worldwide, alcohol accounted for two million deaths in 1989 (Cercone, 2001). This is 1.5% of all deaths in the world. In UK proven drunken offences increased from 53,676 in 1951 to 108,698 in 1971.This rise has been confirmed by a number of studies from different societies (Murray and Bernadt, 1980).

Alcohol contributed to 30% of the associated fatalities (Kaaya *et al.*, 1989). In Dar-es-Salaam between August 1985 and July 1986, there were 2,763 accidents, of which 354 (9.5%) were alcohol related. Out of a total of 221 deaths resulting from traffic accidents during a 12-month period, 75 (34%) of deaths were due to alcohol consumption (Kaaya *et al.*, 1989). Alcohol is also associated with crime; 30% with murder, 17% with assault and 18% with breach of peace (Kilima, 1983).

**5.4.4. Psychiatric related problems:** Many researchers have shown that there is an increase in admissions to psychiatric units of patients with alcohol-related problems. For instance, in the UK, the number of alcohol dependence-related admissions to psychiatric hospitals increased significantly from 1951 to 1976. In

1951 there were 512 admissions, whereas in 1976 that figure rose to 13,722. (Murray and Bernadt, 1980). In India, a survey showed that 6.1% of admissions on the male psychiatric ward were due to alcohol-related problems, 19% of the 6% admitted were indeed patients abusing alcohol (Desjarlais *et al.*, 1995). A study carried out in Nigeria in four psychiatric hospitals between 1984 and 1988 indicated that alcohol was the cause of precipitating organic psychosis, second only to bhang (Obot, 1989).

In 1948, Carothers carried out the first published study on alcohol and health in East Africa. His main finding was that psychosis in Africans was atypical whereas the non-African presented with delirium tremens. The Africans often presented with acute confusional state that clears up within a few days of admission (Carothers, 1948).

Contrary to these findings, German (1968) in Uganda concluded from his own study that alcohol psychosis was common. He found that alcohol psychosis constituted 13% of admissions into a mental hospital during the year. Ten years later Cox (1978) came up with a figure of 84%. Among patients in East and West Africa, Adomekoh (1976) has provided evidence for the presence of Korsakoff's psychosis (i.e. the inability to remember recent events or to learn new information), hallucinosis, delirium tremens, dementia and paranoid psychosis. Alcohol related dementia was estimated at 10 % of all adult

dementia in the US in 1990 (Berman, 1990). In Tanzania, psychiatric admission due to alcohol-related problems was estimated to be up to 6% in 1990 (Kilonzo and Pitkanen, 1992). The following table (1) shows the proportion of drug related, inclusive of alcohol, mental health consultations in three regions in Tanzania from 1997-1999 (MOH, 2000).

**Table 1: Proportion of drug related mental health consultations, Arusha, Mbeya and Dar es Salaam Regions, 1997-1999**

| Region | Year | Total in-patients with mental health related disorders | | % Drug related | | Total out- patients with mental health related disorders | | % Drug related | |
|---|---|---|---|---|---|---|---|---|---|
| | | M | F | M | F | M | F | M | F |
| Mbeya | 1997[1] | 765 | 595 | 7 | 3 | | | | |
| | 1999[2] | 583 | 484 | 4 | 0 | | | | |
| Arusha | 1998 | | | | | 152 | 106 | 28 | 4 |
| | 1999 | 119 | 151 | 18 | 2 | 185 | 143 | 26 | 1 |
| | 1997 | 217 | 84 | 55 | 8 | | | | |
| Dar-es-Salaam | 1998 | 579 | 224 | 23 | 3 | | | | |
| | 1999 | 654 | 213 | 19 | 2 | | | | |

Source: Situation Analysis, Mental Health in Tanzania, MOH, 2000

**Key:**

[1] except Mbar and Mbeya Municipal

[2] except Mbar, Mbeya Referral and Chunya

## 5.5. Diagnosing alcohol related problems in psychiatric patients

In psychiatry, there is no single diagnostic criterion for alcohol misuse. Patients presenting with repeated alcohol intoxication and psychotic symptomatology may either have primary schizophrenia or primary major depressive disorder of a psychotic nature with secondary alcohol dependence. A study by Helzer (1988) found that patients misusing alcohol are 21 times more likely to also have a diagnosis of antisocial personality disorder compared with non-alcoholic. Similar odds ratios for other psychiatric condition are as follows: Drug misuse 3.9 times, mania 6.2, and schizophrenia 4.0 times. There is only a mild increase in major depressive disorders among patients abusing alcohol (odds ratio 1.7) and essentially no increase in anxiety disorders.

Due to this problem of dual diagnosis, the diagnosis of alcohol dependence is often missed. In the UK for example, at the psychiatric emergency unit a high rate of missed diagnoses of alcohol dependence was found amongst patients admitted (Desjarlais *et al.,* 1995). In developing countries with limited human resources and personnel who lack relevant skills, many such cases are missed.

Schuckit (1989) suggests that the key to accurate labelling is to take a very careful history of the chronology of the development of psychiatric symptoms from the patient and relatives. All patients should be asked about alcohol-

related problems such as job loss, marital problems, multiple arrests, etc. After diagnosis of alcohol dependence, the patient is then screened for pre-existing psychiatric disorders. Conduct disorder during latency as well as extended periods of depression or mania before onset of first alcoholic episode or during an extended abstinence should also be explored. If any positive signs of these exist, then alcohol use disorder may be secondary.

## 5.6. Laboratory Diagnosis:

The problem drinker is unlikely to volunteer the source of his problems and may deny that he has had more than an occasional drink. Therefore, some investigators have used a battery of routine laboratory tests in an effort to find characteristic patterns of abnormality.

Clinical laboratory procedures are used to corroborate results of physicians' interviews and of self-administered questionnaires. Biochemical markers of heavy alcohol consumption can provide objective evidence of problem drinking, especially in patients who deny any drinking problem. However, the sensitivities and specificities of these biological markers can be modified by non-alcoholic liver injury, by drug use, and by metabolic disorders or individual metabolic differences (Schuckit and Griffiths, 1982).



**5.6.1. Liver function test:** Both aspartate transaminase (AST) and alanine transaminase (ALT) are commonly elevated in the alcoholic, but are frequently normal in the less ill. The ratio of levels of mitochondrial AST to total AST has been found effective in differentiating alcoholics from other patients and in detecting chronic excessive drinking (Naplas *et al.*, 1984; Naplas *et al.*, 1986; Lumeng, 1986).

Serum gamma-glutamyltransferase (GGT) is also a useful investigation (Schuckit *et al.,* 1982. Gjerde *et al.,* 1987). It is raised in 70%-80% of those diagnosed as patients abusing alcohol, and generally increased in individuals who drink heavily but are otherwise healthy. The heavier the consumption, the greater the elevation and the levels do not return to normal till 10 days later. However, care should be taken when interpreting the results as enzyme inducing drugs such as phenytoin and barbiturates also raise the enzyme, as do other liver diseases, pancreas and myocardial infarction.

In 40-70% of patients abusing alcohol, an increase in MCV (mean corpuscular volume) without anaemia is another indicator (Saunders and Aasland, 1987). MCV is an index of red blood cell size. However, this index alone is not a useful screening marker (Bernadt *et al.*, 1982), but it can be used as part of a screening test in the course of routine health (Chick *et al.*, 1981).

## 5.7. Management

It is extremely difficult, however not impossible, for a person who has acquired a physical dependence on alcohol, to return to a stage of social drinking, while for others the only hope is total abstinence from all alcoholic beverages. Treatment involves dealing with the symptoms of withdrawal from alcohol and providing support for those patients in their attempts of continuous abstinence. Patients may be treated either on an outpatient or inpatient basis.

Danger of serious withdrawal symptoms, poor physical conditions of the patients, and various social reasons may necessitate in-patient treatment. Patients need to be admitted to the hospital with facilities for specialized treatment of alcohol dependence.

Another very important aspect of treatment is motivation. This promotes insight on the part of the patient in order to attain the goal of total abstinence or cutting down and eventually, of contented sobriety. In order to help achieve this, specialized procedures are employed by professionals.

In this setting, although there is various voluntary counselling services more professionals as well as specialized centres are needed, for patients who are at advanced stages in the course of alcohol dependence. Alcoholics Anonymous (AA) self-help groups are active in Dar es Salaam and in a few other regions

The meetings take place three times a week and are in both English and Kiswahili languages. Private specialized services are available for the treatment of this patient population but few people can afford them. Criteria for admission to an inpatient facility depend on the condition of the patient. Those with a medical problem are usually treated in generalized facilities where the wards are often overcrowded. Those presenting with alcohol-related psychiatric problems are treated in the Psychiatric unit. Rehabilitation in the psychiatric villages is an option offered to a limited number of patients.

Denial is characteristic of the patient abusing alcohol especially at the initial stages; therefore, confirmatory laboratory investigations are often necessary. Though laboratory facilities are present, the equipment and reagents to carry out these tests are not always available.

Considering the limited human and physical resources available for the treatment of alcoholism, it is clear that early intervention is essential.

## 5.8. Recovery

Alcohol dependence is a relapsing disease and before attaining recovery, many patients abusing alcohol may relapse frequently and require several courses of treatment. They have to change the habit formed over many years. New interests have to be developed in order to remove the patient from the environment that caused the drinking problem in the first place.

Readjustments within the family need to be considered as the patients abusing alcohol begin to assume the responsibilities that have been taken over by the other partner or the children. Recovery also takes a long time. For a period of three or four years the alcoholic may complain of:

- Intermittent craving for drink
- Episodes of depressions lasting for a day or two.
- Acute transitory panic attack
- Shakes
- Impotence

The recovered alcoholic may not always be aware that these symptoms are related to previous alcohol misuse. Both patient and family may need to be educated.

## 5.9. Prognosis

Statistics are variable and there are no reliable figures with universal application. However, it is estimated that about one in four patients abusing alcohol realize of the danger at an early stage and therefore stop drinking spontaneously, more than half become teetotallers with the help of medical treatment, AA or other helping agencies, and one in four have repeated relapses and eventually die from one of the many physical complications of being alcohol dependent. It is very rare that alcohol cited as the cause of death, yet many clinicians know that alcohol dependence is a frequent cause of death among both young and old (Schuckit, 1989).

The prognosis for the person abusing alcohol who stops drinking is excellent. Usually there is a gradual recovery of both physical and mental health if the damage to these two aspects has not been prolonged and extreme. The prior levels of energy, interest, enthusiasm, memory and power of concentration all return. Former levels of efficiency are achieved, as well as good personal relationships. Thus early identification and intervention are essential.

## 5.10. Interventions

Globally, repeated attempts have been made to find an effective and inexpensive intervention for alcohol abuse. One such attempt is the WHO Intervention Study (Babor and Grant 1992). It is the prototype on which this

study is based.

The WHO study was carried out in ten countries, which were chosen from all five continents. Kenya and Zimbabwe were the two countries selected from the African continent. There are many similarities with the Tanzanian situation and for that reason the results from both countries are described briefly below. In Kenya, the study was carried out at the Kenyatta National Hospital. It is a University teaching hospital in Nairobi and serves 1.2 million people. 803 adult patients were administered a health and life style questionnaire which included questions related to patients' employment status, drinking and smoking habits etc. A trained medical student administered the questionnaire to the patients while they were waiting to see the doctor. Of the 803 patients interviewed initially, 203 were selected to participate in the main study due to the fact that they consumed alcohol.

These patients were administered the WHO AUDIT Core Questionnaire. After seeing the doctor for their present illness, the patients were taken to the health advisor and interviewed for 20 minutes using the WHO Composite Interview Schedule that includes questions about health risk factors. They were then assigned to three groups as follows: the first was a control group that received no intervention but was asked to return in six months time, the second group received five minutes of advice about hazardous drinking, and was also given

an illustrated brochure entitled "A guide to sensible drinking" and asked to return in six months time. The third group received five minutes of advice together with a 26 page problem solving manual on how to prevent alcohol related problems, and a self-management procedure to reduce alcohol consumption and avoid alcohol-related problems. They were also encouraged to record the habit-breaking plan in the back of the manual and to identify a helper who could assist them to adhere to the plan. This group too was asked to return in six months time.

The patients in all three groups were given a self-report inventory designed to measure their self-confidence, global depression, typical coping responses to problems, and the patients' perceptions of the health advisor. All the patients were tested for recent alcohol consumption using the alcohol dipstick.

For various reasons such as moving out of town, and living too far, only 32% of patients recruited for the study returned for follow-up. It was found that no differences existed between the three study conditions regarding age, socio-economic status, average daily consumption, intensity of drinking, and days of abstinence. However, a significant difference was found on measures of recent problems and concern expressed by others. Patients who received brief counselling did better than those in the other two groups. Various variables such as the average consumption of alcohol, the intensity of consumption, and

days of drinking, problem score, concern score, and dependence score were assessed. Using the ANOVA statistical test, it was found that there was a significant reduction in all measures except the problem score at the six-month follow-up. Major reductions were noted in the experimental groups as compared to the control group. 70.6% of the patients in the intervention conditions attributed the change in their drinking patterns to information received during the study. However, only 27.3% of the patients in the control group acknowledged that the study was responsible for their change. The behaviour change in the control group may be accounted for by the mere fact that they were being interviewed for 20 minutes and told to come back after six months.

In Zimbabwe, 75% of the patients were recruited from primary health care centres (general hospitals and polyclinics) and the other 25% were volunteer students from teachers' training colleges. Patients from the primary health centres were recruited in two ways – in some cases patients were referred by the medical staff and in other cases the health advisors sat side by side with the medical officer to whom the patients first reported, and then requested that the heavy drinking patients report to him/her later for screening.

From a total of 900 subjects, 161 were considered eligible according to the criteria used in that study, and 129 were included in the study according to the coordinating centre's universal eligibility criteria. Subjects were divided into 4

groups, three of which were similar to the ones in the Kenyan study and the fourth consisted of subjects receiving the same intervention as brief counselling in addition to general health counselling that dealt with smoking, diet and exercise. They called this supplemental counselling. All subjects were asked to return after 6 months for follow-up. 92% of the total subjects reported for follow-up. The follow-up response rate was higher in Zimbabwe because (1) Zimbabwe recruited participants who are residing around the city of Harare compared to Kenya who recruited participants from all over the country. (2) 25% of the participants from Zimbabwe were student teachers and they were all paid the transport allowance to come back for follow-up. (3) 25% of the follow-up was telephone interviews.

As in the Kenyan sample, no difference was found between the groups in age, socio-economic status, and average daily consumption, intensity of drinking, days of abstinence, recent problems and concerns expressed by others. The ANOVA results indicated that there were significant changes after the intervention in typical consumption, intensity of drinking and number of drinking days. Although there was a significant difference between the three intervention groups and the control group (the control group showed an increase in alcohol consumption), there was no significant difference within the three different intervention types.

# 6.0. MATERIALS AND METHODS

## 6.1. Definition of Terms:

**6.1.1. Alcohol use**: means the consumption of alcohol leading to alterations of mood and/or behaviour

**6.1.2 Alcohol misuse**: refers to any mental, physical, or social harm resulting from excessive use.

**6.1.3. Alcohol dependence:** is a mental disorder recognizable by symptoms, which can include strong and persistent desire to consume alcohol despite harmful consequences, gradually increasing the amount taken over a period of time in order to attain the desired effect. Stopping alcohol intake in these individuals will lead to withdrawal symptoms, which develop over hours or days (sweating, increase in pulse rate, increase in hand tremors, insomnia, nausea and vomiting, anxiety, fits, transient tactile, visual and auditory hallucinations, and psychomotor agitation). An estimated 4.1 million people met the diagnostic criteria for dependence on illicit drugs (1997-98); including 1.1 million youth ages 12-17 (Rockville, 1999).

**6.1.4. Social (sensible) drinking (non-hazardous drinking):** Includes somebody whose drinking revolves around social occasions while maintaining

control with predictable settings and amounts of drinks, which does not cause social, psychological or physical harm to himself/herself or others. The amount of drinks taken on any one day does not exceed 4 units and the total per week does not exceed 21 units for men and 14 for women. Drinking occurs on 3 or 4 days a week with 3 or 4 dry days during the week.

**6.1.5. Standard unit of alcoholic beverages:** varies according to individual researchers in the gram-unit alcohol ratio they use. Some equate 8 grams to 1 unit, while others to as much as 12 grams to 1 unit. The following calculations are based on 1 unit-8 gram that will be used in this study. Table 2 below shows the commonly used alcoholic beverages used in Dar-es-Salaam.

**Table 2: Non-industrialized traditional alcoholic brews (Kilonzo, 2001).**

| Type | Unit/l | 1 Unit | % Alcohol |
|---|---|---|---|
| Komoni | 6 | 167 ml | 4.5 |
| Chibuku | 4 | 250 ml | 3.2 |
| Mbege | 3 | 333 ml | 3. |
| Mnazi | 7 | 143 ml | 5.5 |
| Gongo | 33 | 30 ml | 26.7 |
| Beer | 6 | 167 ml | 5 |
| Konyagi | 44 | 23 ml | 35 |
| Amarula | 11 | 90 ml | 8.9 |

**Table 3: Imported (Industrized) alcoholic beverages (Kilonzo, 2001).**

| Type | Unit/l | 1 Unit | % Alcohol |
|---|---|---|---|
| Beer | 3 | 330 ml | 4 |
| Spirits (whisky, Gin, Vodka) | 36 | 2.8 ml | 43 |
| Wine | 9 | 112 ml | 12 |
| Sherry | 18 | 55 ml | 20 |

**6.1.6. <u>Hazardous use:</u>** means consumption patterns of occasional, repeated or persistent use of alcohol with considerable risks for negative mental and medical health and/or social consequences but which has not yet resulted in significant medical or psychological ill effects. This is similar to the idea of risky

behaviour. An assessment of consumption patterns is essential when hazardous use of alcohol is suspected. The effectiveness of brief simple interventions resulting in adoption of safe patterns of alcohol consumption or abstinence has been demonstrated. Forms of social problems resulting from hazardous use include:

- Problems with the law
- Domestic conflicts
- Financial difficulties
- Loss of job
- Marital conflict
- Others, which may lead to the patient being referred for assessment or treatment, either due to dysfunction or to harm (Saunders and Aasland, 1987).

**6.1.7. <u>Harmful use:</u>** is defined as a "pattern of psychoactive substance use that causes damage to health, either mental or physical" (WHO, 1998) or that is known to have caused tissue damage or mental illness in the particular person (Saunders and Aasland, 1987). Early detection of harmful use is essential whenever an individual using dependence-producing substances initiates contact with medical or social services for reasons that may be connected to substance abuse. Information and counselling on how to replace high-risk consumption patterns with less risky patterns have been shown to be effective.

Harmful use coincides with the definition of alcohol dependence, which is defined as a condition of alcohol consumption in which cessation or reduction of alcohol intake leads to psychological and/or physical withdrawal symptoms. Alcohol dependent has a similar meaning carrying a connotation of more serious stages of alcohol dependence.

**6.1.8. Standard treatment intervention:** consists of being referred to the social worker that covers a particular geographical area. The social worker assesses the patient and discusses treatment options with the patient. The social worker together with patient and family (if appropriate) decide which is the best option for him/her. The options include group counselling or individual/family counselling within the psychiatric department, or referral to AA, which is a self-help group. For those for whom out- patient management has failed or it is felt that a longer period of rehabilitation is required; referral to the psychiatric village e.g. Lutindi or Vikuruti is suggested.

**6.1.9. WHO Simple intervention technique:** consists of five minutes advice about drinking. It also included being told that one falls in the category of heavy drinkers, and that the problems they discussed in the interviews were related to their drinking. The idea of a standard drink and sensible drinking limit is also introduced. Patient are also given a leaflet with information on what is

considered to be both the safe limits in term of frequency and number of drinks for both male and female as well as a diagram indicating the various part of the body considered to be affected by alcohol.

**6.1.10. Alcohol intoxication:** includes significant maladaptive behavioural, psychological changes (mood lability, sexual disinhibition, aggression, impairment of judgment), social and occupational functioning that occurs shortly after taking alcohol. These changes are accompanied by slurred speech, in-coordination and unsteady gait.

## 6.2. Instruments

### 6.2.1. Screening Instruments for alcohol use:

Screening for alcoholism is very important as many recent studies have shown that in various health care settings physicians often do not recognize and therefore fail to treat alcoholism (Clement, 1996; Moore *et al.,* 1989; Moore and Malitz, 1986). In a survey of patients admitted to an inpatient service, 12 to 30 percent screened positively for alcoholism (Moore *et al.,* 1989). Alcohol screening identifies individuals in a patient population who have begun to develop or who are at risk for developing alcoholism. Routine use of a standard alcoholism-detection instrument is valuable because these instruments provide a structured, disciplined, and consistent means to detect individuals at risk. Two types of alcoholism-screening instruments are available

- Self-report questionnaires and structured interviews
- Clinical laboratory tests, which can detect pathophysiology, associated with excessive alcohol consumption. It is important that both types of screening instruments are valid (i.e., measure what the clinician or researcher is attempting to measure) and should yield reliable results (i.e., consistent across raters and time).

Also it is important to note that self-report interviews and questionnaires have greater sensitivity and specificity than routine blood tests for biochemical markers (Bernadt *et al.* 1982).

A number of screening instruments for excessive alcohol intake have been developed and are widely employed in the West.

The **MAST** (The Michigan Alcohol dependence Screening Test) is a 25-item questionnaire requiring 25 minutes to complete. However, it includes questions concerning previous experience with interventions, whereas this study is concerned with patients who may not have sought any form of treatment since they are unaware that they can have serious problems in future as a result of hazardous alcohol consumption. In addition, some of the questions in MAST concern dependency, which occurs very late in an individual's drinking habits, whereas the focus of the present study is on hazardous alcohol consumption. MAST also attempts to distinguish between "normal" and "abnormal" drinkers,

without focusing on a hazardous drinking pattern (Selzer, 1971).

The **CAGE** is another screening test for patients who are dependent on alcohol. The CAGE enquires on need for cutting down on drinking, annoyance with criticisms about drinking, guilt about drinking, and using alcohol as an eye opener. It can be self-administered, and consists of 4 "yes" and "no" questions, which only takes one minute to compete. Although it is highly sensitive and specific it does not screen for hazardous level of drinking (Saunders and Aasland, 1987).

The WHO expert committee developed the **AUDIT** (Appendix C1) in 1985. Six countries participated in the project. These included Australia, Bulgaria, Kenya, Mexico, Norway, and USA. The screening instrument was devised on the basis of responses to a detailed interviews conducted with persons attending the various health facilities in these countries. The interviews encompassed the following: general information, medical symptoms, past medical history including trauma, the level of alcohol consumption, the frequency of drinking and of intoxication, alcohol related problems, alcohol dependence, and the person's perception of an alcohol problem (Saunders and Aasland, 1987).

It is a ten-item "core"-screening screening instrument, which contains three questions on the amount and frequency of drinking, three questions on alcohol

dependence and four on problems caused by alcohol. For the first eight questions there are five possible answers, and each one is scored from 0-4. For items nine and ten, there are three possible answers, and a score of 0, 2 and 4 is allocated. The range of possible score is from 0 to 40. A score of eleven or more denotes a positive case. This score is equated with reaching a ***hazardous*** level of alcohol consumption. In terms of units of alcohol it approximates more than 3.5 standard drinks for men and 1.75 standard drinks for women daily. It is assumed that if this pattern of drinking persists, it would likely result in harm to the drinker.

This instrument was selected for the present study because it reflects a multidimensional approach to alcohol. With this instrument, social problems, which are recognized very early in the patient's drinking career, can be easily detected. This allows early intervention, which in turn, reduces the cost of treatment. If the same patient was to be seen a few years later with dependency, then with the limited financial, facilitation and human resources, there is little chance that an individual could change his/her drinking pattern.

**6.2.2. <u>The Brief Psychiatric Rating Scale (BPRS):</u>** (Appendix D1) is an instrument that has been found to quickly and accurately diagnose psychiatric disorders. It has been used in numerous studies cross-culturally. It has been found very useful in predicting whether patients are likely to be diagnosed with

schizophrenia, bipolar disorder, or major depression using the Diagnostic and Statistic Manual of Mental Disorders (DSM-IV) (Hopko *et al*, 2001). It consists of 16 symptom constructs, each to be rated on a 7-point scale of severity ranging from 'not present' to 'extremely severe'. If a specific symptom is not rated, it is marked 'NA' (not assessed). This instrument will be used in the current study to determine presence and severity of psychiatric symptoms.

**6.2.3. Life Style Questionnaire:** (Appendix E1) will be used to do the initial screening for the study and to assess the lifestyle of the patient. It was chosen because, including it as part of the screening indicates concern for the patient as a whole person and not just in terms of his/her alcohol problem. It allows the researcher to embed a minimal number of alcohol specific questions into a broader health and life style questionnaire. It lessens the intensity of the core questionnaire which patients may find very intrusive and hence, decrease the social biases. This style of inquiry is more likely to elicit more authentic responses about the patient's other risk factors, such as smoking cigarettes, diet, and drug use.

**6.2.4. Demographic Data Form:** (Appendix F1) has been designed for this study. It is brief and questions are simple and straightforward.

**6.2.5. Sensible (Social) Drinking Leaflet:** (Appendix G1) illustrates simple

advice and contains information about alcohol and the consequences of its misuse, together with a statement of the level of drinking considered as hazardous.

The aim of this leaflet is to identify any alcohol-related problems mentioned during the initial interview, inform the patients that they fall into the "heavy drinking" category, and emphasize the idea of sensible drinking limits.

## 6.3. Study Site

The study was carried out at Muhimbili National Hospital, which is a major referral and teaching hospital. It is based in Dar-es-Salaam, which is a major port in Tanzania, and made up of three districts, Ilala, Kinondoni and Temeke. The main reason for selecting the psychiatric unit is that one of the many precipitating and maintaining factors of mental disease is substance abuse, one among which is alcohol. A high rate of youth seeking psychiatric services is associated with increased substance use (Kilonzo *et al.,* 1992).

Tanzania is a developing country in East Africa It is situated 4 degrees south of the equator and it covers approximately 945,000 square kilometres. It is bordered by the Indian Ocean on the East and eight countries including Kenya, Uganda, Rwanda, Burundi, Democratic Republic of Congo, Zambia, Malawi and Mozambique on the North, West and South.

The United Republic of Tanzania, was formed in 1964, and is a union between the then Tanganyika and the Zanzibar Islands. It has a population of 36.2 million people with approximately 65% of the population being 25 years and under, making the size of the vulnerable groups very large. There has been a slow but steady increase in life expectancy at birth from 41.7 years in 1962 to a peak of 52 years by 1992, but this trend has reversed over the past ten years with a decline to a life expectancy of 48 years by 1998. The AIDS epidemic is one major factor associated with this decline (UNAIDS, 2000).

After independence (1961) to the early 1970s the performance of the Tanzanian economy was generally good with a Gross Domestic Product (GDP) growth rate of around 6% p.a. and a population growth rate of about 3%. However several factors have lead to an economic crisis between the early 70s to the early 80s (Bigsten and Danielson, 2001) making an estimated 50% of the population living in poverty with most of them being in the rural areas (Mutalemwa, Noni and Wangwe, 1998).

The health care of the people was in the beginning taken care of by the traditional healers. The Germans were the first to introduce conventional medical care in the1890s, which was later on continued by the British. Currently the health care facilities in the country are both publicly and privately run. Public

health facilities constitute approximately 60% of the total health services in Tanzania. They are in the forms of village health posts, dispensaries, health centres, district hospitals, regional hospitals and referral hospitals. The remaining 40% of the health services are run by voluntary organizations, mainly religious ones, which operate hospitals and dispensaries generally based in the rural areas, and by private sectors. Mental health care is provided within the general health care system.

Muhimbili National Hospital is a government owned referral and teaching hospital .The Psychiatric unit of Muhimbili National Hospital was established in 1965. It provides both in and outpatient services. The inpatient service has a capacity of 50 patients and includes the management of the acute mentally ill, detoxification for substance of abuse including alcohol and residential rehabilitation in an agricultural village setting. This service is provided for adults above the age of 15.The outpatient services include psychotherapy, psychoeducation, social support assessments, depot clinics home visit, follow up, monitoring of drug treatment in remission, community psychiatric nurse support to sub mental health clinics. This service is offered to both children and adult patients are seen according to a firm structure system, which is based on catchments areas served by the Unit. There are three catchments area. They include Temeke, Ilala, and Kinondoni. The latter serves a larger population and

for clinical purposes is divided into two areas (Kinondoni and Magomeni). The unit offers a multidisciplinary team service. It includes the following:

- Medical officers –four Psychiatrists, four residents and one registrar
- One clinical psychologist
- Nursing personnel-Three adult and one child community psychiatric nurses, 18 nursing officers and 33 health attendants
- Four adults and one child social worker
- Five Occupational therapists
- Two Occupational therapy artisans
- Eight Livestock field officers

## 6.4. Recruitment and Screening

The study patients were recruited from the psychiatric unit. For the outpatients the doctor attending them made an enquiry whether they were taking habit-forming substances of abuse such as illicit drugs or alcohol. The drug history is asked routinely as part of the patient history but for the purpose of the study the doctors were requested to emphasize on even the occasional drinks that patient were consuming. Anyone with a positive alcohol intake was requested to see the research assistants who then continued with the screening. For the inpatients the research assistants participated in the major ward round at which time the doctor in charge decided whether the patient was mentally stable and ready for discharge. Again all those with a positive alcohol intake were

recruited. All patients were interviewed and examined. Initially the lifestyle questionnaire was administered. Their demographic and social profiles were established using the demographic form and the presence of psychiatric symptoms and their severity was determined using the BPRS. Patients were also screened using the WHO AUDIT screening instrument to determine the level of alcohol consumption. The data was collected from the study sample at the time of initial contact at which time a treatment intervention was made. The data was collected again at three months follow up at which point the AUDIT and BPRS were used for comparative purposes.

For ethical reasons there was no control group. All patients were given the appropriate management, irrespective of level of alcohol consumption. The efficacy of the intervention program has already been proven to be highly beneficial in the initial research carried out by WHO.

## 6.5. Design of the Study

The study is a hospital based cross sectional survey using multiple case studies carried out between October 2001 and June 2002.

## 6.6. Research assistants

Two professional psychiatry social workers from the department recruited the patients. They also attended to all those coming back to the department for their follow up. Two fourth year medical students traced those who did not come on

schedule and for those who found difficulties in coming back to the Department interviews were carried out in their own homes after obtaining verbal consent.

## 6.7. Study Population

The study population includes both inpatients as well as outpatients. The outpatients consisted of individuals attending the new case clinics held once per week (Wednesday afternoon) and follow-up outpatient clinics of all three Districts in Dar es Salaam (Temeke, Ilala, and Kinondoni). The follow up outpatient clinic include patients who were being treated as outpatients or who have been discharged from the unit and attending for follow-up clinics. Care was taken so that those individuals who were recruited during their inpatient period were not included in the outpatient category as well.

The patients selected were those who were assessed as competent to give informed consent. A comparison was made between the patients receiving standard treatment (see definition above) and those receiving simple intervention as described in document WHO/PSA/91.5 (Babor and Grant, 1992). The criteria for assigning patients to one of the two groups were by a process of simple randomization using the lottery method, whereby patients drew from a container in which sealed envelopes were placed. Half of these envelopes contained a card with the phrase "simple intervention" and the other half contained the phrase "standard treatment" written on them.

Patients who were assigned to the "simple intervention" group were given "simple advice" and provided with a leaflet on sensible drinking. Those assigned to the "standard treatment" group were sent to the social workers of the respective geographical area.

Patients in both groups were asked to come back after a 3 months period at which time they were re- administered the AUDIT and the BPRS. At this stage the person administering these questionnaires was different from the person who administered them at the initial phase of the research. This was to reduce the possibility of getting socially accepted answers from the patients. Another way of reducing the social biases was to confirm the information given by the participant by interviewing the family member who accompanies the participant. This is the usual procedure in our unit where collateral information is usually important but in this particular situation verbal consent was obtained from the participant.

A comparison was then made between the results obtained at the initial stage of the study and those obtained during follow-up to see if there have been any changes in their drinking patterns and psychopathology.

Although the follow-up period in the initial WHO study took place after a 6-

month period, in the present study, the follow-up period was after a 3-month period. This is due to the time limitations of the study as well as the difficulty of tracing patients after a longer period of time in this setting. This difficulty arises as a result of constant migration of people between different parts of the country as well as within the city itself. In addition, telephone and postal communications is not the norm in Tanzania, and hence, it would have been very difficult to contact the patients in order to remind them of their appointments. Hence, tracing cards (Appendix H1) were used to contact those patients who did not turn up during the follow-up period.

Although WHO study had standard procedures, it did allow for optional conditions according to the circumstances of the individual country.

## 6.8. Sample Size

Sample size was calculated according to the following formula:

$N=Z^2PQ/D^2$

Where:

N=desired size of the sample

Z=standard normal deviation, a constant (1.96) set at 95% confidence level

P=proportion of individuals with the attribute under study (prevalence)

Q=proportion of individuals without the attribute under study (1-P

D=precision error (marginal error) set at 0.05 or 5%

According to the Report of Alcohol Research Project in Tanzania (Kilonzo and Pitkanen, 1992), which was conducted 12 years ago the prevalence of psychiatric admissions due to alcohol dependence at the Psychiatric Unit, Muhimbili National Hospital, was estimated at about 6%. However, there are indications that there has been a significant overall increase from a more recent report 1997-1999 (MOH, 2000). Hence, 10% was a reasonable figure to take for the purpose of determining the sample size.

Taking prevalence of 10%, N = (3.8416) (0.1) (0.9)/0.0025 =144

Attendants at outpatient and inpatient psychiatric services at Muhimbili National Hospital were screened. This exercise continued till the target sample of 200 patients was reached. Patients who were psychotic were screened after they were stable and psychotic symptoms have remitted. Those who did not remit within the period of recruitment were excluded from the study. Hence, inpatients included in this study were those who were symptom free i.e. had no overt psychotic symptom on discharge from private ward, male ward, female ward and acute ward.

All patients were required to sign consent forms. Illiterate patients had both documents read out to them. All forms were in both Kiswahili and English.

## 6.9. Limitations of the Study

- A few procedures recommended in the WHO study were omitted because of lack time and finances, for instance, special laboratory tests.
- Change in the drinking patterns may have not be apparent due to the shorter length of time of follow-up (3 months), compared to the six-month follow-up in the WHO original study.
- In self-report measures the likelihood of patients giving socially accepted answers is highly probable particularly with regard to alcohol. A few measures were taken in order to reduce the biases. Including the Life Style Questionnaire particularly with regard to alcohol as one measure to reduce this bias. Training the researchers in interviewing skills that are facilitative but non-intrusive in working with this patient population was also another means of reducing this bias. After obtaining verbal consent from the patient and if the need arose family members accompanying or staying with the patient were interviewed by the research assistants.
- Workload and other commitments on the part of social workers assisting in the research resulted in a longer time period for recruitment and extension of the study – however, the advantage of using social workers was that they are professional in this area and had easier access to patients files.
- Fewer patients from the group that was given the "WHO Simple treatment" intervention came back and therefore making it difficult to have

a clearer picture on the effect of intervention in this group. This may have introduced random error in the measurement process.

- Temporary binge drinking might have been misinterpreted as being the norm, resulting in overestimation of the success rate of the intervention.
- The AUDIT did not allow making a difference between the binge drinkers and other regular drinkers.

## 6.10. Ethical Clearance and Considerations

Ethical clearance was sought from the College Research and Publication Committee (CRPC) of MUCHS. Permission to conduct the study in the Department of Psychiatry was obtained from the Head of Department since both the researcher and the research assistants needed access to the patient's medical documents.

Confidentiality was strictly maintained and all patients were informed of this. I.D. numbers were used on all documents during data collection to ensure confidentiality. The exception to this was the name required on the tracing cards. This is because it was anticipated that the compliance rate for follow-up was likely to be very low, particularly if patient were not experiencing problems. Hence patients would need to be traced for re-evaluation and to determine the effectiveness of the intervention. However, the confidentialityy was still maintained, since all data collected were stored in a locked cabinet and only the

principal investigator and her research assistants had access to the data.

## 6.11. Time Frame

The study covered a period of eight months, including the pilot period. The aim of carrying out a pilot study was to ensure that the questions in the data sheet were relevant. It also gave an opportunity for the instruments to be tested. The pilot lasted for one week and a sample of 10 patients participated.

## 6.12. Data Entry and Data Analysis

The data was extracted from the questionnaires and filled on dummy tables. It was then analyzed by using the computerized Statistical Package of Social Sciences (SPSS) for the windows version 10 to determine the prevalence of hazardous drinking among the patients, to define demographic profiles, to assess for mild psychopathology and to compare patterns of drinking behaviour and changes in psychopathology before and after the treatment intervention. The Chi- square test was the main method used in the definition of the statistical significance.

# 7.0 RESULTS

Two hundred patients were recruited for this study. One patient was excluded from the study due to incomplete information. The results are presented in the following manner. Firstly, the demographic data, prevalence rate and pattern of drinking of all male and female patients who are enrolled in the study are described. The data is then described for patients who returned for follow up and were traceable and those who failed to come for follow-up and were not traceable. Finally the data is described for patients who returned for follow up and received the intervention.

## 7.1 Profiles of all patients who took part in the study

### 7.1.1. Demographic profile of all patients who took part in the study

In all 174 males and 25 females participated in the study. Overall more youth than adults were found to be drinking (56% in the 16-24 age range and 44% in the >/=25 age range). With regard to gender among the male patients more youth were dinking than adults (60% compared to 40%). The opposite is observed in the female population (72% of adults drinking and 28% of youth).

The mean age of the patients was 30.92 years. Males had a mean age of 30.05 and females 37.32 years. The age range for males was 16-67 years and for females 20-57 years. 67% of all patients were employed and 33% unemployed. The same pattern of observation was true for the male patients (70% employed

and 30% unemployed). A higher proportion of females were unemployed than employed female (52% and 48% respectively).

A large majority of patients (58%) had primary level of education. With regard to religion 57% of all patients were Christians and 42% were Muslims. The predominant marital status was single.69% of the patients reporting they were single, 20% married, 3% divorced, 25% widowed and 1% in an informal partnership. Most of the male patients were single (74%) followed by 20% married and a few separated, divorced and in an informal partnership. The female patients were made up of equal proportions of both single and married (36%) with a few separated divorced and widowed. More out- patients were eligible to participate in the study compared to inpatients.

### 7.1.2. Drinking profile of all patients who took part in the study.

Altogether the non-hazardous drinkers made up 37% of the study population while patients drinking at hazardous levels were 63%. Most patients were consuming both traditional and non-traditional beverages (77%). In terms of frequency and number of drinks the male population were consuming more alcoholic drinks than females.

## 7.2. Traceable and non-traceable patients enrolled in the study

**7.2.1. Response Rate:** The study response rate for follow-up was relatively low. Only 19% came on schedule. 81% had to be traced, of which 25% were traced and came for follow up and 56% could not be traced and were lost to follow up. Among those one participant had died.

**7.2.2. Reason why patients were non-traceable:** Several reasons were identified as causes for not being able to trace patients in the study, these include:

- Had travelled out of Dar-es Salaam for schooling, business, work and leisure purposes
- The addresses given were those of relatives with whom patients were residing at the time they were recruited but had since shifted.
- Transferred to rehabilitation villages for long-term management and this was too great a distance for research assistant to travel
- Inaccessibility of participant's home. Many of them lived very far from the main road with no public transport. Tracers were unable to reach their homes on foot.
- Some patients resided in areas where it was dangerous for tracers to go unescorted.

**7.2.3. <u>Reasons for failure to return:</u>** The research assistants were able to trace some of the patients in the study who failed to return to the clinic for their follow-up interviews. Some of the main reasons identified as to why patients failed to return were:

- Financial (no money to pay for the transport and medications)
- Attending traditional healers
- Claimed that the medication given by the doctor made them feel worst (possible side –effects of the medication).
- For those employed work, difficulty in obtaining permission from the employer to leave place of work.

Patients who came for follow-up were compared with those who did not return for follow-up to determine whether the non-traceable patients could have introduced a sample biases into the results. Comparison for the traceable and non- traceable patients (see table 4) was conducted using the chi–square test. The following demographic variables was analysed: (i) gender (ii) age category, (ii) marital status, (iii) religion, (iv) education, (v) patient's status, and (vi) employment status.

The drinking pattern comprising of the type of alcohol consumed, the level, frequency and amount of drinking were also analyzed.

It was found that for statistical test at the p=0.05 level of significance both the male and female age category (p=0.01 for both) and male, client status, (p =0.00) prove to be significant. The other variables were non significant.

### 7.2.4. Demographic profile of traceable and non-traceable patients

**Table 4: Demographic profile of traceable and non-traceable patients according to gender (N=199)**

| Demographic profile | | Male N=75 | Male N=99 | Female N=14 | Female N=11 | Statistical Test Level of significance at p=0.05 | |
|---|---|---|---|---|---|---|---|
| | | **Traced Frequency (%)** | **Not traced Frequency (%)** | **Traced Frequency (%)** | **Not traced Frequency (%)** | | |
| Age category | 16-24years | 36(48) | 68(68.7) | 1(7.1) | 6(54.5) | M | **p=0.01 *S** |
| | =/>25 years | 39(52) | 31(31.3) | 13(92.9) | 5(45.5) | F | **p=0.01 *S** |
| Marital status | Single | 54(72.0) | 75(75.8) | 3(21.4) | 6(54.5) | P | P=0.72NS |
| | Married | 15(20.0) | 19(19.2) | 8(57.1) | 1(9.1) | | |
| | Separated | 2(5.3) | 3(3.0) | 1(7.1) | | | |
| | Widowed | | | 1(7.1) | 2(18.2) | F | p=0.97 NS |
| | Divorced | 2(2.7) | 1(1.0) | 1(7.1) | 2(18.2) | | |
| | Informal partnership | | 1(1.0)) | | | | |
| Religion | Christian | 41(54.7) | 58(58.6) | 10(71.4) | 5(45.5) | M | p=0.47 NS |
| | Muslim | 33(44.0) | 41(41.4) | 4(28.6) | 6(54.5) | | |
| | Others | 1(1.3) | | | | F | P=0.19 NS |
| Client status | Outpatient | 56(74.7) | 45(45.5) | 12(85.7) | 6(54.5) | M | **p=0.00*S** |
| | Inpatient | 19(25.3) | 54(54.5) | 2(14.3) | 5(45.5) | | |
| | Total | 75(100.0) | 99(100.0) | 14(100.0) | 11(100.0) | F | P=0.09 NS |
| Education | Primary | 46(61.3) | 56(56.4) | 9(64.3) | 5(45.5) | M | P=0.82 NS |
| | Secondary | 27(36.0) | 40(40.4) | 5(35.7) | 6(55.5) | F | P=0.35NS |
| Employ-ment status | Employed | 50(66.7) | 72(72.2) | 9(64.3) | 3(27.3) | M | p=0.39 NS |
| | Unemployed | 25(33.3) | 27(27.3) | 5(35.3) | 8(72.7 | F | P=0.07NS |

**7.2.4.1** Gender:

Out of the 174 male patients 75 (43%) were traced and 99 (57%) were lost to follow up. For the female patients 14 (56%) were traced and 11 (44%) were non-traceable.

**7.2.4.2** Age categories:

Table 4 above shows that in the traceable group of male patients, 48% were in the 16-24 age group compared to the non-traceable, who had a higher number of patients in that particular age category (68.7%). The pattern observed for women was different. It seems that the majority of female patients who were traceable were older, that is in the age group =/< 25 (92.9%) and for those not traced the 16-24 made up most of the group (54.5%).

**7.2.4.3** Marital status:

In both the traceable and non-traceable group of male patients a large proportion were single, 72% and 75.8 % respectively, followed by married patients. This group formed 20% in the traceable group and 19.2 % of the non-traceable group. The patients who were separated, divorced widowed and informal partnerships were few (5% and less) in both groups.

As for the females the pattern of distribution was such that in the non-traceable group a higher proportion of patients were single (54.5%) compared to the

traceable group where most of the patients were married (57.1.7%). There was also a small percentage of widowed, separated and divorced female patients (7.1%) in the traceable group but none in the male patient population.

The marital status was further analyzed by controlling for age (Table 5).

The results show most of the male patients at both level of drinking were in the 16-24 age group to be single. In the other age categories and at both level of drinking, a variation of marital status was observed. The statistical test proved to be significant for both male non-hazardous ($p=0.00$) and hazardous ($p=0.001$) drinkers.

**Table 5. Distribution of patients according to gender, marital status, age and pattern of drinking.**

| Level of drinking | Gender | Age category | Marital status | Frequency | % | p-value |
|---|---|---|---|---|---|---|
| Non-hazardous | Male | 16- 24 N=43 | Single | 42 | 97.7 | **0.00 *S** |
| | | | Married | 1 | 2.3 | |
| | | | Total | 43 | 100.0 | |
| | | >25 N=18 | Single | 9 | 50.0 | |
| | | | Married | 8 | 44.4 | |
| | | | Separated | 1 | 5.6 | |
| | | | Total | 18 | 100.0 | |
| | Female | 16-24 N=5 | Single | 3 | 60 | 0.710 NS |
| | | | Married | 1 | 20 | |
| | | | Widowed | 1 | 20 | |
| | | | Total | 5 | 100.0 | |
| | | >25 N=8 | Single | 3 | 37.5 | |
| | | | Married | 3 | 37.5 | |
| | | | Separated | 1 | 12.5 | |
| | | | Widowed | 1 | 12.5 | |
| | | | Total | 8 | 100.0 | |
| Hazardous | Male | 16-24 N=61 | Single | 51 | 83.6 | **0.005 *S** |
| | | | Married | 8 | 13.1 | |
| | | | Separated | 2 | 3.3 | |
| | | | Total | 61 | 100.0 | |
| | | >25 N=52 | Single | 27 | 51.9 | |
| | | | Married | 17 | 32.7 | |
| | | | Separated | 4 | 7.7 | |
| | | | Divorced | 3 | 5.8 | |
| | | | Informal partnership | 1 | 1.9 | |
| | | | Total | 52 | 100.0 | |
| | Female | 16-24 N=2 | Single | 1 | 50.0 | 0.494 NS |
| | | | Divorced | 1 | 50.0 | |
| | | | Total | 2 | 100.0 | |
| | | >25 N=10 | Single | 2 | 20.0 | |
| | | | Married | 5 | 50.0 | |
| | | | Divorced | 2 | 20.0 | |
| | | | Widowed | 1 | 10.0 | |
| | | | Total | 10 | 100.0 | |

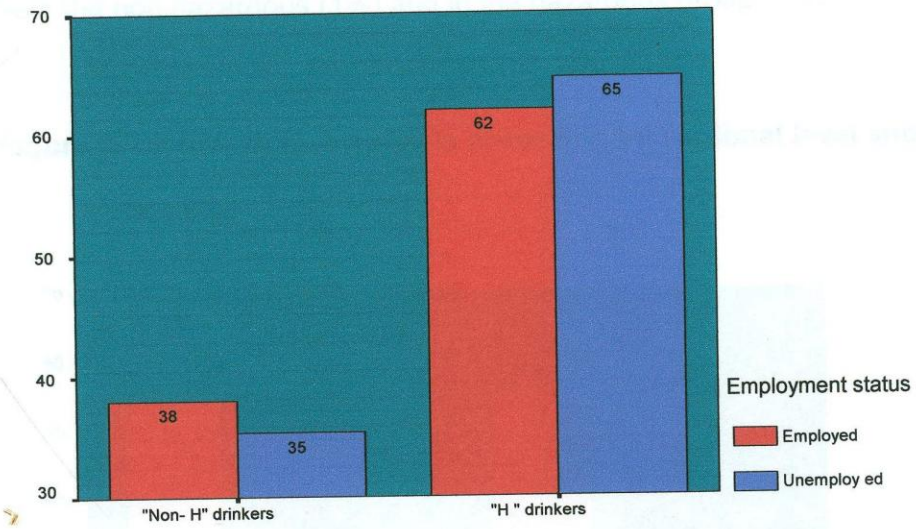
**7.2.4.4** Employment status

The employment status shows that a larger proportions of male patients were in employment and they make up the greatest proportion of drinkers in both the traceable and employed patients than in the non-traceable where more women were unemployed (Table 4).

The employment status was further analyzed by levels of drinking (Figure 2 below).

It was interesting to note that there is almost no difference in the drinking pattern between the employed and those unemployed. In the non-hazardous group 38% and 35% respectively and in the hazardous group 62 % and 65 %. The Chi square test for the level of drinking and employment was non - significant (p-value > than 0.05).

**Figure 2. Distribution of patients according to level of drinking and employment status**



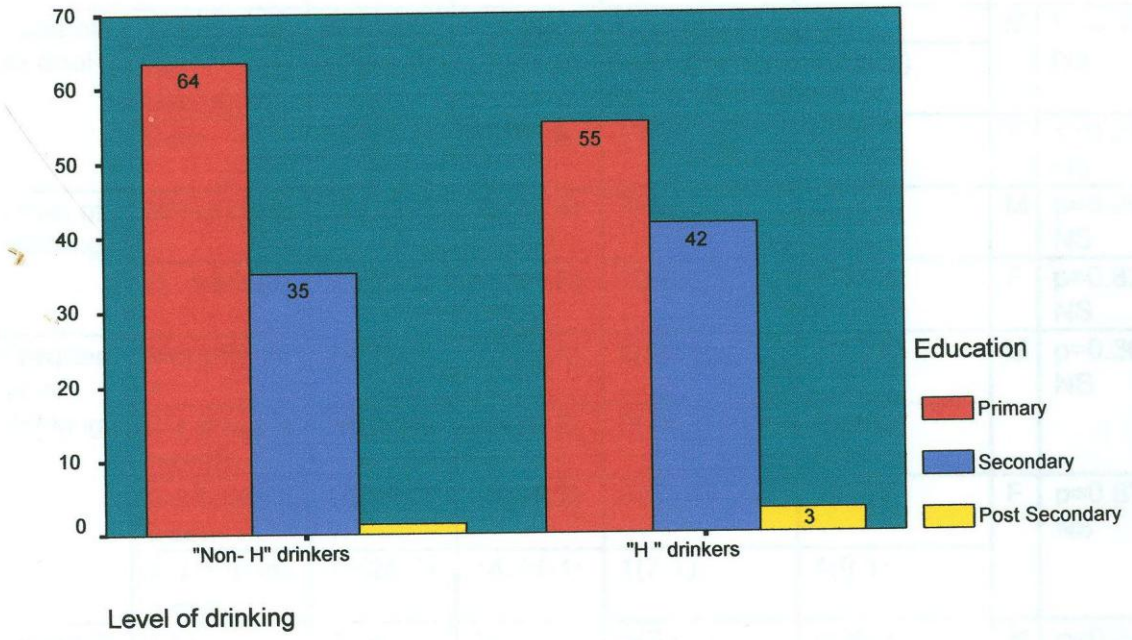

### 7.2.4.5 Education status

Looking at the group of traceable and non-traceable male and female patients (Table 4) it was found that except for the female non-traceable where the majority (54.5%) were having secondary level of education, the primary level make up most of the group (61.3% in the male traceable, 56.4% the in male non-traceable and 64% in the female traceable).

Education status by level of drinking (Figure 3 below) shows that most of the patients in the study had completed primary level of education, 64% in the non–hazardous and 55% in the hazardous group followed by 35% of patient in the

non–hazardous group with secondary education with a slightly higher proportion in the hazardous group (42%). Patients with postsecondary were very few in both the non hazardous (1%) and in the hazardous group (3%).

**Figure 3. Distribution of patients according educational level and level of drinking**




No significant statistical association was observed between patterns of drinking and education. Even though not statistically significant it appears that the less educated drink more.

### 7.2.5 Drinking profile of traceable and non- traceable patients

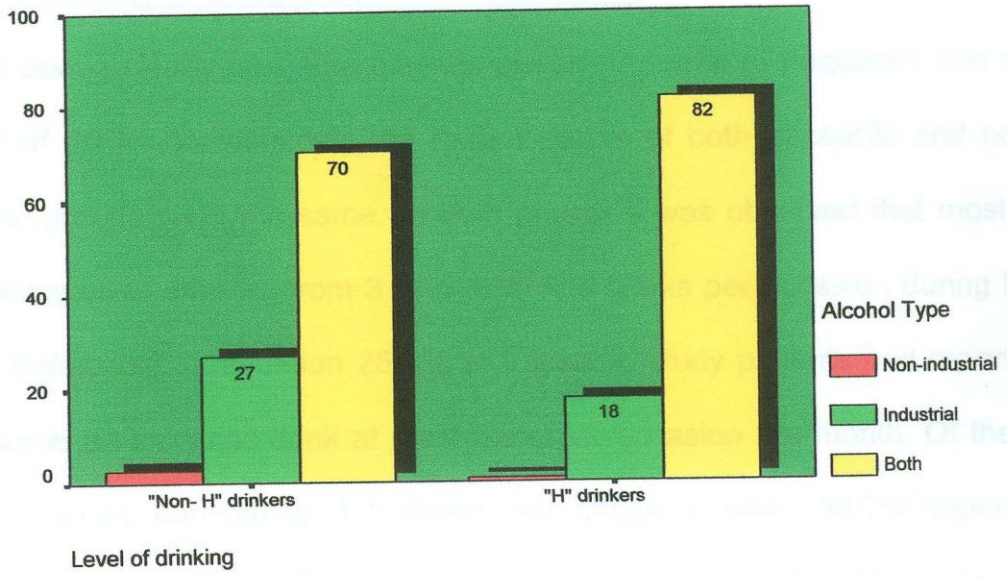
**Table 6: Drinking patterns of traceable and non-traceable patients according to gender (N=199)**

| Drinking patterns | | Male N=75 | Male N=99 | Female N=14 | Female N=11 | Statistical Test Level of significance p=0.05 | |
|---|---|---|---|---|---|---|---|
| | | **Traced Frequency (%)** | **Not traced Frequency (%)** | **Traced Frequency (%)** | **Not traced Frequency (%)** | | |
| Type of alcohol | Traditional | 2(2.7) | 1(1.0) | | | M | P=0.45 NS |
| | Non-traditional | 17(22.7) | 17(17.2) | 3(21.4) | 5(45.5) | | |
| | Both | 56(74.7) | 81(81.8) | 11(78.6) | 6(54.5) | F | p=0.20 NS |
| Level of drinking | NH-drinker | 23(30.7) | 38(38.4) | 7(50.0). | 6(54.5) | M | p=0.29 NS |
| | H- drinkers | 52(69.3) | 61(61.6) | 7(50.0) | 5(45.5) | F | p=0.82 NS |
| Frequency of drinking | Monthly or > | 19(25.3) | 37(37.4) | 8(57.1) | 7(63.6) | M | p=0.36 NS |
| | 2-4 times a month | 26(24.7) | 29(29.2) | 2(14.3) | 2(18.2) | | |
| | 2-3 times a week | 15(20.0) | 19(19.2) | 3(21.4) | 1(9.1) | F | p=0.87 NS |
| | 4 or> times a week | 15(20.0) | 14(14.1) | 1(7.1) | 1(9.1) | | |
| Number of drinks | 1 or 2 | 8(10.7) | 18(18.2) | 5(35.7) | 4(36.4) | M | p=0.24 NS |
| | 3 or 4 | 29(38.7) | 34(34.3) | 5(35.7) | 4(36.4) | | |
| | 5 or 6 | 29(38.7) | 27(27.3) | 4(28.6) | 2(18.1) | | |
| | 7- 9 | 5(6.7.) | 13(13.1) | | 1(9.1) | F | p=0.67 NS |
| | 10 or > | 4(5.3) | 7(7.1) | | | | |
| Six drinks or < | Never | 30(40.0) | 53(53.5) | 8(57.1) | 4(36.4) | M | p=0.22 NS |
| | Less than monthly | 22(29.3) | 16(16.2) | 5(35.7) | 4(36.4) | | |
| | Monthly | 13(17.3) | 14(14.1) | | 1(9.1) | | |
| | Weekly | 8(10.7) | 14(14.1) | 1(7.1) | 1(9.1) | F | P=0.53 NS |
| | Daily/ almost daily | 2(2.7) | 2(2.0) | | 1(9.1) | | |

**7.2.5.1** Type of alcohol consumed:

Few patients in the study consumed non-industrial or industrial beverages exclusively. The majority of patients in both groups consume a mixture of both the non-industrial and industrial alcoholic beverages (70% of the non hazardous group and 82 % of the hazardous group) (See figure 4 below).

**Figure 4: Distribution of patients according to type of alcoholic (non-industrial and industrial) beverage they drink.**




No female patient used traditional drinks exclusively and only a small percent of male patients (2.7 traceable and 1.0 non-traceable) did so (Table 5).

**7.2.5.2** Level of drinking:

A large proportion of patients (63%) were drinking at a hazardous level while only 37% were drinking at a non-hazardous or what has been called a sensible drinking level. Further more among the male patients traced 30.7% were consuming alcohol at a non-hazardous level compared to 69.3% hazardous drinkers. For the female the proportion of non-hazardous to hazardous drinkers was the same (50% non-hazardous and 50% hazardous drinkers).

**7.2.5.3** Frequency of drinking and number of drinks:

Table 6 above clearly indicates that the pattern in terms of frequency and the number of drinks consumed in the male patients of both traceable and non-traceable groups were the same. In both groups it was observed that most of the patients were drinking from 3 or 4 to 5 or 6 drinks per occasion during the month. Before the intervention 25.3% of traceable study patients had reported to consume an alcoholic drink at least once per occasion per month. Of these 38.7% reported consuming 3-4 drinks per occasion while 38.7% reported having 5-6 drinks per occasion. Similar figures for the non-traceable group are 37.4%, 34.5 and 27.3 % respectively. There was no statistical significance between the two groups in frequency and number of alcoholic drinks consumed.

A large number of patients were also drinking 2-4 times a month, 2-3 times a week and 4 or more times a week. However there were fewer patients

consuming 7-9 and more than 10 drinks in both groups. In terms of the number of drinks the results should be interpreted in light of the pattern of binge drinking in the Tanzanian setting.

The results also show that the female patients drink less than the male in terms of frequency and number of drinks with the same pattern being observed in both the traceable and non-traceable group. In the traceable and non- traceable groups 57.1% and 63.6% were consuming alcohol on a monthly basis respectively. In both groups, most of the patients were having 1 or 2 and 3 or 4 drinks. Very few female patients consumed more than 6 drinks (none in the traceable group and 9.1 % in the non-traceable).

**7.2.5.4** Consumption of six or more drinks:

Overall the majority of male and female patients in the traceable and non-traceable group consumed less than six drinks. In the categories monthly or less, monthly, weekly to daily or almost daily the number of patients seems to decrease in terms of frequency of alcoholic drink consumed

**7.2.6 Psychopathology profile of patients traced:** When the response rate and psychopathology were compared the results were found to be inconclusive as in some cases patients with more severe psychopathology came for follow up and in other cases a higher response rate was observed in those with less

psychopathology.

## 7.3 Alcohol consumption before and after intervention

The data was analyzed for patients who came for follow up either on schedule and those that were traced. Table 7 below shows a summary of the mean scores of frequency of consuming a drink containing alcohol on any occasion, the number of drinks per occasion and the consumption of six or more drinks per occasion according to gender and level of drinking before and after both standard treatment and WHO simple intervention technique.

The mean score calculation was done on the basis of the score for the **AUDIT.** As described earlier in material and methodology, the answers to number one up to eight of the **AUDIT** a score of 0 to 4 was given. For question nine and ten, a score of 0, 2 and 4 was allocated. Each items relating to the consumption of drinking, i.e. the frequency, the number and taking six or more drinks were scored, then the score was added up and the answer divided by the total number of patients. For example: The score of the total number of drinks taken by the entire female population were summed up and the answer was then divided by the total number of patients who came back for follow up.

**Table 7: Mean score of frequency of taking a drink containing alcohol in a month, number of drinks and consumption of six or more drinks per occasion by gender and level of drinking before and after intervention.**

| Mean Score | "Non-hazardous" drinker | | | | | | | | "H" drinkers | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male N =18 | | Male N = 4 | | Female N = 6 | | Female N = 1 | | Male N= 34 | | Male N= 17 | | Female N= 3 | | Female N= 4 | |
| | BI | AI | BI | AI | BI | AI | BI | AI | BI | AI | BI | AI | BI | AI | BI | AI |
| | "ST" | "ST" | "WHO SI " | "WHO SI " | "ST" | "ST" | "WHO SI" | "WHO SI " | "ST" | "ST" | "WHO SI " | "WHO SI " | "ST" | "ST" | "WHO SI " | "WHO SI |
| Frequency of drinking | 1.4 | 0.7 | 1.0 | 1.0 | 1.0 | 0.3 | 1.0 | 0.0 | 2.3 | 0.9 | 2.4 | 0.7 | 2.3 | 1.3 | 2.8 | 2.3 |
| Number of drinks per occasion | 0.9 | 0.5 | 0.5 | 0.0 | 0.5 | 0.2 | 0.0 | 0.0 | 1.8 | 0.8 | 2.2 | 0.4 | 1.3 | 0.3 | 1.5 | 0.8 |
| Six or more drinks per occasion | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 1.0 | 0.0 | 1.4 | 0.5 | 1.6 | 0.2 | 1.7 | 0.7 | 0.5 | 0.5 |

**Key:** BI: Before intervention AI: After Intervention

The mean score in terms of the number of times a patient drinks, (within a period of one month) the number of drinks (on each occasion) and the consumption of six or more drinks per occasion was observed to be higher in the male patients at both levels of drinking before the intervention. The results show that the **AUDIT** clearly differentiates levels of drinking by the frequency and amount apart from the other scores like concern score and problem score.

The table also shows that after intervention the mean score in terms of frequency and amount decreased significantly at both levels. However for the female (n=1) at the non-hazardous level of drinking no change was observed in terms of amount of drinks consumed as well as in the increase in the mean score for the consumption of six or more drinks per occasion after WHO Simple intervention, but a change was observed after subjection to Standard treatment.

**7.3.1. <u>Frequency of drinking alcoholic beverages:</u>** Those drinking at a non-hazardous level have a lower frequency in drinking than those drinking at a hazardous level. For the male patients 61.6 % who received "ST' and all those who received "WHO SI" at the non -hazardous level were drinking monthly or less and at the hazardous level most of them were drinking 2 to 4 times (32.4%,'ST" and 52.9% "WHO SI"), 2 to3 times (29.4%,'ST" and 23.5% "WHO SI") and 4 or more times a week (35.3%,'ST" and 11.8% "WHO SI"). All the females at the non -hazardous level were drinking monthly or less and at the hazardous level between 2 to 4 times (33.3%,'ST" and 25% "WHO SI"), 2 to 3 times ('ST" 75% 42.9%"WHO SI") and 4 or more times a week ("33.3%,'ST").

After intervention there was a decrease at both levels of drinking for both male and female. More than half of the patients' population stopped drinking altogether in each category of frequency irrespective of the type of intervention.

For the male non-hazardous drinkers subjected to "ST", 61.6% stopped drinking and for those who received "WHO SI" 25 % were no longer drinking. There were a higher proportion (70.6%) of male hazardous drinkers who stopped drinking after the "WHO SI" technique compared to 44.1% after "ST" intervention. Majority of female non-hazardous drinkers stopped drinking after both type of intervention (83% after "ST" and all patients who received WHO SI" technique). An exception was the female hazardous drinkers, 42.8 % (33.3%,'ST" and 50% "WHO SI"), were found to be drinking 4 or more times a week compared to the male where the frequency was only 3.9% (2.9%,'ST" and 5.9% "WHO SI"), for the category 4 or more times a week.

For both type of intervention there has been a shift from 2 to 4 times a month, 2 to 3 times a week and 4 or more times a week to monthly and not drinking at all.

**7.3.2. <u>Number of drinks:</u>** The numbers of drinks consumed at the non-hazardous level by female patients was lower than that of the male at the same level of drinking. At the non- hazardous level the majority of male were taking 1or 2 drinks (31.8%, out of which 27.8%, received "ST" and 50% "WHO SI"), and 3 or 4 drinks (59.1% of which 61.1 % got "ST" and 50% "WHO SI"). The majority of female non-hazardous drinkers were consuming between 1or 2 (57.1% of which 50 % had "ST" and 100 % "WHO SI") and 3 or 4 drinks (42.9%), all of which received "ST". At the hazardous level of drinking 57.1% (67.3% of patients who received "ST" and 50 % who received "WHO SI") were

consuming 5 or more drinks .A large proportion of male at the hazardous level of drinking were consuming 5 or 6 drinks (52.9% of which 67.3% of patients received "ST" and 50 % "WHO SI"). A smaller proportion, (15.6 % of which 14.7% of patients received "ST" and 17.6% "WHO SI") were consuming 7 or 9 and 10 or more drinks. For the female patients no one was consuming more than 5 or 6 drinks.

There was a decrease in the number of drinks at both level of drinking for both male and female after intervention. Most patients were not drinking at all or consuming 1 or 2 drinks to 3 or 4 drinks only. However for the male patients at the non- hazardous level there was still a smaller proportion (9.1%, taking 5 or 6 drinks and at the hazardous level 15.7% and 2% consuming 5 or 6 and 10 or more drinks respectively. Table 9a and 9b in appendix also shows that there has been a decrease from 3 or 4, 5 or 6 and 7 to 9 drinks to 1or 2 drinks after "ST" intervention in both male and female patients. However there is a slight increase (from 4% to 8%) in the consumption of 5 to 6 drinks. Using the WHO "SI" all patients shifted from consuming 3 or 4 drinks to 1or 2 drinks.

[i]N.B In the group 1or 2 drinks most patients were actually not drinking. In the **AUDIT** there was no option for "no" drinks.

**7.3.3. <u>Consuming six or more drinks:</u>** Very few patients consumed six drinks

or more at the non- hazardous level of drinking whereas at the hazardous level for the male patients 31.4 %, (Of which 35.3 patients received "ST" and 23.5 % "WHO SI") 25.5%, (of which 17.6% of patients received "ST" and 41.2% "WHO SI") 15.7%, (of which 14.7% of patients received "ST" and 17.6% "WHO SI") and 3.9%(of which 5.9% of patients received "ST") were consuming six or more drinks less than monthly, monthly, weekly and daily or almost daily respectively. For the female patients 57.1% (of which 67.7% of patients received "ST" and 50 % "WHO SI), were consuming six or more drinks less than monthly and 14.3% (of which 33.3 % of patients received "ST") on a weekly basis.

After "ST" intervention an increase was observed in the 'never 'category (for the male non- hazardous and hazardous, 77.8% to 88%, and 26.5% to 67.6% respectively).

For the female it was interesting to find that after "ST" at the non hazardous level of drinking there was shift from the never category to an increase in less than monthly. At the hazardous level of drinking 66% of female stopped completely consuming 6 or more drinks.

Both male and female at the non- hazardous level of drinking stopped consuming six or more drinks after WHO"SI". A decrease in drinking was also observed for both gender after WHO"SI" at the hazardous level of drinking.

(From 17.3% to 94.1% for the male and 50 % to 75% for the female).

Although there seem to be a difference in the results of the type of intervention for the frequency, number of drinks and consuming six drinks or more for gender at both level of drinking statistically there was no significance in the type of intervention used.

## 7.4. BPRS scores for psychopathology before and after intervention

Most of the symptoms of the BPRS (See table 8 in appendix) were either absent or if present in a mild form only. This is because one of the recruitment criteria was that participant should be non- psychotic. For the psychopathology the mean score items of the BPRS were calculated. This was based on the rating given for the BPRS. (The instrument used to assess the psychopathology described earlier in material and methodology. Each construct is rated from one to seven on a 7-point scale of severity ranging from 'not present' to 'extremely severe'. If a specific symptom is not rated, no score is given). A score of 1 mean that no symptom is present, 2-very mild, 3-mild, 4- moderate, 5-moderately severe, 6-severe and 7 extremely severe. The score of a particular construct, for example somatic concern of all patients were summed up and then divided by the total number of patients who were traced.

A description of some of the symptoms identified by many authors to be associated with drinking was done. Those symptoms are anxiety, guilt feelings tension and depressive mood and are indicated in Table 8 in appendix.
The mean score of anxiety was found to be higher in hazardous drinkers of all female before intervention. For the male; the mean score was higher in the non-hazardous drinkers subjected to "WHO SI".

After intervention at both level of drinking an increase in anxiety was observed in all the groups irrespective of the type of intervention. The exception was found to be in male hazardous drinkers after subjection to the "WHO SI" intervention, they had a decrease in the anxiety mean score.

The mean guilt score was found to be higher in the non- hazardous drinkers before intervention for both male and female and increased for both sexes at both level of drinking irrespective of the type of intervention. The exception was observed in the female non-hazardous drinkers subjected to the "WHO SI" where no change was observed and in the male hazardous drinkers who received "WHO SI" where a decrease in the guilt mean score was found.

In this study the link between tension and drinking was found to be inconclusive as in some cases there was no change after intervention, in some there was an increase and in some a decrease.

The mean depressive mood score was higher in the hazardous drinkers for both male and female and increases after both types of intervention and at both level of drinkers.

# 8.0. DISCUSSION

## 8.1. Response rate

The response rate for follow up was low but compares favourably with countries like Kenya who participated in the original WHO project. Out of the 199 patients only 87 (44%) came for the follow up evaluation (See table 4). The same pattern of response was observed among respondents who participated in the original WHO project in Kenya (response rate 34%). The low return rate of patients underlines the importance of carrying out intervention on the first visit a patient makes to the clinic after he/she has been identified as a hazardous drinker. Though there was a low response rate, the only statistical significance differences for the traceable and non-traceable patients was found for the demographic data, specifically for the age variable of both male and female ($p=0.01$) and for the male client status ($p=0.00$). As far as psychopathology and drinking patterns are concerned no statistical significance differences between patients who were traced and those lost to follow up were found. Therefore it could be concluded that even though patients did not return for follow up the likelihood that they made changes in their drinking pattern is high.

In this study patients either came on schedule or were traced. The reasons why patients were non-traceable or did not turn up for follow-up have been outlined in the results. For those in Dar- es Salaam but not at home when traced the

research assistant left a reminder letter requesting the patient to report to the mental health clinic for follow up. Most patients responded positively to the reminder. Research assistants report that patients and relatives appreciated the home visits. Both patients and relatives were cooperative and described the interest demonstrated by home visits in their follow up at home as thoughtful. They felt that it gave them a chance to explain their situation better and the staff from the hospital could see for themselves the difficulties the patients face after discharge. They were also grateful for the advice they were given by the research assistants not only for their alcohol problems but also for their other psychiatric problems.

It is interesting to note that these visits were in no way reported as stigmatising of patient or family. Home visits follow-ups, therefore, appears to be particularly beneficial. They help reinforce patients' willingness to stop drinking and initiate relapse preventive measures.

It is interesting to see that patients consuming alcohol at a hazardous level had a better response rate than those drinking at a non- hazardous level. (66% in the hazardous group compared to 34% in the non- hazardous group). This indicate that patients consuming alcohol at hazardous level are more concerned about their drinking and therefore show more willingness to receive help. Patients who turned up for follow up were drinking more in term of frequency

and number of drinks than those who did not turn up (Table 6). The pattern observed is more indicative of binge drinking that is a large number of drinks on one occasion. This is the pattern that has been described in previous research as more typical of Tanzania (Kilonzo & Pitkanen, 1992).

No clear pattern of association between psychopathology and response rate was evident. In some cases patients with more severe psychopathology came for follow up and in other cases a higher response rate was observed in those with less psychopathology.

## 8.2. Level of alcohol consumption

In the present study, the proportion of patients consuming alcohol at a hazardous level was 63%. This rate is much higher than that reported between the years 1988-90 (Kilonzo and Pitkanen, 1992), in which a rate of 6% was found. In that study, however, the objective was to look at the prevalence of psychiatric admissions due to alcohol dependence rather than hazardous drinking.

## 8.3. Level of drinking and demographic factors

Although most of the demographic factors associated with hazardous drinking are statistically non-significant in this study, they do follow a pattern consistent

with previous researches.

**8.3.1 Gender:** The present study indicates that the proportion of male: female in the non-hazardous population is 4:1; whereas in the hazardous one it is much higher; 10:1. Studies have shown that in the psychiatric population the ratio of men to women patients using alcohol is 5:1 (Robinson, 2000). These studies however, do not distinguish between different levels of drinking. Generally, the rate of alcohol abuse is higher in men than in women. However, this varies across cultures. In western countries, the rate is 3:1 whereas in Asian populations the ratio is 10:1 (Helzer and Canino, 1992). In Uganda, the proportion of male to female alcohol abuse is 5: 1 (Nalumansi, 2001). This may also be explained by the different definition of alcohol abuse.

In this hospital setting the reason for the higher proportion of males may be due to a higher proportion of males attending the psychiatric unit compared to females. A large proportion of them are abusing other substances, mainly cannabis (marijuana), and in this particular group the probability of using alcohol as another substance of abuse is high. The odds ratios for using marijuana are 6 times for alcohol drinkers (Helzer and Pryzbeck, 1988).

Women are also more likely to conceal the exact amount that they drink as it is socially unacceptable for women to be drinking excessively (Eastman, 1984).

There were a significant number of Muslim women taking part in the study and the probability of them not revealing the exact amount they drink is high possibly due to shame because their religion forbids alcohol use.

The present study has shown that a large proportion of the female population are unemployed. This may be explained by three factors. First, the population under study is a psychiatric population and some of these women are unable to work due to functional deficits. A second reason may be due to cultural and/or religious beliefs. Even though the proportion of Muslims women to Christians in this study is less (2:3) many Muslim women do not work outside the home, mainly because their husbands do not allow them to do so. A third explanation is that many of the women in this study were illiterate and this necessarily influences their employment status.

Women are more likely than men to drink after a traumatic experience such as divorce and separation (Eastman, 1984) and in this study a large proportion of women were either divorced or widowed.

Many women are now brewing alcohol as a source of income. These same women may be consuming the brew themselves. It has been shown in this study that 62% in the non-hazardous and 75% in the hazardous group are taking both traditional and non- traditional drinks.

**8.3.2 Age:** Different age groups have different levels of drinking. The study shows that at both non–hazardous and hazardous level of drinking for male patients, the younger age group of ≤24 drinks more than the older one. Men usually start drinking at an early age and most of them are introduced by their peers. Women start at a later age and are usually introduced by their partners or a male friend (Eastman, 1984). This may also explain the reason for a high proportion of married women drinking in this study. The study shows that women, in the age category >25 years were the one drinking more. With advancing age adults drink less (Schuckit, 1989); a pattern observed in this study as well. This may be explained by the fact that a number of drinkers realize the danger of drinking as they get older and therefore decide to decrease their consumption. Also, many are married at this age and marriage has proven to be a protective factor against excessive alcohol consumption (Wright *et al.*, 2001).

**8.3.3 Religion:** This study observed that Christians drink more than Muslims. However in the female hazardous group there were more Muslim drinkers (58% compared to 42%). As explained earlier in the results the reason for this is that the **AUDIT** does not only pick up frequency and number of drinks but also problems related to alcohol and it has been shown that the female Muslim score high for the guilt score.

Different religions have different views on alcohol. While excessive indulgence in alcohol is condemned by all religions, Christianity seems to be more liberal in accepting its use for social purposes while Muslims totally reject it despite the fact that followers do not have zero rate of alcohol use (Wig, 1994). The role of alcohol consumption and religion is very complex with highly prohibitive rules encouraging binge drinking (Wright *et al.*, 2001).

**8.3.4 Marital status:** Studies have shown that the highest consumption of alcohol is generally among single separated or divorced young men. Marriage provides a protective factor (Wright *et al.*, 2001).

In this study it was observed that among both the non- hazardous and hazardous group a large proportion of patients were single, 77% and 65 % respectively. The pattern among women drinking at a hazardous level shows proportion of women consuming alcohol are married 42%, followed by 26% single and 25% divorce. The possible explanation for this pattern of distribution has already been discussed above.

**8.3.5. Unemployment:** The working population is the largest consumer of alcohol (Eastman, 1984). The same relationship was observed in this study. For both the non- hazardous and the hazardous drinkers the proportion of employment to unemployment were almost the same; 38% to 35% in the non-

hazardous group and 62% to 65% in the hazardous group. In the present study however, the type of employment was explored further and it has been found that in both groups, the largest group are the self-employed, 43% in the non-hazardous and 41% hazardous group. No difference in proportion was found in the employed and the unemployed. The findings indicate that for the self employed who were mainly petty traders in this study the availability of money daily compared to the employed with a salary at certain time of the month determine the pattern of drinking. As for the unemployed they may be given drinks by their friends or partners. Table 4 shows that in the female population, in the non –hazardous groups, it is the unemployed who are drinking the most and in the hazardous group the proportion of unemployed to employed are the same.

Unemployment is one of the most serious problems facing the African continent. Young people, among who are the university graduates, and women, constitute the bulk of the unemployment in Africa. Unemployment can lead to deterioration of mental health and drinking in many people (Alli, 1989).

Using the chi-square test, in both male non –hazardous group ($p=0.00$) and hazardous ($p=0.001$) an association between age, drinking and marital status was found. Few female patients were involved in the research, thus chi-square could not give significant results. Other demographic characteristics that were

found not to be associated with drinking habits are religion, employment and education level.

## 8.4. Alcohol consumption

The majority of patients consumed non- industrial and industrial beverages (Figure 5). Very few patients were taking one type of drink only. The results also show that male patients consumed more alcohol than females. In the female population there was no patient taking traditional drinks only, compared to the male population where a small percentage (3%) was taking traditional alcoholic beverages only. Non-Industrial beverages are more available and cheap compared to industrially produced drinks.

In some cases it has been found that among the non-hazardous drinkers there are a few patients who on occasions during their life binges. After intervention it was observed that some patients were drinking more in term number of drinks. It appears that binging is so culturally ingrained that more focussed education is required to effect change.

No statistically significant association was found between level of drinking, type, amount and frequency of alcohol consumed.

The findings also demonstrate that the **AUDIT** is able to clearly differentiate

levels of drinking by the frequency and amount.

## 8.5. Intervention and consumption of drinking

Though the association between the frequency and number of drinks were statistically non-significant with regards to the intervention, the results support the finding of WHO of the effect of early intervention that is the hypothesis that simple intervention, technique will lead to a decrease in drinking. The result also shows that the reduction did not vary much with the intensity of the intervention. Both groups of patients i.e. those allocated to the simple intervention as well as those receiving standard treatment from the social workers demonstrated reduction in frequency of drinking.

**8.5.1. Frequency of drinking before and after intervention:** A change was observed in the frequency of drinking after subjection to intervention. Some patients stopped drinking altogether after the intervention. There was also a shift in the general pattern from having all categories with a significant proportion of patients before the intervention, to having more of them in the categories of light drinkers (stopped completely or drinking monthly or less). See Table 9a and 9b in appendix.

**8.5.2. Frequency of having more than six drinks on one occasion before and after intervention:** Cumulatively, 43.7 percent of patients were drinking

less than six drinks per day, whereas after intervention, the proportion increased to 80.5 percent.

### 8.5.3. Number of drinks taken per day before and after intervention:

Looking at Table 9a and 9b in appendix, it can be seen that, before the intervention, most of the patients used to drink between three and six drinks per day. However, after the intervention, it was observed that the categories of those drinking 1-2 drinks per day dominate all categories of drinking pattern. Many patients reduced their drinking to none or one or two drinks per day, while at the same time cutting down on frequency.

The results should be interpreted in light of the drinking pattern in the Tanzanian setting, which is mainly binge drinking and therefore those patients, may have returned to a period of abstinence.

## 8.6. BPRS (psychopathology) before and after intervention

Due to the fact that one of the inclusion criteria for patients participating in this study was that they should be non-psychotic, most of the symptoms contained in the BPRS were not reported by patients. However, a few of the symptoms such as anxiety, tension, guilt feelings and depressive mood that have been found in other studies to be associated with alcohol drinking were analyzed in more details. (See table 8). Generally speaking, the effects of alcohol on human

being are strongly influenced by the drinkers' expectation. Alcohol may be consumed to decrease tension or anxiety, drown depressive feelings or anger.

**8.6.1. Depressive mood:** In this study it was observed that the mean score increases after intervention at both levels of drinking and in both sexes. This observation may be explained by the fact that the study was conducted in the psychiatric population and in this setting one of the most common observed diagnosis is affective disorder and therefore some of the patients may actually be using alcohol as self medication or may increase drinking during a relapse.

Though there are suggestions that alcoholism and depression are manifestations of the same underlying illnesses, the results of family, twin, and adoption studies have not supported this (Merikangas *et al.*, 1990). Symptoms of depression however, are likely to develop when one is abusing alcohol. Also, some patients with mood disorder are more likely to increase their drinking during a mood change. Within a few days or weeks of abstinence as withdrawal symptoms subside; depressive symptoms usually disappear (Brown and Schuckit, 1988).

Alcohol induced depression is frequently intensified by the accumulating social, psychological, occupation, physical and economic problem experienced by the drinker. The drinker may drink in order to raise his/ her mood. As drinking gets

progressive, tolerance develops and one get more depressed and therefore more drinks are consumed leading to a vicious circle (Eastman, 1984).

**8.6.2. <u>Symptoms of anxiety</u>**: The study shows an increase in anxiety after the patient decreases their drinking that is after intervention in both male and female and at all level of drinking. The exception was found to be in male hazardous drinkers after subjection to the "WHO SI" intervention, they had a decrease in the anxiety mean score.

The relationship between major anxiety disorders and alcoholism is unclear (Schuckit and Monteiro, 1988) though it has been observed in some studies to reduce anxiety and in others anxiety has been shown to increase (Nathan and O'Brien, 1971). Many authors have concluded that continuously taking increasing amounts of alcohol leads to chronic anxiety. Many studies have also shown that approximately 20% of persons with anxiety disorder also abuse alcohol (Cox *et al.*, 1990). The strongest correlation between alcohol abuse and severe anxiety symptoms occurs in the context of alcohol withdrawal. The anxiety symptoms usually decrease with abstinence. Tremors, feelings of tension, restlessness, and insomnia associated with withdrawal begin to subside after 4 or 5 days, although a vulnerability to panic attacks and generalized anxiety may continue for months (Schuckit and Monteiro, 1988).

**8.6.3. Guilt feelings and tension:** An increase in guilt feelings and tension at all levels of drinking and in both sexes after intervention were also observed in this study.

As explained above guilt is mainly linked to religious belief and gender. Muslims and females are more likely to experience guilt in relation to their drinking. Also in these populations there is usually a feeling of guilt after respondents were asked about their behaviour, which led to their admission.

It has been observed that alcohol has the ability of reducing tension and making one more relaxed. The increase in tension after intervention may be explained by the fact that less alcohol is consumed and therefore some of the patients feel more tense.

It is important to link the psychopathology described above with other demographic findings in this study. For example a large proportion of women consuming alcohol are unemployed. According to C. David Jenkins (World Health, 1985), within six months of a major life crisis such as loss of a job, a number of illnesses occur. Mental health is one of the associated problems. Many studies have shown that 20 percent of the unemployed people report deterioration in mental health, with an increase in anxiety, depression, insomnia, irritability and restlessness. The confidence and self-esteem of the

unemployed are greatly reduced and these conditions may develop into a full-blown psychosis. Indulgence in excessive consumption of alcohol, usually the cheap local brew may even lead to suicide (Alli, 1989).

## 8.7. Conclusion

The results in this study clearly indicate that a large proportion of psychiatric patients are consuming alcohol at a hazardous level and that they are willing to initiate change in their drinking pattern once they are made aware of the health risks involved.

Comments from the patients show that the doctor and medical personnel have an influence on the patient adopting healthier behaviours and in this particular study their alcohol use habits.

> *"Tell the doctor that right now I am no t drinking because she said not to do so. As soon as she says that I can I will continue".*
>
> *"Ever since he was advised to stop drinking he does not drink".*

Many studies have shown that when the health message is presented in a simple clear manner without too much fear the message is more likely to be received and acted on.

It is therefore quite important that all medical personnel should make it their responsibilities to intervene at the first opportunity.

The above findings suggest that integrating a routine program of both screening using the **AUDIT** and using the WHO Simple intervention Technique intervention at all levels of health care as part of prevention could make a significant contribution in the health delivery services in Tanzania.

## 8.8. Recommendation

The above results show a reduction in the consumption of alcohol among the patients. The methods used for both screening and intervention are easy, quick and low in cost. The present study demonstrates that non-medical personnel can easily; utilize these methods after a very short period of training.

Based on the above observations the following are recommended:

### 8.8.1. Introducing a program of both screening and intervention as part of a prevention program for all cadres of health workers from primary to tertiary levels in the health care system, with emphasis placed at PHC level.

PHC level is very important, especially in Tanzania, as this is the level that is most easily accessible and is an early point of contact for most of the population. The earlier the intervention described here is given the more effective. As this screening and intervention takes a very short duration to implement it is appropriate to use it in a setting such as the PHC level of health care that is understaffed and overcrowded. In

addition, the PHC is user friendly.

### 8.8.2. A need for a new alcohol policy in Tanzania with emphasis on problem drinking and prevention.

In many countries it has been shown that introducing such policies do help in reducing alcohol consumption.

### 8.8.3. Necessity for communities to offer services for patients with both substance abuse and mental illnesses.

Communities should have access to services that provide prevention programs for both patients with substances abuse problems and mental illnesses. These programs should be age-appropriate, teach social life skills to children and adolescents and identify adults as well as other vulnerable populations at risk. A major focus of substance abuse prevention should be in the area of early identification and intervention for both children and adolescents who are experiencing mental health problems. Research results indicate that targeted interventions for these youth can help prevent substance abuse, and the development of more painful and complex co-occurring disorders in later years.

### 8.8.4. Education about safe alcohol consumption at the primary school level.

The results of this study indicate that alcohol is consumed at a very young age, especially among the male population. Similar findings have been shown by other community-based studies. Community education is important in prevention, since alcohol is socially accepted in this society

### 8.8.5 Introduction of case management for patients.

Treatment can be offered in the community by non-clinicians. Their role is to make sure that upon discharge from the hospital, patients continue to receive appropriate care. The case manager will not only be expected to assist the patients in their basic needs, daily activities and monitoring of medications, but also to continue to educate patients about safe levels of drinking, reinforce and review forthcoming stressful events, and prepare for relapse preventive measures. Unless after-care is actively and aggressively pursued, there will be a danger of the patient returning to hazardous drinking. Since Tanzania lacks sufficient medical manpower, non-medical personnel will be of great help.

### 8.8.6. Educating patients on how to structure their day.

Government and NGOs should be involved in job creation schemes, especially for the youth. There must be an increase in resource

allocation in national budgets for employment promotion activities. Also, they should help people to cope by finding alternatives for fulfilling the needs satisfied by employment.

### 8.8.7. Further research

Due to financial and time constraints certain procedures such as laboratory tests performed by WHO were not carried out in the present study. In order to get a better understanding, a more comprehensive study as well as one that would incorporate if not all but most of the procedures done by WHO needs to be carried out regarding screening and early intervention.

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