IMPACT OF BRIEF RELAPSE PREVENTION INTERVENTION IN PATIENTS WITH ALCOHOL DEPENDENCE

By

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Declaration

I, Dr. Waqas Ahmed Sheikh, do hereby declare that this is wholly my own work, and that the work of other persons utilized in this dissertation has been acknowledged. The work presented here has not been previously presented at this university or indeed any other university for similar purposes.

Author's Signature: --------------------   Full Name: ---------------------------------

Certificate of Approval

This dissertation of Dr. Waqas Ahmed Sheikh has been approved as fulfilling the requirement for the award of the Degree of Master of Medicine in Psychiatry by the University of Zambia.

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Examiners' Signature   Date of Approval

Abstract

Alcoholism accounts for 4% of deaths worldwide and 4.5% of global burden of disease and injury (WHO, 2011). In Zambia 15.6% of the population drink alcohol of which 43.7% consume alcohol heavily (Acuda et al, 2011). Relapse prevention interventions are used worldwide as an essential part of the treatments of patients with alcohol dependence. There is evidence that family member's involvement in relapse prevention improves outcomes of the patients with alcohol dependence. The objective of this study was to study the impact of a brief relapse prevention intervention with involvement of a family member based on Mental Health Gap Intervention Guide, in patients with alcohol dependence, admitted at Chainama Hills Hospital, Lusaka. A randomized control trial was carried out in which 114 participants were recruited from consecutive admissions at Chainama Hills Hospital. One hundred and ten (96.5%) of the participants were males while four (3.5%) participants were females. All participants were between 18-65years of age. All participants met DSM -1V- TR criteria of alcohol dependence and had alcohol dependence screened by AUDIT screening questionnaire.

Participants were randomly divided into non-intervention and intervention groups. There were 56 participants in the non-intervention group and 58 participants in the intervention group. Participants in the non-intervention group were given treatment as usual, which consisted of detoxification with diazepam and vitamin supplementation. Participants in the intervention group were given treatment as usual as well as a brief relapse prevention intervention from mhGAP-IG with involvement of a close family member. Both groups were followed up eight weeks after discharge. The outcome measures were time to first relapse following discharge and difference in the AUDIT score of questions 1-3, administered at time of recruitment and at the time of follow up. The intervention group had an average time to first relapse of 51.29 days (91%)(standard deviation=14.085) while the non-intervention group had an average time to first relapse of 10.00 days (18%)(standard deviation=16.542). There was a significant difference between the two groups with the intervention group having a longer time to first relapse (t=14.368; df=112; p=0.001). The frequency alcohol consumption (AUDIT questions 1-3) of the participants was calculated before and after the treatment. Before treatment, the average frequency of alcohol consumption in the intervention group was 10.26 and 10.32 for the non-intervention group, with standard deviations of 1.517 and 1.749, respectively. After treatment, the average frequency of alcohol consumption for the intervention group was 1.33 and 8.96 for the non-intervention group, with standard deviations of 3.063 and 3.885, respectively. The findings of the study show that participants in the intervention group performed better in terms of reducing the frequency of alcohol consumption and took longer to first relapse as compared to the participants in the non-intervention group. This shows that brief relapse prevention intervention from mhGAP-IG is very effective in reducing the frequency of alcohol consumption and preventing relapses among alcohol-dependent patients in a Zambian setting.

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Definitions

Alcoholism: A term of long-standing use and variable meaning, generally taken to refer to chronic continual drinking or periodic consumption of alcohol which is characterized by impaired control over drinking, frequent episodes of intoxication and preoccupation with alcohol and the use of alcohol despite adverse consequences.

Dependence: It is a compulsive need to use drugs in order to function normally. When such substances are unobtainable, the user suffers from withdrawal.

Abuse: Substance abuse is a maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances.

Acronyms

HIV	Human Immunodeficiency Virus
AIDS	Acquired Immune Deficiency Syndrome
mhGAP-IG	Mental Health Gap Intervention Guide
STI	Sexually Transmitted Infection
AUDIT	Alcohol Use Disorder Identification Test
MMSE	Mini Mental State Examination

Chapter 1: Introduction

1.0 Overview

This chapter describes background, statement of the problem, objectives, research question, and study justification of the present study.

1.1 Background

Alcoholism accounts for 4% of deaths worldwide and 4.5% of global burden of disease and injury (WHO, 2011). In Zambia 15.6% of the population drink alcohol of which 43.7% consume alcohol heavily (Acuda et al., 2011). Zambia is a middle income developing country, where most of the people are poor and don't have many sources of recreation. Alcohol is a cheap and readily available source of recreation in Zambia. People, who drink heavily, become dependent on alcohol and they become nuisance to the society. They are unable to work and at times loose employment due to alcohol dependence and their families suffer due to their alcohol dependence.

The harmful use of alcohol is a global problem which compromises both individual and social development. It results in 2.5 million deaths each year (WHO, 2011). It also causes harm far beyond the physical and psychological health of the drinker. It harms the well-being and health of people around the drinker. An intoxicated person can harm others or put them at risk of traffic accidents or violent behaviour, or negatively affect co-workers, relatives, friends or strangers. Thus, the impact of the harmful use of alcohol reaches deep into society.

Harmful drinking is a major determinant for neuropsychiatric disorders, such as alcohol use disorders and epilepsy and other non-communicable diseases such as cardiovascular diseases, cirrhosis of the liver and various cancers. The harmful use of alcohol is also associated with several infectious diseases like HIV/AIDS, tuberculosis and sexually transmitted infections (STIs) (WHO, 2011). This is because alcohol consumption weakens the immune system and has a negative effect on patient's adherence to antiretroviral treatment .The association of alcohol and risk behavior is quite prevalent in Zambia (Coldiron et al., 2008). Alcohol plays a role in

promoting risky sexual behavior, accelerating progression to AIDS, reducing efficacy of HIV treatment, and reducing adherence to drug regimens (Luo and Mutombo, 2009). Alcohol consumption also plays a big role in domestic and gender based violence (Luo and Mutombo, 2009).

A significant proportion of the disease burden attributable to harmful drinking arises from unintentional and intentional injuries, including those due to road traffic accidents, violence, and suicides. Fatal injuries attributable to alcohol consumption tend to occur in relatively younger age groups.

There is no unique or known cause of alcohol dependence and several factors play a role in its development. There are familial, genetic factors and psychological factors such as high anxiety, depression, unresolved conflicts in a relationship or low self-esteem, and social factors such as availability of alcohol, social acceptance and promotion of the use of alcohol, peer pressure and a demanding lifestyle (APA, 2013). Alcohol dependence often has a familial pattern, and it is estimated that 40-60% of the variance of risk is explained by genetic factors and 30-40% by environmental factors (APA, 2013).

In Zambia the services for treatment of alcohol dependent patients are mainly provided at Chainama Hills Hospital, which is a tertiary psychiatric hospital in Zambia. Alcohol use disorders are the leading cause of admissions at Chainama Hills Hospital (Chainama Hills Hospital, 2012). Patients with alcohol use disorders are detoxified and discharged within 5-6 days of their admission. Most of these patients relapse soon after discharge from the hospital. When patients relapse, it puts a huge burden on their families as many of them are the only bread winners in the family. Behavioral and psychological treatments for relapse prevention are nonexistent with no access to proper rehabilitation of these patients (Luo and Mutombo, 2009), as health services are not resourced to provide comprehensive treatment modalities.

Relapse prevention interventions are used worldwide as an essential part of the treatments of patients with alcohol dependence. Preventing relapses and maintaining abstinence is very important in rehabilitation of patients with alcohol dependence. Psychological interventions and anticraving medications are either used alone or in combination to prevent relapses in alcohol dependence (Sadock, Kaplan and

Sadock). Anticraving medications are not available in Zambian hospitals due to their high cost. Research done in other parts of the world has shown that psychological interventions for relapse prevention are as effective as anticraving medications in relapse prevention and maintaining abstinence in alcohol-dependent patients (Saha, 2012, Barrick, 2013; Connors, 2002). There is evidence that family member's involvement in relapse prevention improves outcomes of the patients with alcohol dependence (Parsanthi et al, 2010). In Zambia, no previous studies have been done to assess the effectiveness of brief relapse prevention interventions in alcohol-dependent patients. It is against this background that the principal investigator sought to assess the impact of short term relapse prevention interventions with family involvement, using the Mental Health Gap Intervention Guide (mhGAP-IG) in patients admitted for alcohol detoxification in Chainama Hills Hospital Lusaka Zambia.

1.2 Statement of the Problem

Alcohol abuse and dependence are on rise in Zambia (WHO, 2011). Alcohol is very cheap and readily available all over the country. Many people, who start drinking, become dependent on alcohol. Alcohol consumption has been reported to be highest in the poor communities, where potent home brewed alcohol, such as kachasu, which is cheap and readily available. There is little quality control, meaning alcohol content can at times be dangerously high (Luo and Mutombo, 2009). According to Clinical Policy and Treatment Guidelines, published in 2012 by Chainama Hills Hospital, 25.1% of admissions in the last two years were due to alcohol related mental disorders and it was the leading cause of admissions at Chainama Hills Hospital (Chainama Hills Hospital, 2012). These patients are only treated symptomatically and relapse prevention interventions are not routinely available (Luo and Mutombo, 2009). This shows that alcohol related problems are big burden on Zambian health system which doesn't have resources for rehabilitation of the patients with alcohol related problems.

1.3 Objectives of the Study

The main objective of this study was to assess whether the inclusion of a brief psychosocial intervention in the management programs of alcohol-dependent patients

will prevent relapses and reduce frequency of alcohol consumption amongst alcohol-dependent individuals in the Zambian setting. The specific objectives of the study were to:

1. Assess the impact of psychosocial intervention in reducing the frequency of alcohol use and relapse prevention in alcohol dependence.
2. Assess whether involvement of a family member will help in reducing the frequency of alcohol use and relapse rates in alcohol dependence.

1.4 Research Questions

This study was guided by the following research questions:

1. Are the brief relapse prevention interventions effective in preventing relapses and reducing frequency of alcohol consumption in patients with alcohol dependence in Zambian settings?
2. Does the involvement of a family member in the treatment help in preventing relapses and reducing frequency of alcohol consumption in patients with alcohol dependence?

1.5 Null Hypothesis

The following null hypothesis was formulated:

There was no difference in the treatment outcomes of patients receiving medical treatment only for alcohol dependence as compared to patients receiving medical treatment along with a brief relapse prevention intervention involving the patient's family.

1.6 Study Justification

According to WHO, there is an increase in use, misuse and abuse of alcohol in Zambia (WHO, 2011) hence there is need for more evidence based interventions. In Zambia, most of the research on alcohol related problems has been done by Alan Haworth (Coldiron et al, 2008; Haworth, Mwanalushi and Todd, 1981) .Though, Luo and Mutombo (2009) did a situational analysis on the extent of alcohol and

substances use/misuse and abuse in Zambia, however interventions and their effectiveness were not looked into.

The effectiveness of short term relapse prevention interventions can vary considerably with the cultural setting in which interventions take place. No study on the effectiveness of relapse prevention in Sub-Saharan Africa has been carried out. This study will highlight whether brief relapse prevention intervention will have any impact on promoting abstinence in alcohol dependent individuals. If the results are satisfactory then it will help to disseminate the findings across all health centers in Zambia where individuals with alcohol related disorders seek treatment.

Chapter Two: Literature Review

2.0 Overview

This chapter contains a review of the literature on the problem of alcohol dependence globally as well as in Zambia. It also reviews the previous studies done in the different parts of the world, looking at the role of psychological interventions in treatment of alcohol dependence.

2.1 Global Status Report on Alcohol and Health by WHO

According to World Health Organization's global status report on alcohol and health published in 2011, hazardous and harmful use of alcohol is a major global contributing factor to death, disease and injury. It affects the drinker through the impacts such as alcohol dependence, liver cirrhosis, cancers and injuries and to the others through the dangerous actions of intoxicated people such as drunk driving and violence. The harmful use of alcohol results in 2.5 million deaths each year globally (WHO, 2011).

2.2 Historical and Traditional Aspects of Alcohol in Africa

The historical and traditional use of alcohol in Sub-Saharan Africa has been thoroughly and extensively reviewed by Alan Haworth and Wilson Acuda in the book "Alcohol and Emerging Markets: Patterns, Problems and Responses," edited by Marcus Grant.(Haworth and Acuda,1998).They wrote that alcoholic beverages have been produced and consumed in Sub-Saharan Africa for centuries. Indeed it has been claimed that the mountainous area of Ethiopia in East Africa is one of the seven original regions in the world where plants used for production of alcohol were grown. These plants namely wheat, barley, sorghum, maize, millet, cassava and bananas to mention just a few have been traditionally cultivated in Sub-Saharan Africa for food and cash. Given the abundant raw materials for production, alcohol was easily available, and formed an integral and indispensable part of traditional African village life.

In spite of the abundance of alcohol, use of alcohol was restricted. Drinking typically took place at the end of the day's work or in connection with ceremonies. Most African cultures permitted drinking by women and teenagers could drink under supervision or guidance from elders. Drunkenness in women and children, however, was strongly disapproved of. However, since the early 1960s, rapid socioeconomic development and sociocultural changes all over the continent have resulted in equally rapid changes in the production, distribution, and availability of alcohol and changes in drinking patterns (WHO, 1979, as cited in Acuda et al, 2011).

With the introduction of European types of beverages (lagers, spirits, and wines) and improved communication, efficient distribution, advertising, and commercial production, new alcoholic drinks have become widely and easily available alongside traditional homemade ones. In some rural communities, foods such as maize, millet, cassava, and bananas are increasingly being diverted to the manufacture of alcohol, thus causing or aggravating food shortages (Oxford University Press, 1995).

There has been increasing evidence of rapid increase in alcohol consumption in Sub-Saharan Africa during the last 30–40 years, although there is little knowledge regarding how this increase is distributed among different population groups (Finnish Foundation for Alcohol Studies, 1989, as cited in Acuda et al, 2011).

2.3 Drinking Patterns and Prevalence in Zambia

Relatively few epidemiological studies on drinking patterns have been undertaken in Sub-Saharan Africa. The earliest and the largest study took place in Zambia from 1976 to 1978 as part of a WHO project on community response to alcohol related problems. During this study, over 4500 men and women aged 18 and above from urban and rural areas of Zambia were interviewed in detail about their use of alcohol and problems they were having as a result of their alcohol consumption. The study found that about 70% of women interviewed said that they never drank alcohol and 45% of the men said that they were current abstainers (had not drunk alcohol in the past 12 months).Men drank alcohol more frequently and more heavily than women. The study found that approximately 19% of the men and 5% of the women said that they drank alcohol daily or almost daily and 19% of drinking men and 15% of

drinking women said that they drank until they were intoxicated on each occasion they drank (Haworth, Mwanalushi and Todd, 1981).

2.4 Alcohol and HIV/ AIDS

Alcoholism has been strongly linked with spread of HIV infection. In a Situation analysis of the extent of alcohol and substance use/misuse/abuse in Zambia in 2009, Luo et al linked alcohol to the spread of sexually transmitted infections (STI) including HIV (Luo and Mutombo, 2009). Several studies demonstrate that alcohol consumption can reduce drug compliance and efficacy, harming the patients and breeding drug resistant strains of HIV (Braithwaite et al, 2005; Kresina et al, 2002; Mugisha and Zulu, 2004).

2.5 Relapse Prevention Interventions

Alcohol treatment programs in developing countries like Zambia are scarce or nonexistent (Luo and Mutombo, 2009). Treatment is often confined to detoxification or treatment of medical complications such as delirium tremens. Despite evidence worldwide that relapse prevention interventions are effective in the treatment of alcoholics (Nattala et al, 2010; Mugisha and Zulu, 2004; Wilk, Jensen and Thomas, 1997), there are no regular follow ups and psychological interventions for relapse prevention are not available due to lack of resources.

Wilk et al in 1997 in a meta-analysis of randomized control trials addressing brief interventions in heavy alcohol drinkers have shown that heavy drinkers who received a brief intervention were twice as likely to moderate their drinking 6 to 12 months after an intervention when compared with heavy drinkers who received no intervention (Wilk, Jensen and Thomas, 1997).

Irvin et al did a meta-analysis in 1999 to evaluate the effectiveness of relapse prevention interventions in alcohol use, smoking and other substance use disorders. Twenty six published and unpublished studies were included in the analysis. Results indicated that relapse prevention interventions were generally effective, particularly for alcohol problems (Irvin et al, 1999).

Barrick et al in their study on relapse prevention and maintaining abstinence in older adults with alcohol use disorders in 2002 noted that psychological treatments such as

cognitive-behavioral therapy, group and family therapy and self-help groups were very effective in preventing relapses in older adults. These therapies were of particular benefit to older adults because of emphasis on social support (Barrick and Connors, 2002).

A study done by Neto et al in Portugal in 2004 to 2006 has shown that sequential combined treatment, which is a combined family, normative and stepped approach that seek to maximize the family and social reinforcement for abstinence was more effective than treatment as usual in preventing relapses among patients with alcohol dependence (Neto et al., 2004).

Suresh et al did a one year follow up case control study in Kerala, India in 2007 to assess the impact of family intervention therapy as an adjunct to pharmacological therapy in alcohol-dependent patients. They found out that family intervention therapy significantly reduced the severity of alcohol intake and improved the motivation to stop alcohol (Suresh and Thomas, 2007).

Saha in his study done at Srinagar India compared anticraving medications like Acamprosate with psychotherapy in relapse prevention in alcohol-dependent patients. They found no statistically significant difference in usefulness of both interventions. This shows that both Acamprosate and psychotherapy were equally effective in preventing relapses in alcohol dependence (Saha, 2013).

2.6 Mental Health General Action Plan Intervention Guide (mhGAP-IG)

The Mental health general action plan-intervention guide (mhGAP-IG) is a unique tool for up scaling the management of mental health disorders (mental, neurological, and substance use disorders) in primary care (WHO, 2010). It was developed for use in low and middle income countries (LMICs) by an international team of experts brought together by the WHO. The guide encourages countries to make changes to the interventions in relation to their local circumstances.

In the present study, the principal investigator was particularly interested in the part of the guide in relation to psychosocial relapse prevention interventions with alcohol disorders.

2.7 Summary

Alcohol abuse and dependence are on rise in Zambia (WHO, 2011) and alcohol related problems are leading cause of admissions at Chainama Hills Hospital (Chainama Hills Hospital, 2012). Even though Allan Haworth and Nkando Luo did studies on alcohol but no study has been done in Zambia to look at the treatment of alcohol related problems.

The previous studies done in the different parts of the world have shown that relapse prevention interventions and involvement of family in treatment of alcohol-dependent patients have been used effectively in promoting abstinence and preventing relapses. Currently the relapse prevention interventions are not used in treatment of alcohol-dependent patients in Zambian settings. It will be important to assess the effectiveness of relapse prevention interventions in Zambian settings and if effective, they can be incorporated into the treatment and rehabilitation programs for alcohol-dependent patients.

Chapter Three: Research Methodology

3.0 Overview

This chapter will focus on the research methods that were used to collect and analyze data to evaluate the impact of brief relapse prevention intervention in patients with alcohol dependence.

3.1 Study Design

The study was a randomized control trial, a quantitative study in which participants from 18-65 years of age participated.

3.2 Study Population and Sample Size

The participants of the study were alcohol-dependent patients admitted for detoxification at Chainama Hills Hospital, which is the only tertiary psychiatric hospital, based in Lusaka, Zambia. The sample size was calculated using www.openepi.com. Using two sided confidence level (1-alpha) of 95%, (alpha=0.05) I needed to recruit 102 patients to have a power (1-Beta) of 80%. Having expected 10% loss to follow ups the correct sample size was calculated, using the formula:

$N_{corrected} = N*100/ (100-x)$

Where

- N = Sample size calculated using computer (102)

- x = Expected percentage of patients whose information will not contribute to analysis due to loss to follow ups (10.2)

Correct sample size = 114

3.3 Inclusion Criteria

The participants for the study were 114 consecutive admissions to Chainama Hospital who met the following criteria:

a) They were between 18-65 years old, had an alcohol misuse problem which had contributed significantly to their admission, meeting, the diagnostic criteria of alcohol dependence according to DSM-IV-TR and identification of alcohol dependence using the AUDIT screening questionnaire.

b) They had no other significant psychiatric disorder.

c) They had close contact with one or more relatives who are taking an interest in their wellbeing.

d) They had the capacity to give informed consent to the study.

e) The participant or his relative had a mobile phone which was used to make contact with them in case of a non-attendance at a follow up interview.

3.4 Exclusion Criteria

In order to minimize the confounding factors, the participants having the following were excluded from the study:

a) Patients having cognitive impairment (MMSE score < 23).

b) Patients with major depression, psychosis or suicidal ideation.

3.5 Study Duration

Participants were recruited over a period of eight weeks and followed up eight weeks post discharge. The total duration of the study was about five months.

3.6 Study Procedure

The null hypothesis was tested through a single blinded randomized control trial. All participants received the standard clinical care for patients admitted to Chainama Hospital with alcohol dependence. In particular, this consisted of the gathering of an alcohol history, along with a psychiatric and physical assessment. Additional information was routinely obtained from relatives. In most cases where there was a significant alcohol problem, the patients were detoxified using a standard protocol of a tapering down dose of diazepam along with vitamin supplementation.

The 114 participants of the study were selected from consecutive admissions at Chainama Hills Hospital. It took about eight weeks to recruit these patients. The 114 participants were randomly divided into two groups, an intervention group and a

non-intervention group. The randomization was done using SPSS version 20.0. Participants in both groups were administered AUDIT to know about their drinking habits. Alcohol Use Disorders Identification Test (AUDIT) was developed by World Health Organization (WHO) as a simple method of screening for excessive drinking. It can help in identifying patients with alcohol abuse and dependence. It has been used all over the world by health care professionals and alcohol researchers (WHO, 2011). Additional information regarding the patient's recent drinking habits was obtained from one or more of the relatives.

The participants in the intervention group along with at least one relative were prior to their discharge, interviewed by a counselor, who delivered a psychosocial intervention following the mhGAP-IG guidelines. The mh-GAP alcohol intervention involves discussing alcohol related problems (patient should avoid places where alcohol is available and ask friends and relatives to support their abstinence); to consider their attitude towards alcohol and the problems it has caused them (based on motivational interviewing techniques such as rolling with resistance); actively educating and involving friends, relatives and self-help groups in providing alternative activities to drinking and helping patients to attend follow-up appointments. The mhGAP-IG intervention typically involved a single 20 minute interview with the patient and family member. The relatives were also told to help patient remain abstinent and bring them back if they see any signs of relapse in the patients. The non-intervention group had no specific intervention.

All participants were given a follow up appointment for 8 weeks after discharge. They, and/or their relative, were reminded by phone a few days before the appointment. Immediately before the follow up interview, the participants were administered first three questions of AUDIT, and the results were compared with first three questions of AUDIT, which patient answered at the time of inclusion in the study. Additional information was obtained from relatives on the participant's drinking habits.

Non-attenders at follow up could feasibly be participants with a worse outcome and could bias the results of the study. Attempts were made to contact non-attenders and/or their relatives by phone and in some cases, the outcome forms were completed over the phone. This has been noted in the analysis.

The outcome measures were time to first relapse and difference in the AUDIT score of questions 1-3, administered at time of recruitment and at the time of follow up.

3.7 Data Analysis

The Statistical Package for the Social Sciences (SPSS), version 20 was used to calculate various measures of central tendency, measures of dispersion, frequency distributions, and draw charts. The null hypotheses were tested using Independent Samples T Test and Mann Whitney U Test at significance level of 0.05. Associations with the outcome variables were determined using Chi Square Test at a significance level of 0.05.

3.8 Ethical Consideration

Ethical consideration was sought in keeping with guidelines of Helsinki Declaration. Patient's confidentiality was maintained. Patients were included in the study after informed consent. Patient's participation in the study was voluntary and they were given option to withdraw from the study at any time and this would not affect their routine treatment.

Approval to conduct research was sought from Biomedical Research Ethics Committee of the University Of Zambia. The data obtained were kept under lock and key to ensure anonymity. The results of this study will only be used for academic purposes and enriching the scientific knowledge base**.**

Chapter Four: Findings

4.0 Overview

This chapter presents the findings of the study. The main objective of this study was to assess whether the inclusion of a brief psychosocial intervention in the management programs of alcohol-dependence patients will be effective in relapse prevention and reducing frequency of alcohol use amongst alcohol-dependent individuals in the Zambian setting. The specific objectives were to assess the impact of psychosocial intervention in relapse prevention and reducing frequency of alcohol use in alcohol dependence, and to assess whether involvement of a family member will reduce relapse rates in alcohol dependence.

4.1 Characteristics of the Participants

A hundred and fourteen participants took part in this study. Table 1 summarizes the biographical characteristics of the participants. Fifty-eight (50.9%) participants were in the intervention group while 56(49.1%) were in the non-intervention group. Four (3.5%) participants were females while 110 (96.5%) were males. The youngest participant was aged 18 years while the oldest was aged 53 years. The average age of the participants was 32 years. Nearly 75% were aged 18-38 years. Sixty-one (53.5%) participants were single, 35 (30.7%) were married, 5 (4.4%) were separated, 11 (9.6%) were divorced, and 2 (1.8%) were widowed. All the participants were alcohol-dependent, harmful alcohol use detected by AUDIT , had a relative or friend interested in their well-being, were able to give informed consent regarding their participation in the research, had no cognitive impairment (MMSE>23), had no psychiatric disorder, and had no major depression or suicidal ideation.

Variable	Values	Frequency (n=114)	Percentage
Group	Intervention	58	50.9
	Non-intervention	56	49.1
Sex	Female	4	3.5
	Male	110	96.5
Age	18-24	22	19.3
	25-31	28	24.6
	32-38	35	30.7
	39-45	25	21.9
	46-53	4	3.5
Marital status	Single	61	53.5
	Married	35	30.7
	Separated	5	4.4
	Divorced	11	9.6
	Widowed	2	1.8
Mode of follow up	Physical attendance	99	86.8
	Telephone interview	15	13.2

4.2 Frequency of Alcohol Consumption among the Participants

The frequency of alcohol consumption (AUDIT questions 1-3) of the participants was calculated before and after the treatment. Table 2 below gives a summary of the results. Before treatment, the average frequency of alcohol consumption in the intervention group was 10.26 and 10.32 for the non-intervention group, with standard deviations of 1.517 and 1.749, respectively. After treatment, the average frequency of alcohol consumption for the intervention group was 1.33 and 8.96 for the non-intervention group, with standard deviations of 3.063 and 3.885, respectively.

		N	Median	Mean	Std. Deviation	Minimum	Maximum	Interquartile range
Score for Q1-3 at time 1	Intervention Group	58	11.00	10.26	1.517	7	12	2
	Non-intervention Group	56	11.00	10.32	1.749	4	12	3
Score for Q1-3 at time 2	Intervention Group	58	0.00	1.33	3.063	0	12	0
	Non-intervention Group	56	10.00	8.96	3.885	0	12	4

4.3 Hypotheses Test Results

The following null hypotheses were formulated regarding the frequency of alcohol intake between the intervention and non-intervention groups.

1) H_0: the distribution of score for AUDIT Q1-3 Time 1 is the same across categories of group.

2) H_0: the distribution of score for AUDIT Q1-3 Time 2 is the same across categories of group.

The null hypotheses were tested using Mann-Whitney U test at a significant level of 0.05. The results are summarized in tables below: The first H_0 were retained while the second H_0 was rejected. The findings indicate that the there was no significant difference in both groups regarding their frequency of alcohol consumption at time 1 (U=1452; p=0.312). However, there was a significant difference between the two groups at time 2 (U=354.5; p=0.001). The non-intervention group was significantly more often involved in alcohol abuse than the intervention group (Tables 3 and 4).

	Group	N	Mean Rank	Sum of Ranks
Score for Q1-3 at time 1	Intervention	58	60.47	3507.00
	non-intervention	56	54.43	3048.00
	Total	114		
Score for Q1-3 at time 2	Intervention	58	35.61	2065.50
	non-intervention	56	80.17	4489.50
	Total	114		

Table 4: Mann Whitney U Test Statistics

	Score for Q1-3 at time 1	Score for Q1-3 at time 2
Mann-Whitney U	1452.000	354.500
Wilcoxon W	3048.000	2065.500
Z	-1.011	-7.643
Asymp. Sig. (2-tailed)	.312	.000

Further analysis were undertaken to establish whether there was an association between age, marital status, and frequency of alcohol consumption of the participants. The results showed that there was no significant association between age and frequency of alcohol consumption (Chi-Square=2.527; df=4; p=0.640); and between marital status and frequency of alcohol consumption (U=1298.00; p=0.581).

4.4 Time to First Relapse among the Participants

Further analysis was conducted to establish whether there were any differences in the average time to first relapse among the two groups. An independent samples T test was conducted to a null hypothesis that there is no significant difference in the time to first relapse between the intervention group and the non-intervention group. Alpha was 0.05. Tables 3 and 4 present a summary of the results. The intervention group had an average time to first relapse of 51.29 days (91%)(standard deviation=14.085) while the non-intervention group had an average time to first relapse of 10.00 days (18%)(standard deviation=16.542). There was a significant difference between the two groups with the intervention group having a longer time to first relapse. (t=14.368; df=112; p=0.001). The findings further indicate that out of the 30 participants who had relapsed, 29 were from the non-intervention group (Figure 1). On the other hand, 55 out of the 57 participants who had not relapsed during the treatment period were from the intervention group.
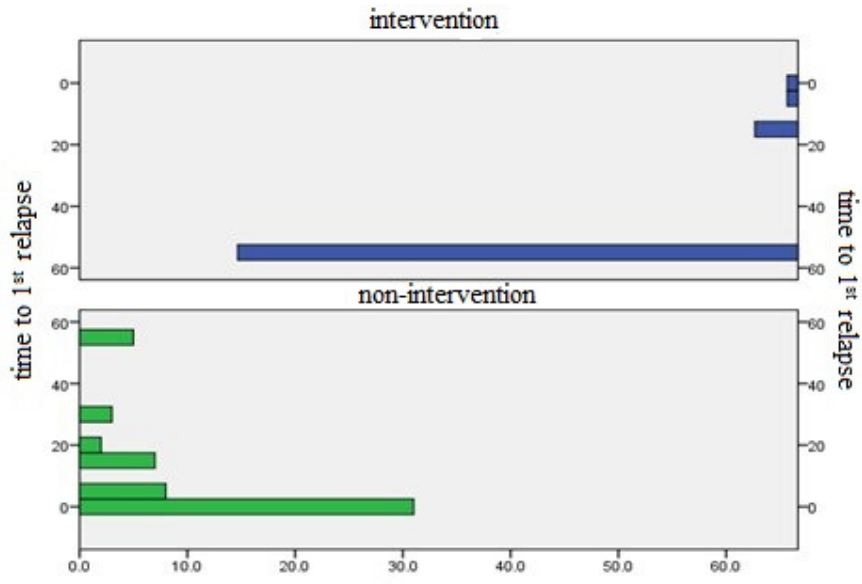
Figure 1: Participants' time to 1st relapse (in days)

Table 5: Descriptive statistics regarding time to 1st relapse

	Group	N	Mean	Std. Deviation	Std. Error Mean
Time to 1st Relapse (in days)	Intervention	58	51.29	14.085	1.849
	non-intervention	56	10.00	16.542	2.211

Table 6: Independent Samples T Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Time to 1st relapse (in days)	Equal variances assumed	2.724	.102	14.368	112	.000	41.293	2.874	35.599	46.988
	Equal variances not assumed			14.327	107.923	.000	41.293	2.882	35.580	47.006

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Further analysis were undertaken to establish whether there an association between, age, marital status, and time to first relapse of the participants. The results showed that there was no significant association between age and time to first relapse [F=0.627 (df=4; 109); p=0.645]; and between marital status and time to first relapse (t=0.167; df=112; p=0.867).

Chapter Five: Discussion

5.0 Overview

This chapter will discuss the results of the study presented in chapter four (4). The results will be discussed in relation to the research questions, which are as follows: Are the brief relapse prevention interventions effective in reducing the frequency of alcohol use and preventing relapses in patients with alcohol dependence in Zambian settings? And does the involvement of a family member in the treatment help in reducing the frequency of alcohol use and preventing relapses in patients with alcohol dependence? The chapter will begin with a summary of the findings and later the findings will be discussed in relation to findings of some previous studies.

5.1 Summary of the Findings

In the present study, alcohol-dependent patients admitted at Chainama Hills Hospital were divided into two groups, a non-intervention group who received treatment as usual which contained detoxification with benzodiazepines and vitamin supplementation and an intervention group who received a brief psychological relapse prevention intervention along with their one close family member along with treatment as usual. The findings of the study show that patients in the intervention group were abstinent for a longer period. The intervention group had an average time to first relapse of 51.29 days (91%)(standard deviation=14.085) while the non-intervention group had an average time to first relapse of 10.00 days (18%)(standard deviation=16.542). There was a significant difference between the two groups with the intervention group having a longer time to first relapse (t=14.368; df=112; p=0.001). This shows that brief relapse prevention intervention with involvement of a family member is more effective than treatment as usual in preventing relapses in alcohol- dependent patients.

5.2 Frequency of Alcohol Consumption among the Participants

The frequency alcohol consumption (AUDIT questions 1-3) of the participants was calculated before and after the treatment in both intervention and non-intervention

groups. Before treatment, the average frequency of alcohol consumption in the intervention group was 10.26 and 10.32 for the non-intervention group, with standard deviations of 1.517 and 1.749, respectively. After treatment, the average frequency of alcohol consumption for the intervention group was 1.33 and 8.96 for the non-intervention group, with standard deviations of 3.063and 3.885, respectively. This clearly shows that frequency of alcohol consumption among intervention group was much lower than in the non-intervention group. These findings prove that brief relapse prevention intervention with involvement of a family member was effective in reducing alcohol consumption.

The findings of the present studies are in line with some of the previous studies carried out in different parts of the world. Wilk et al (1997), in a meta- analysis of randomized control trials addressing brief interventions in heavy alcohol drinkers found that combined odd ratio from randomized control trials was close to 2 (1.91; 95% confidence interval 1.61-2.27) in favor of brief alcohol interventions over no intervention. They concluded that heavy drinkers who received a brief intervention were twice as likely to moderate their drinking 6-12 months after an intervention when compared with heavy drinkers who received no intervention (Wilk et al, 1997).

Neto et al (2004) did a randomized control trial to compare the effectiveness of sequential combined treatment (SCT), which is a combined family, normative and stepped approach that seeks to maximize the family and social reinforcement for abstinence, and treatment as usual (TU) in relapse prevention in a sample of alcohol-dependent patients, during 180 days of outpatient treatment. They found out that SCT approach was more effective than TU. The Kaplan-Meier abstinent proportion at the end of 180 days was 78% for SCT group and 59% for TU group (P < 0.01). SCT group had more maximum duration of continuous abstinence (MDCA) (P < 0.05) and more cumulative abstinence duration (CAD) (P < 0.05) (Neto et al, 2004). These findings are comparable with the present study in which participants in the intervention group had longer time to first relapse of 51.29 days (SD=14.085) as compared to participants in non-intervention group who had time to first relapse of 10 days (SD=16.542). This shows that brief relapse prevention intervention with involvement of a family member, from mhGAP-IG was more effective than treatment as usual in improving the outcome in alcohol-dependent patients.

5.3 Alcohol Dependence and Gender

The participants of the present study were recruited from 114 consecutive admissions at Chainama Hills Hospital, Lusaka during eight weeks. Among the participants, 110 (96.5%) were males while only 4 (3.5%) of the participants were females. This shows that problem of alcohol dependence is much more common in males than females. These findings are in line with the findings of a previous study done in Zambia by Haworth et al (1981) as part of WHO project on community response to alcohol related problems, who found out that men drank alcohol more frequently and more heavily than women (Haworth et al, 1981).

5.4 Alcohol Dependence and Marital Status

It was noted in the present study that among the participants of the study, 61(53.5%) participants were single, 35(30.7%) were married, 5(4.4%) were separated, 11(9.6%) were divorced, and 2(1.8%) were widowed. This gives an idea that problem of alcohol dependence might be more common among people who are single, separated, divorced or widowed, however the results showed that there was no significant association between marital status and average time to first relapse (t=0.167; df=112; p=0.867). Further research is needed in this area to find the association between marital status and alcohol dependence.

5.5 Brief Relapse Prevention Intervention from mhGAP-IG

The WHO mh-GAP intervention is a brief family intervention for alcohol problems that can be performed over 20 minutes with a generic mental health professional (such as a psychosocial counselor). It is publically available and the intervention requires minimal training (WHO 2010a). The study showed excellent results using this intervention with a large effect size and 9-fold reduction in drinking days over the 8 week follow-up period. All eligible patients were able to take part. There were no refusal or exclusions and the intervention group reported 90% abstinent days at follow-up with corroboration. The intervention was therefore effective, acceptable and eminently practical in real world situations.

The World Health Organization defined brief interventions as "practices that aim to identify a real or potential alcohol problem and motivate an individual to do

something about it" (McCambridge & Cunningham, 2014). Brief interventions were devised in the 1960s specifically to allow non-specialists to address problem drinking in patients attending US Emergency Rooms. Brief interventions usually last less than 60 minutes and often take 5 minutes so they can be delivered in a typical primary care consultation (Barbor TE & Higgins-Biddle JC; 2001.). Brief interventions, including the mh-GAP, often use principles of motivational interviewing (e.g. avoiding resistance and involving patients listing pros and cons of the aberrant behavior) (Rollnick & Miller 2003).

Moyer et al, (2002) report a widely quoted meta-analysis of 34 controlled trials comparing brief-interventions (fewer than 5 sessions) with non-treatment-seeking patients. Brief interventions were shown to be moderately effective particularly in clients with less severe alcohol problems (effect sizes of 0.14-0.67 were reported). One reviewer estimates that brief-interventions reduce alcohol consumption by around 24% compared to controls (Effective Health Care Team, 1993).

A recent trial has been reported of brief interventions in alcohol problems. The UK SIPS trial involved 756 patients identified in 34 primary care clinics with hazardous or harmful drinking (Kaner et al, 2013). Participants were cluster randomized to a control state (an information leaflet) one brief alcohol intervention of 5 minutes and a 20 minute life-style counseling session based on motivational interviewing methods. The SIPS trial showed no difference in outcome by intention-to-treat analysis. (Overall for all groups, 35-39% scored less than 8 on the AUDIT screening test at 12 months indicating that ~1 in 5 patients moved out of the harmful or hazardous drinking category. AUDIT scores at 12 month suggested a ~ 15% improvement or an effect size of ~0.2 compared to baseline). The authors state, "This study therefore does not support the additional delivery of five minutes of brief advice or 20 minutes of brief lifestyle counseling over and above the delivery of feedback on screening plus a patient information leaflet." The SIPS trial suggests that the assessment interview (10-item AUDIT screening test) itself may have led to a sustained reduction in drinking by raising patient vigilance.

The effects of the mh-GAP intervention were far larger than those reported using in the SIPS trial (effect size 1.9 Vs 0.2 for SIPS). They were also much larger than the

effect sizes of 0.14-0.67 reported by the meta-analysis of alcohol interventions reported by Moyer (2002). However the follow-up period was much shorter for the mh-GAP (8 weeks Vs 12 months) in SIPS and other trials.

Vasilaki et al (2006) report a meta-analysis of 15 brief interventions involving 2767 participants with alcohol problems. An overall effect size of 0.18 was reported although this was greater with short follow-up periods (less than 3 months; effect size 0.6). Motivational interviews typically took 87 minutes. Ten of the studies involved non-treatment seeking patients. This supports other evidence showing that the effects of brief motivational interventions diminish over time. For example a meta-analysis of 72 clinical trials (Hettema, Steele & Miller, in press) reported that the mean effect size of motivational interviewing averaged across all reported outcome variables was $d = 0.77$ at 1 month, 0.39 for 1–3 months and 0.11 at follow-ups longer than 12 months. This is also reported in a trial in young people from McCambridge & Strang (2005).

Although the mh-GAP intervention shows a large effect size this is likely to diminish with longer follow-up. Nevertheless the excellent outcomes for the mh-GAP remain larger at 1.9 than those reported for other brief intervention even with short-follow-up periods. The control design also indicates that the results are not likely to be due simply as a non-specific response to the assessment process. Hence it is likely the response is due to involvement of other family members in encouraging abstinence. Family interventions tend to have higher response rates than individual interventions in promoting behavioral change. For example the Community Reinforcement Approach (CRA) relies on family members and other individuals to reward patients for abstinence – for example praise and taking part in other enjoyable activities when the patient is sober (McHugh et al, 2010; Abbott et al, 1998). Clearly this is closely related to behavioral couple's therapy. Attempts are made at positive reinforcement of abstinence rather than punishment of intoxication.

In conclusions the results of other reports indicate that the brief mh-GAP intervention is likely to be effective due to its involvement of family members in promoting abstinence amongst the problem drinkers. Repetition of the project with

longer follow-up and using several therapists would be appropriate to confirm the effectiveness of the mh-GAP intervention.

Chapter Six: Conclusion

6.0 Overview

This chapter will discuss about conclusion drawn from the present study, limitations noted in the study and recommendations.

6.1 Conclusion

This study was done to determine the effectiveness of brief relapse prevention intervention from mhGAP-IG in patients with alcohol dependence at Chainama Hills Hospital, Lusaka. The study was a randomized control trial in which participants were divided in a non-intervention group who received treatment as usual and an intervention group who were given a brief relapse prevention intervention from mhGAP-IG, in presence of a close family member. Both groups were followed up after eight weeks. The findings of the study show that participants in the intervention group performed better in terms of reducing the frequency of alcohol consumption and they took longer to first relapse as compared to the participants in the non-intervention group. This shows that brief relapse prevention intervention from mhGAP-IG is very effective in reducing the frequency of alcohol consumption and preventing relapses among alcohol-dependent patients in a Zambian setting.

6.2 Study Limitations

This study was done in Chainama Hills Hospital in Lusaka, which represent sample from a very limited population and the sample size was small so the results of this study can't be generalized. Furthermore, due to limited time, the participants were only followed up for 8 weeks after discharge from the hospital so the study didn't assess the effectiveness of brief relapse prevention intervention in the long term.

6.3 Recommendations

Based on the findings of this study, it is recommended that brief relapse prevention interventions should be included in treatment and rehabilitation programs of alcohol-dependent patients in Zambia.

This study was done at Chainama Hills Hospital in a small population. It would be more helpful to replicate the study in other parts of Zambia at a large scale as it will help to generalize these results to all over Zambia. It would be more helpful if future study should look into the role of factors like age, education level, socioeconomic status and employment in alcohol dependence.

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Appendices

Appendix-A: AUDIT: Questionnaire: Screen for Alcohol Misuse

Please circle the answer that is correct for you

1. How often do you have a drink containing alcohol?

    a) Never   (0)

    b) Monthly or less   (1)

    c) 2-4 times a month   (2)

    d) 2-3 times a week   (3)

    e) 4 or more times a week   (4)

2. How many standard drinks containing alcohol do you have on a typical day when drinking?

    a) 1 or 2   (0)

    b) 3 or 4   (1)

    c) 5 or 6   (2)

    d) 7 to 9   (3)

    e) 10 or more   (4)

3. How often do you have six or more drinks on one occasion?

    a) Never   (0)

    b) Less than monthly   (1)

    c) Monthly   (2)

    d) Weekly   (3)

    e) Daily or almost daily   (4)

4. During the past year, how often have you found that you were   not able to stop drinking once you had started?

    f) Never   (0)

    g) Less than monthly   (1)

    h) Monthly   (2)

    i) Weekly   (3)

    j) Daily or almost daily   (4)

5. During the past year, how often have you failed to do what was normally of you because of drinking?

    a) Never   (0)

    b) Less than monthly   (1)

    c) Monthly   (2)

    d) Weekly   (3)

    e) Daily or almost daily   (4)

6. During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?

    f) Never   (0)

    g) Less than monthly   (1)

    h) Monthly   (2)

    i) Weekly   (3)

    j) Daily or almost daily   (4)

7. During the past year, how often have you had a feeling of guilt or remorse after drinking?

    a) Never   (0)

    b) Less than monthly   (1)

    c) Monthly   (2)

    d) Weekly   (3)

    e) Daily or almost daily   (4)

8. During the past year, have you been unable to remember what happened to you before because you had been drinking?

    a) Never   (0)

    b) Less than monthly   (1)

    c) Monthly   (2)

    d) Weekly   (3)

    e) Daily or almost daily   (4)

9. Have you or someone else been injured as a result of your drinking?

    a) No   (0)

    b) Yes, but not in the past year (2)

    c) Yes, during the past year   (4)

10. Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?

a) No   (0)

b) Yes, but not in the past year   (2)

c) Yes, during the past year   (4)

Scoring the AUDIT

Scores for each question range from 0 to 4, with the first response for each question (e.g ever) coring 0, the second (eg less than monthly) scoring 1, the third eg (monthly) scoring 2, the fourth (eg weekly) scoring 3, and the last response (e.g. Daily or almost daily) scoring 4. For questions 9 and 10, which only have three responses, the scoring is 0, 2 and 4 (from top to bottom).

A score of 8 or more is associated with harmful or hazardous drinking, a score of 13 or more in women, and 15 or more in men, is likely to indicate alcohol dependence

Appendix B: Brief relapse prevention interventions techniques for alcohol misuse from mhGAP Intervention Guide

1. Engage the person in a discussion about their substance use in a way that he/she is able to talk about both the perceived benefits of it and the actual/or potential harms, taking into the consideration the things that are most important to that person in the life.

2. Steer the discussion about a balanced evaluation of the positive and negative effects of the alcohol by challenging overstated claims of benefits and bring up some of the negative aspects which are perhaps being understated.

3. Avoid arguing with the person and try to phrase something in a different way if it meets resistance-seeking to find understanding of the real impact of the substance in the person's life as much as possible for that person at that time.

4. Encourage the person to decide themselves if they want to change their pattern of alcohol use, particularly after a balanced discussion of the pros and cons of the current pattern of use.

5. If the person is still not ready to stop or reduce alcohol use, then ask the person to come back to discuss further, perhaps with a family member or friend.

Appendix C: Consent form

Patient's agreement

I ………………………….. have been informed about the study and accept to be entered for the project: **Impact of brief relapse prevention intervention in patients with Alcohol Dependence.**

Signature or thumb print of the patient………………………………

Signature or thumb print of the relative…………………………….

Witness……………………………

Date…………………

…………………………………………..
Signature and name of investigator

Date: …………………

Appendix D: DSM-IV-TR Criteria for substance dependence

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:

    a) A need for markedly increased amounts of the substance to achieve intoxication or desired effect

    b) Markedly diminished effect with continued use of the same amount of the substance

2. Withdrawal, as manifested by either of the following:

    a) The characteristic withdrawal syndrome for the substance (refer to Criteria A and B of the criteria sets for Withdrawal from the specific substances)

    b) The same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms

3. The substance is often taken in larger amounts or over a longer period than it was intended

4. There is a persistent desire or unsuccessful efforts to cut down or control substance use

5. A great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects

6. Important social, occupational, or recreational activities are given up or reduced because of substance use

7. The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption.

Appendix-E: Patient information sheet

Introduction

We are carrying out a study looking at the impact of an intervention in patients who have been consuming alcohol excessively. This form provides the information on the study. Please read it and then decide whether you wish to take part in the study.

Who is carrying out this study?

The study is being carried out by Dr Waqas Sheikh, a post graduate psychiatry student at University of Zambia. It will be conducted at Chainama Hills Hospital.

How will the study be carried out?

The study will be carried out on patients who are dependent on alcohol. The patients will be divided in two groups at random. One group will receive the current standard treatment whilst the other group will receive the current standard medical treatment and a brief relapse prevention intervention involving the patient's family. It is a form of talking therapy. This should take around 15 minutes.

The patients will be followed up at 8 weeks after discharge in the outpatient clinic.

Benefits

The results of the study can help improve the care of alcohol dependent patients at Chainama Hills Hospital. Please note that participants will not be awarded any sort of compensation.

Risks

There are no risks involved for the participants in this study, however you have the right to refuse or you can withdraw from the study at any time. This will not affect the normal care you have been receiving at the hospital.

Confidentiality

Your name and other personal identifiers will not be used in this study. Your participation in the study is on a voluntary basis. Your treatment will not be affected whether or not you wish to take part in the study.

Voluntary Participation

Your participation in the study is on a voluntary basis. Your treatment will not be affected whether or not you wish to take part in the study.

Questions

Should you seek any clarifications concerning this study, you can contact:

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