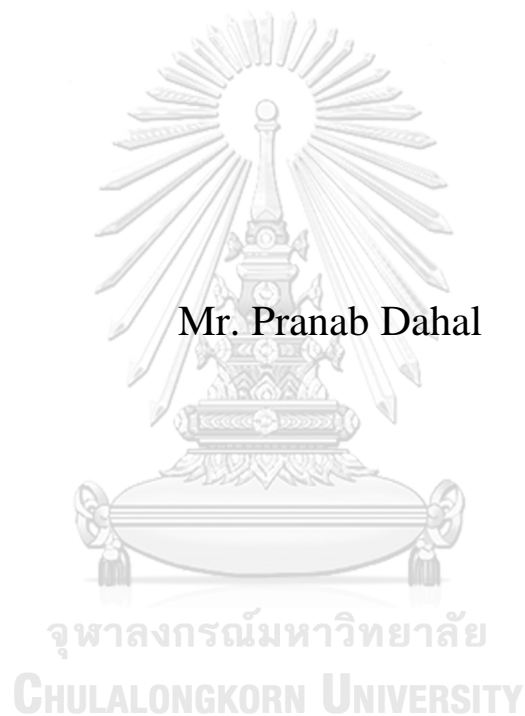


FACTORS INFLUENCING ‘STAGE OF CHANGE’ AMONG  
ALCOHOL USE DISORDER PATIENTS IN  
REHABILITATION CENTERS IN KATHMANDU,  
NEPAL



A Thesis Submitted in Partial Fulfillment of the Requirements  
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ปัจจัยที่ส่งผลต่อ “ขั้นตอนการเปลี่ยนพฤติกรรม”  
ในผู้ป่วยติดสุราในศูนย์ฟื้นฟู  
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ที่มา : การปรับเปลี่ยนพฤติกรรมโดยการใช้  
 “ความพร้อมในการปรับเปลี่ยนพฤติกรรม”  
 จะสามารถใช้ปรับเปลี่ยนพฤติกรรมในกลุ่มผู้ติดแอลกอฮอล์หรือในกลุ่มผู้ที่บริโภคแอลกอฮอล์ที่เป็นอันตรายได้หรือไม่ซึ่งเป็นปัญหาทางด้านสาธารณสุขที่ร้ายแรงเพื่อให้เกิดความเข้าใจในพฤติกรรมที่ซับซ้อนของกลุ่มคนเหล่านี้

วิธีการศึกษา : ศึกษาโดยการศึกษาแบบภาคตัดขวางใน 8  
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 โดยใช้แบบคัดกรองการติดสุราเพื่อประเมินความผิดปกติในการดื่มเครื่องดื่มแอลกอฮอล์และใช้  
 แบบประเมินตนเองเพื่อวัดคุณลักษณะทั่วไป และคุณลักษณะทางสังคม  
 อាកการการติดสุราและรูปแบบการบริโภคแอลกอฮอล์ใช้แบบสอบถามตามมาตรฐานเพื่อประเมิน  
 การตระหนัก การสนับสนุนจากสังคม เพื่ออธิบายความพร้อมในการปรับเปลี่ยนพฤติกรรม

ผลการศึกษา: วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาการทดสอบไคสแควร์และ  
 การวิเคราะห์หลายตัวแปรได้กระทำในรูปแบบการถดถอยเชิงเส้นปัจจัยที่มีผลต่อความพร้อมใน  
 การปรับเปลี่ยนพฤติกรรมในกลุ่มผู้ป่วยติดสุราคือความผิดปกติทางจิต  
 สถานภาพสมรสและระดับการศึกษา

อภิปรายผลการวิจัยมหาวิทยาลัย :  
 กลุ่มคนโสดและคนที่มีหย่าร้างมีความพร้อมในการปรับเปลี่ยนพฤติกรรมในกลุ่มผู้ป่วยติดสุรา  
 น้อยกว่าผู้ที่อยู่ในสถานภาพสมรส และผู้ที่มีประวัติทางจิตเวช  
 กลุ่มคนที่มีการศึกษาน้อยกว่าระดับมัธยมศึกษามีความพร้อมในการปรับเปลี่ยนพฤติกรรมน้อย  
 เมื่อเทียบกับผู้ที่ไม่มียประวัติทางจิตเวชและมีการศึกษาในระดับมัธยมศึกษาขึ้นไป

สาขาวิชา สาธารณสุขศาสตร์

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 KEYWORD ALCOHOL USE DISORDER ‘STAGES OF CHANGE’  
 D: REHABILITATION CENTERS.

Pranab Dahal : FACTORS INFLUENCING ‘STAGE OF CHANGE’  
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 REHABILITATION CENTERS IN KATHMANDU,  
 NEPAL . Advisor: Asst. Prof. NAOWARAT  
 KANCHANAKHAN, Ph.D. Co-advisor: Nuchanad Hounnaklang, Ph.D.

**INTRODUCTION:** The ‘stages of change’ model defines behavior change as a process with a series of stages. Alcohol use disorder which includes ‘harmful use’ and ‘alcohol dependence’ is a serious public health concern. With the ever increasing prevalence of ‘alcohol use disorder’ there is an increasing need to better understand the complexities of behavior change among this group.

**METHODS:** A cross-sectional survey was conducted in 8 alcohol and drug rehabilitation centers (residential treatment centers) of Kathmandu, Nepal, in September 2018, involving 225 male patients. AUDIT screening test was used to screen patients with alcohol use disorder. A self-report questionnaire was developed to measure socio-demographic characteristics, clinical characteristics, alcohol use characteristics and mode of referral, whereas standard questionnaires were used to assess locus of control, perceived social support and ‘stages of change’.

**RESULTS:** Data was analyzed using descriptive statistics, chi-square test and multivariate analysis was done in linear regression model. The highest number of patients were in the contemplation stage of the ‘stages of change’ model. Factors that influenced ‘stages of change’ in AUD patients in rehabilitation centers of Kathmandu, Nepal were history of psychiatric disorder, marital status and education.

**DISCUSSION:** On the ‘Stages of change’ model, those who were either single or divorced were found to be a lower stage than those who were currently married, and those with history of psychiatric disorders and those educated less than high school were also found to be at a lower stage when compared to those without psychiatric disorder and educated until high school and above.

Field of Study: Public Health

Student's Signature

Academic Year: 2019

.....  
 Advisor's Signature

Year:

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 Co-advisor's Signature

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## **LIST OF ACRONYMS**

AUD: Alcohol Use Disorder

SDGs: Sustainable Development Goals

WHO: World Health Organization

SEAR: South East Asia Region

CWIN: Child Workers in Nepal

NHRC: Nepal Health Research Council

NIH: National Institute of Health

FORUT: FOR UTVIKLING (Norwegian)

LMICs: Low and Middle Income Countries

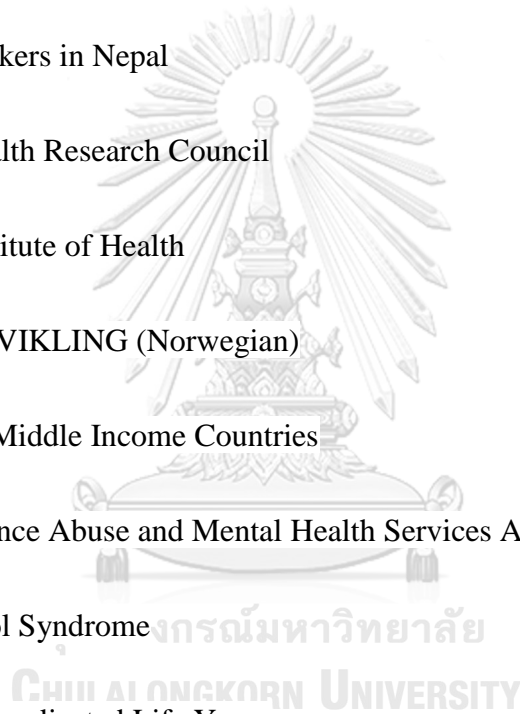
SAHMSA: Substance Abuse and Mental Health Services Association

FAS: Fetal Alcohol Syndrome

DALYS: Disability adjusted Life Years

APA: American Psychiatrist Association

AAF: Alcohol attributable fraction



## INTRODUCTION

### 1.1. BACKGROUND

Globally, alcohol is the most commonly used psychoactive substance leading to significant disability and death(1) (2). Worldwide, around two billion people consume alcoholic beverages and more than one-third among them are likely to have Alcohol Use Disorder (3, 4). Alcohol contributes substantially to global burden of disease, it contributes to 4% of the total mortality and between 4% and 5% of disability adjusted life years and thus is recognized as a large risk factor which is avoidable(5).

A spectrum of use has been noticed in alcohol users, ranging from one-time users, occasional users, regular users, hazardous users, harmful users ( alcohol abuse) to those with alcohol dependence (6).

Alcohol use disorders( AUDs), which includes alcohol abuse (harmful use) and alcohol dependence are considered one of the most important public health problems (7).

“Alcohol use disorders (AUD) refer to excessive drinking behaviors that can create dangerous conditions for an individual”. The two major types of AUDs are alcohol abuse and alcohol dependence. “A need for daily use of large amounts of alcohol for adequate functioning, a regular pattern of heavy drinking limited to weekends, and long periods of sobriety interspersed with binges of heavy alcohol intake lasting for weeks or months strongly suggest alcohol dependence and alcohol abuse” (8).

Harmful use of alcohol is considered one of the leading risk factors for population health throughout the world. It has a direct impact on several health-related targets of the Sustainable Development Goals (SDGs), included in these are maternal and child health, infectious diseases (HIV, viral hepatitis, tuberculosis), non-communicable

diseases and also health related targets focusing on mental health, injuries and poisonings (3).

According to the South East Asia Regional Office for WHO, it is estimated that from one-fourth to one-third of men consume alcohol, while the proportion of women who consume in the South East Asia region (SEAR) region is quite low (4%- 9%). Traditionally the SEAR region was characterized as a relatively low alcohol consumption region but a recent trend of increasing alcohol consumption has been noticed in this region, which is in complete contrast to other regions of the WHO, where a declining trend in consumption of alcohol is being observed. Alcohol consumption has reached a stable and saturated point in many parts of the world, and with ever declining consumption in European and other traditional markets, market lobbies are now targeting Asia (6).

In terms consumption per drinker, the south east Asia region countries are similar to other heavy drinking countries with per consumption of 13 to 14 liters of absolute alcohol per drinker(6).

Nepal is classified a low-income country (9) with a human development index rank at 144 and life expectancy at 70 years(10). Nepal is not only a multicultural, multi-ethnic country but has been observed as being ambivalent society regarding alcohol use. With time, traditional sanctions and caste-bound restraints have been found to be slowly disappearing. The use of alcohol and drugs has in the recent times affected all classes of society. Child Workers (CWIN) in Nepal as part of a Local Action project supported by FORUT did a large-scale study in Nepal covering 2400 households which included 16 districts representing both rural and urban areas as well as all ecological and development regions. The study found that around 60% of the population have

experience with alcohol use and 41% have taken it in the last 12 months. Among those who have had tried alcohol, 38% were using it regularly (1-5 days in 30 days) and 10% classified as daily users (20+ days in a month). Men drink more than women (21 % female as compared to 50% male having taken any type of beverage in the last 30 days)(11)

The consumption of alcohol per person among 15 years and older in Nepal for the year 2008-2010 stands at 2.2 (in liters of pure alcohol) which is lower than that for the WHO South-East Asia Region which was 3.5 for the same year. The vast proportion of alcohol that is consumed is made up of unrecorded alcohol (homemade liquor)(3).

Like in many other parts of the world alcohol is widely available for sale in the country, in addition the production of homemade liquor for domestic use is allowed by the Liquor Control Act of Nepal. A significant part of homemade liquor trickles down to the local markets, especially in rural Nepal. Types of traditional alcoholic beverages commonly used in the country include: country liquors (low quality alcohol made from molasses which are produced in small distilleries), Jand (home brewed rice liquor), Rakshi (home brewed made of rice, millet or barley) and Chang (another type home brewed rice liquor). These locally prepared liquors are available for cheap and is easily accessible which promotes its widespread consumption(12). Home brewed alcohol is the most common form of alcohol consumed in Nepal (13) and as they are bought and sold without any official records, resulting in underreporting and incorrect reporting of data regarding consumption of alcohol.



Although the role of alcohol as an important contributor to Global Burden of Disease is well established, data regarding the extent of alcohol use and alcohol related disorders is lacking especially in Low and Middle income countries (LMICs). Historically in Nepal, the Hindu castes of Brahmin and Chhetris belonged to the Traditional alcohol nonusers (TANU) as there was cultural prohibition against them to indulge in alcohol consumption and while Hindu classes other than these Brahmin and Chhetris and tribal communities were considered Traditional alcohol users (TAU) and they freely indulged in the consumption of alcohol (14).

According to WHO, global status report on alcohol and health (2014), in the year 2012, about 3.3 million deaths or 5.9% of all global deaths, could be attributable to alcohol use. Globally, proportion of alcohol related deaths varied in males and females, for example, alcohol attributable deaths in 2012 were 7.2% in males and 4% in females. The same year, 139 million DALYS (Disease adjusted life years) or 5.1% of global burden or disease and injury could be attributable to alcohol use (3).

According to WHO, Global Status report on Alcohol 2004, judging by the extent and magnitude of use of alcohol in Nepal, it could be considered as the number one problem drug in the country and there are newspaper reports almost every day regarding people being arrested while behaving irresponsibly while under the influence of alcohol(4).

Alcohol related disorders was found to be the most common diagnosis in people seen in consultation liaison psychiatry and psychiatric emergency in a tertiary hospital of Nepal (15, 16).In saying this, we should not only acknowledge the extent of use of

alcohol but also the global impact of alcohol on the health of people, across national boundaries and racial and ethnic divisions.

According to WHO, Global status report on alcohol and health 2014, health policies should be developed at either global, national, regional, subnational levels with the primary aim to reduce harmful use of alcohol and alcohol attributable health and social burden in the society(3)

In Nepal, even as there are legal restrictions in place for children less than 18 years to drink or to be sold or offered alcohol, the law allows the TAU groups to prepare alcohol at home during ceremonies and as all members of the household then consume the alcohol thus prepared, even the children are presented with alcohol and most start consumption while still a minor (17).

According to the Global status report on alcohol and health 2014, there is no written national policy or action plan in Nepal regarding Alcohol, there is taxation on all alcoholic beverages, the national minimum age limit for alcohol sales is 18. There is no restriction in sales in terms of hours, days or places. There is also no national blood alcohol concentration ( BAC) cut-off levels while driving (3).

There are various factors influence alcohol intake in patients with alcohol use. According to a study conducted by Girish N, Kavita R, Gururaj G, Benegal V, the typical rural alcohol user in India could be defined as a young male, illiterate, involved in hard physical labor and from a low socio-economic status background; who prefer to consume heavy alcoholic drinks on a daily or almost daily basis and having consumed so for more than ten years, at home or at a retail alcohol outlet. While, the typical urban user would be a young male, literate, involved in a skilled job who consumes alcohol at least once a week, prefers beers over other alcoholic drinks and

usually consumes it in commercial establishments like restaurants, bars/pubs (18). According to a community-based survey conducted in 2002 on alcohol use disorder among a total of 2344 randomized household samples in Dharan, a town in eastern Nepal. The prevalence was higher among those of increasing age until the 41-54 age range(after which there was a slight decline), lower levels of education, widowers, divorcees and those belonging to the 'Matawali (TAU)' community (13). From the above studies we can infer that there is association between sex, education level, socio-economic-status, marital status and ethnicity with Alcohol Use Disorder.

Motivation is important in taking the first step towards any action or change in behavior. Sayings such as “ You can lead a horse to water, but you cannot make it drink” reflect the importance of motivation is successfully carrying out the desired behavior or in other words people will not readily participate in behaviors they are not motivated towards (19). According to Ryan R.M, Plant R.W, O'Malley S, motivation is a critical component in a person's readiness to pursue intervention to change behavior. The writers argue that alcoholics are often perceived as having poor motivation by themselves as well as their therapists, so the motivation component plays a significant and formidable issue in overcoming alcohol related problems in rehabilitation programs and lack of motivation has been found to be the principle cause of treatment failures and relapses. Despite of the fact that motivation is presumed to be important in behavior change and in getting the desired therapeutic outcome, so far there the evidence of motivation's role in the therapeutic outcome has been mixed (20).

The process of “stages of change” which is also known as ‘readiness to change’ or ‘motivation to change’ can be characterized as a differentiated personal pathway that people pursue in order to modify or stop an unwanted behavior(21). Prochaska and Diclemente’s (21)“ Transtheoretical Model or simply the “stages of change” or “readiness to change(RTC)” model recognizes that ‘stages of change’ as a dynamic process which can be divided in to five stages, Pre-contemplation, Contemplation, Preparation, Action and Maintenance.

Accurately assessing the motivation level according to the “stages of change” model seems to be a crucial step in matching individuals with the appropriate intervention(22). Treatment suggestions should be tailored according to the “stages of change”, based on the theory that individuals at different stages have different needs. Pre-contemplators who are not ready to change should be offered different interventions in comparison to those who are already taking steps to change and are thus in the ‘action’ ‘stages of change’.

There are various factors that influence ‘stages of change’ in individuals with alcohol use disorders. According to a study carried out by D’Souza, P.C and Mathai, P.J in 2017, the stages of motivation could be correlated significantly with complications of alcohol use and medical comorbidities. Besides these two, there was also significant association with factors such as religion, education level and socio-economic class (23).

## 1.2 RESEARCH GAP AND RATIONALE OF THE STUDY

There is a paucity of literature particularly looking into the “stages of change” and factors influencing “stages of change” among individuals with alcohol use disorder, not only in Nepal but also globally.

Some theories suggest that “stages of change” is a key target of alcohol treatment ( e.g: Miller and Rollnick, 2002)(24), therefore accurately assessing the “stages of change”, seems to be a crucial step in matching patients of AUD to appropriate interventions.

Regarding “stages of change” in alcohol use disorder, so far the evidence has been mixed. While some studies demonstrate positive association between “stages of change” and alcohol use (higher “stages of change” related to more drinking) (25-27) other studies have concluded differently with negative correlation (higher “stages of change” related to less drinking) (28-30).

We hope that the results of the study will provide grounds for better clinical management, policy making and public awareness in regards to alcohol use disorder and also complement the existing studies.

## 1.3 RESEARCH QUESTIONS

Q.1) What is the “stages of change” (according to the Transtheoretical Model) among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal?

Q.2) What are the clinical characteristics, socio-demographic characteristics, Alcohol use characteristics, Locus of Control, Mode of referral and social support among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal?

Q.3) What are the factors influencing “stages of change” among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal?

#### 1.4 RESEARCH OBJECTIVES

- 1) To describe the “stages of change” (according to the Transtheoretical Model) among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.
- 2) To describe the socio-demographic characteristics, clinical characteristics, Alcohol use characteristics, Locus of Control, Mode of referral and Perceived Social support among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.
- 3) To identify the factors influencing “stages of change” among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.

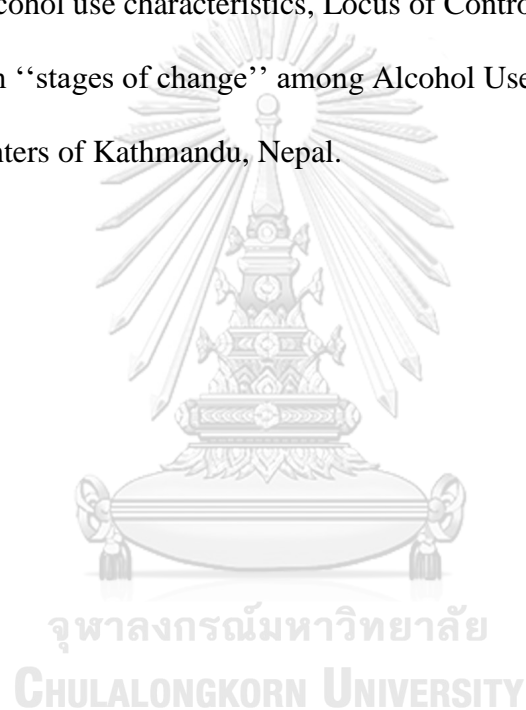
#### 1.5 RESEARCH HYPOTHESIS

##### **Null Hypotheses**

There is no association between clinical characteristics, socio-demographic characteristics, Alcohol use characteristics, Locus of Control, Mode of referral and social support with “stages of change” among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.

### **Alternative Hypotheses**

There is association between clinical characteristics, socio-demographic characteristics, Alcohol use characteristics, Locus of Control, Mode of referral and social support with “stages of change” among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.

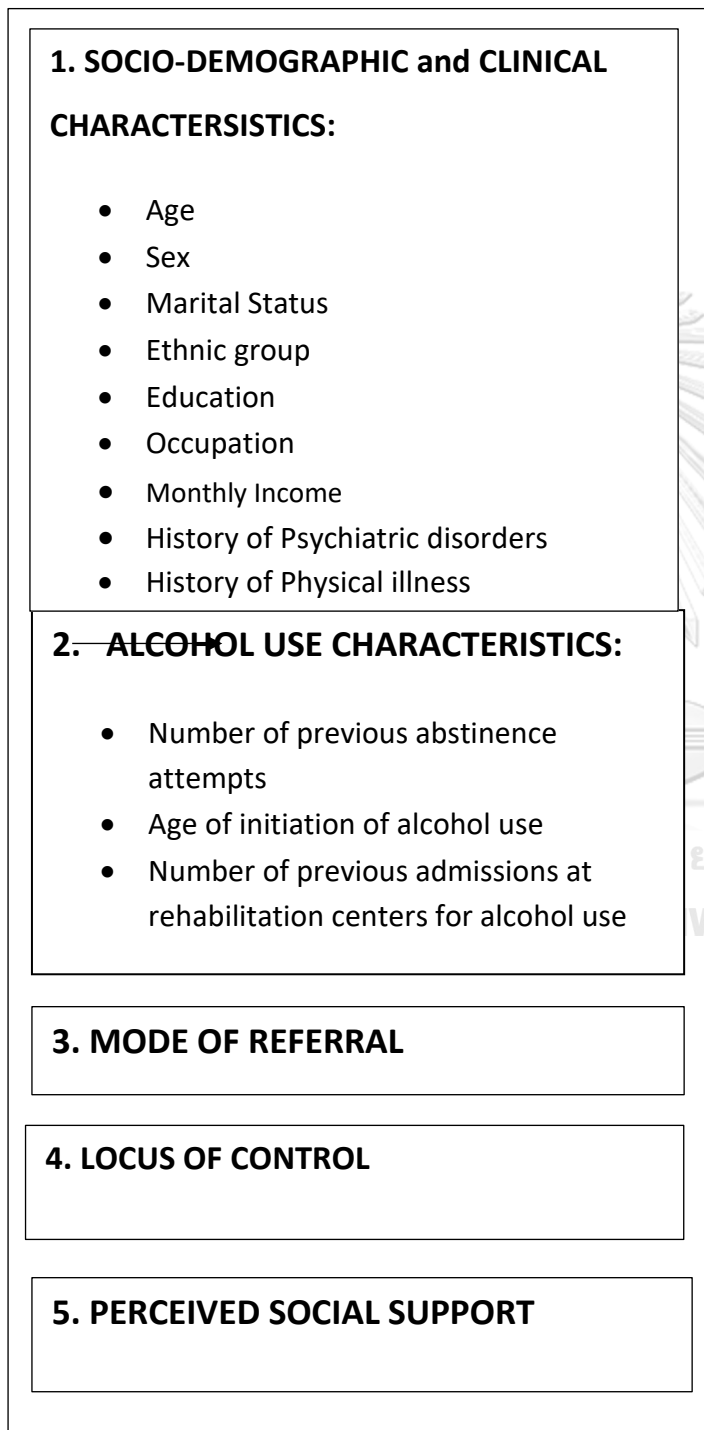


*Figure 1 conceptual framework*

## 1.6 CONCEPTUAL FRAMEWORK

### INDEPENDENT VARIABLES

#### VARIABLE



### DEPENDENT

#### “STAGES OF CHANGE” IN ALCOHOL USE DISORDER:

(Pre-contemplation ,  
Contemplation, Action,  
Maintenance)



## 1.7 OPERATIONAL DEFINITIONS:

### INDEPENDENT VARIABLES

#### 1.7.1 SOCIO-DEMOGRAPHIC AND CLINICAL CHARACTERISTICS:

**Education:** refers to the highest education that the respondent has attained. Respondent can choose one of the following options (whichever is applicable) illiterate, can read and write, 'primary school (grade 1-4)', 'middle school (grade 5-8)', 'secondary school(grade 9 and 10)', 'high school(grade 11 and 12)', bachelors .

**Ethnic group:** Ethnic groups in Nepal are delineated according to either the spoken language, ethnic identity or the Hindu caste system. Those within the same ethnic groups share a common culture and are endogamous.

**Monthly Income:** It includes individual's monthly income or allowance provided by the family to the individual for his/her own personal expenses.

**History of Psychiatric disorders:** any pre-diagnosed psychiatric disorders from: depression, anxiety, bipolar disorder, schizophrenia, personality disorder and others (specify). Both presence of psychiatric disorder in the past (ever) or at present will be considered as positive.

**History of Physical Illness:** any pre-diagnosed physical illnesses from: Hypertension, Diabetes, Liver Disease, Kidney Disease, Respiratory Disease and others (specify). Both presence of physical illness in the past (ever) or at present will be considered as positive. For conditions such as Liver Disease, Kidney Disease, Respiratory Disease, chronicity of the condition will be taken in to consideration and only chronic illnesses will be considered as positive. According to U.S. National Center for Health Statistics, a chronic disease is one which should have lasted 3 months or more and conditions which cannot be prevented by vaccines, medications and do not disappear on their own. This definition will be applied and implied to the participants during the process of data collection.

#### 1.7.2 ALCOHOL USE CHARACTERISITICS:

**Number of previous abstinence attempts:** Number of times the respondent has attempted to abstain in the past, periods without alcohol consumption for at least 1 month in duration will be considered as abstinent attempt.

**Age of initiation of alcohol use:** Grant has defined the age of onset as the "age at which patients first started drinking, not counting small tastes or sips of alcohol"(31).The Grant (1998) definition for the age of onset of initiation shall be used in this study.

**Number of previous admissions at rehabilitation centers for alcohol use:** Number of times the participants have been admitted at any rehabilitation centers or addiction correctional facilities (including hospital) before this admission.

1.7.3 MODE OF REFERRAL: refers to respondent's answer regarding how he/she arrived at the center, either by self-will or request/force from family members/clinicians /health promotion campaign referral, requirement by law for misbehavior/crime or others.

1.7.4 LOCUS OF CONTROL: Locus of control as formulated by Rotter (1996) refers to "the degree to which an individual perceives reinforcements as being contingent upon his/her own behavior or relatively permanent personality characteristic" or in other words, the degree to which an individual believes, the success/failure at overcoming alcoholism (or any other undesirable behavior) is dependent upon the degree of control of behavior by the individual himself/herself. The theory of locus of control has a dichotomous construct and suggests that individuals have either 'internal locus of control' or an 'external locus of control' and their subsequent behaviors are contingent upon this construct. A person who has internal locus of control believes that his/her behavior depends not on anything else but himself/herself but those with external locus of control believe that forces beyond ones control( luck, external circumstances, influence of others) determine the fate (32). It shall be measured by using 'Drinking Related Internal-External Locus of Control Scale'. The version developed in 2007 shall be used(33).

1.7.5 SOCIAL SUPPORT: Shumaker and Brownell (1984) described social support as “an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipients.” Family, friends, teachers, community, or any social groups can be sources of social support(34). Social support can either be **tangible support** or assistance provided by others (35) or it could be **perceived social support**, which is an individual’s confidence that they will receive the required assistance when they actually require it(36). In this study we will assess perceived social support which shall be measured by using ‘Multidimensional Scale of perceived social support( MSPSS)(37).’ Social support includes 3 subscales, Significant other (SO), Family and Friends. For the purposes of the study, to be qualified as a friend, the individual shouldn’t be directly related to the patient by birth, to be qualified as a family, the individual should be directly related to the patient by birth. Significant other (SO) shouldn’t be directly related to the individual by birth, and should be held at a special status by the patient (usually wife, husband, girlfriend, boyfriend).

DEPENDENT VARIABLE:

1.7.6 “STAGES OF CHANGE”: The process of “**stages of change**” which is also known as ‘**readiness to change**’ or ‘**motivation to change**’ can be characterized as a differentiated personal pathway that people pursue in order to modify or stop an unwanted behavior(21). Prochaska and Diclemente’s (21)“ Transtheoretical Model or

simply the “‘stages of change’” or “‘readiness to change(RTC)’” model recognizes that ‘stages of change’ is a dynamic process which can be divided in to five stages, Pre-contemplation, Preparation, Contemplation, Action and Maintenance.

“‘stages of change’” will be assessed as constructs from the trans-theoretical model based on work of Prochaska and Diclemente (38). University of Rhode Island Change assessment (URICA) scale will be applied to identify the “‘stages of change’”. The URICA scale measures 4 stages. Only Pre-contemplation, Contemplation, Action and Maintenance stages will be assessed in the study (39, 40).

1.7.7 ALCOHOL USE DISORDER: According to WHO, International Classification of disease-10(ICD-10), Alcohol Use Disorder includes 2 conditions namely, ‘Harmful use of alcohol’ and ‘Alcohol Dependence’:

- ‘Harmful use of alcohol’ is defined as a pattern of alcohol use that is causing damage to health, the damage may be physical (as in cases of liver cirrhosis) or mental (as in cases of depressive episodes secondary to heavy consumption of alcohol)”(ICD-10; WHO, 1992)(41).
- ‘Alcohol dependence (also known as alcoholism or alcohol dependence syndrome)’ is defined as a cluster of behavioral, cognitive, and physiological phenomena that develop after repeated alcohol use and that typically include a strong desire to consume alcohol, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to alcohol use than to other activities and obligations, increased tolerance, and sometimes a physiological withdrawal state” (ICD-10; WHO, 1992)(41).

In this study the AUDIT (Alcohol Use Disorder Identification Test) shall be applied to diagnose AUD. According to a systematic review of screening for alcohol problems in primary care settings, the diagnostic performance of AUDIT was found to be effective and compared well with other popular alcohol use screening instruments(42). AUDIT has been validated for use in the Nepali Language(12).



## LITERATURE REVIEW

### 2.1 ALCOHOL USE DISORDER

#### 2.1.1 DEFINITION:

According to WHO, International Classification of disease-10(ICD-10), Alcohol Use Disorder includes 2 conditions namely, ‘Harmful use of alcohol’ and ‘Alcohol Dependence’:

- “Harmful use of alcohol is defined as a pattern of alcohol use that is causing damage to health, the damage may be physical (as in cases of liver cirrhosis) or mental (as in cases of depressive episodes secondary to heavy consumption of alcohol)”(ICD-10; WHO, 1992)(41).
- “Alcohol dependence (also known as alcoholism or alcohol dependence syndrome) is defined as a cluster of behavioral, cognitive, and physiological phenomena that develop after repeated alcohol use and that typically include a strong desire to consume alcohol, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to alcohol use than to other activities and obligations, increased tolerance, and sometimes a physiological withdrawal state” (ICD-10; WHO, 1992)(41).

American Psychiatric Association (APA) in DSM-IV, also defines AUD as 2 conditions: “alcohol abuse” and “alcohol dependence”.

- “Alcohol abuse = repeated use despite recurrent adverse consequences.  
Alcohol dependence = *alcohol abuse* combined with tolerance, withdrawal, and an uncontrollable drive to drink” (43).

### 2.1.2 PREVALENCE OF ALCOHOL USE DISORDER

According to a 2015 survey, among 135,907 respondents from 50 states and the district of Columbia in the U.S on drug use and health (NSDUH), 86.4% of people reported using alcohol at some point in their lifetime, 70.1% reported having drunk in the past year and 56.0% reported having drunk in the past month and 26.9% reported having engaged in binge drinking in the past month. According to the same survey, around 15.1 million people 18 years and older, comprising 6.2% of the population of this group had Alcohol Use Disorder(44).

According to another study conducted by Shealy AE, Murphy JG, et al about alcohol use among American college students it was reported that 12% of American adults have had an alcohol dependence problem at some time in their life. In 2006, substance dependence and abuse was diagnosed in about 22.6 million persons in the United States(45). AUD is considered to be one of the most prevalent mental disorders worldwide (46), not just in high income countries but also in low and low-middle income countries with prevalence of AUD being 9% in Colombia(47), 5% in India(48), 2.5% in Sri-lanka(49) and 18.4% in Brazil(50).



Prevalence of alcohol use disorders and alcohol dependence (%), 2010\*

	Alcohol use disorders**	Alcohol dependence
Males	2.5	1.2
Females	0.5	0.2
Both sexes	1.5	0.7
WHO South-East Asia Region	2.2	1.7

\*12-month prevalence estimates (15+).

\*\*Including alcohol dependence and harmful use of alcohol.

*Figure 2 Prevalence of AUD and alcohol dependence in Nepal according to WHO-Global status report on alcohol and health-2014 (3)*

According to WHO- Global Status report on alcohol and health-2014, the prevalence of AUD in Nepal is 1.5% which comparable with the average for the South East Asia Region (2.2%).

In two other studies conducted in Nepal have shown wide variation in results ranging from 2.8 % to 25% regarding the prevalence of AUD. However these studies were conducted among high risk groups (e.g: torture survivors and refugees) or in communities affected by conflicts. Study conducted by Luitel N.P., Jordans M. et. al, among over 8000 participants who were Bhutanese Refugees settled in refugee camps in Eastern Nepal, the prevalence of Alcohol Use Disorder was **2.8%**, (5.1% in males and 0.6% for females )while the prevalence of alcohol dependence was found to 0.6% (1.2% in males and 0.1% in females)(51). This study used the AUDIT scale for

measurement and used AUDIT > 7 for AUD while the score to diagnose alcohol dependence was AUDIT > 19.

Similarly, a community-based survey in 2002 had looked into alcohol use disorder by using the CAGE (cut-down, annoyed, guilty, eye-opener) questionnaire among a total of 2344 randomized household samples in Dharan, a town in eastern Nepal. As per the study, the prevalence of alcohol dependence was **25.8%** with heavy drinking in 19.5% (male 28.4% and female 11.67%). The prevalence was higher among those of increasing age until the 41-54 age range (after which there was a slight decline), lower levels of education, widowers, divorcees and those belonging to the 'Matawali (TAU)' community (13). The wide difference in the prevalence of AUD among different studies could be due the difference in screening tests and cut-off points in different studies.

### 2.1.3 ALCOHOL USE DISORDERS AND MEDICAL CO-MORBIDITIES.

In 2014, according to WHO, "alcohol contributed to more than 200 diseases and injury-related conditions, notably DSM-IV alcohol dependence, liver cirrhosis, cancers and injuries". In 2012, 5.1 % of the burden of disease and injury worldwide (139 million disability-adjusted life years) could be attributable to alcohol consumption (3).

Alcohol use disorders (AUDs) and fetal alcohol syndrome (FAS), have been defined as being 100% attributable to alcohol, liver diseases (most prominently liver cirrhosis) have the highest AAF (Alcohol attribution fraction). These diseases are known to be

relatively prevalent and are included in the top 20 causes of death globally, alcohol-attributable liver disease is a major factor in global burden of disease (Rehm & Shield, 2013). Beyond AUDs, FAS and liver diseases, use of alcohol is associated with many diseases and causes of death but they have a relatively lower AAFs(3).

In an epidemiological study of 2 distinct American Indian Tribes from the southwest and the northern Plains of the United States, various medical conditions had significant relationships with alcohol abuse and dependence including sprains and strains, hearing and vision problems, kidney and bladder problems, head injuries, pneumonia, tuberculosis, dental problems, pancreatitis and liver problems (52).

A meta-analysis of 156 studies, including a total of 116,702 subjects showed strong trends in risk for cancers of the oral cavity, esophagus and larynx, hypertension, liver cirrhosis, chronic pancreatitis and injuries and violence. Relatively less strong direct relations could be found for cancers of the colon, rectum, liver and breast (53).

A hospital based study from Nepal incorporated 60 consecutive Alcohol Dependence Syndrome inpatient subjects, the most common physical diagnoses were related to gastro-intestinal system 42 (70%) and Central Nervous System 16 (26.1%)(16).

There is also evidence that people who have chronic alcohol dependence have changes in neurological structures in the brain, more specifically, cortical gray matter deficits and ventricular enlargement (46).

#### 2.1.4 ALCOHOL USE DISORDERS AND PSYCHIATRIC CO-MORBIDITIES

A cross-sectional study in Bahia, Brazil conducted by Almeida-Filho et al (2017) among a sample of 2,302 adults, analyzed the co-occurrence of anxiety and depressive symptoms in people who consume alcohol. The self-reported survey collected information in regards to social and personal health, as well as individual psychological status. The prevalence were 15% for anxiety, 12% for depressive disorder and 7% for alcohol abuse/dependence. Symptom co-occurrence between alcohol abuse/dependence and either depression or anxiety was found to be around 20% (54).

As reported by Levander et al in 2007, the prevalence rate of bipolar illness among individuals with substance use disorder, according to various studies conducted between 1995 and 2003, is estimated to be between 21 -58% (55).

In one of largest epidemiological surveys (National Institute on Alcohol Abuse and Alcoholism's National Epidemiological Survey on Alcohol and related conditions (NESARC)) in the US in 2001-2002 by National Institute of Alcohol Abuse and Alcoholism, among 43,093 respondents; 20% of the participants with substance of disorder had at least 1 concurrent mood disorder and 18% of those with substance use disorder had at least 1 concurrent anxiety disorder(56).

Results obtained from NESARC suggest that in adults with substance use disorder , the likelihood of having either major depression, hypomania, , generalized anxiety disorder, dysthymia, panic disorder, phobias, mania and personality disorders is much higher than in comparison to individuals without substance use disorder (56, 57).

Levander et al (2007) in the process of structuring a clinical interview for DSM- IV for bipolar men and women, enrolled 350 subjects, who were divided into those meeting criteria AUD (n=213) and those who did not(n=137). Comorbid rates of different anxiety disorders were compared between the 2 groups. Out of the total 350 individuals

with bipolar disorder, 163(46.5%) diagnosed for positive for an anxiety disorder. Panic disorder and obsessive compulsive disorder (OCD) were the most common type of anxiety disorder in both groups, however, prevalence of OCD was considerably less in those with AUD than those without. Whereas, post-traumatic stress disorder was significantly higher in bipolar women with AUD than in those without AUD (55).

In a study done in 2009 in a tertiary hospital in Nepal, 80% of the subjects with Alcohol Dependence Syndrome had other psychiatric co-morbidities (62% had other psychiatric disorders and 51% had personality problems). Main co-morbid psychiatric disorders were anxiety, mood-affective and other psychotic disorders. Among the personality problems; dissocial plus narcissistic and anxious groups were common (58).

## 2.2 ALCOHOL USE DISORDER AND ‘STAGES OF CHANGE’

Diclemente and Prochaska (1982,1985) conceptualized the “Trans-theoretical Model”(also known as “‘stages of change’” phenomenon), and have defined intentional change as a process with a series of stages. The model has a series of five stages, the first stage being *precontemplation* (here the individual is unaware or unwilling to change and is not involved in the process of change), the second stage is *contemplation* (here there is consciousness raising and the person starts evaluating the ‘pros’ and ‘cons’ of change),the third stage is the *preparation* stage, where individuals actually start preparing for change and have clear intentions of changing but haven’t yet taken effective actions towards changing the problem behavior. The next stage is the *action* stage, where the individual actively partakes in activities that reflect

intention to change behavior, the final stage is the stage of *maintenance*, which indicates successful change of behavior, this stage is marked by continued action (that indicates behavioral change) for a longer period of time(59).

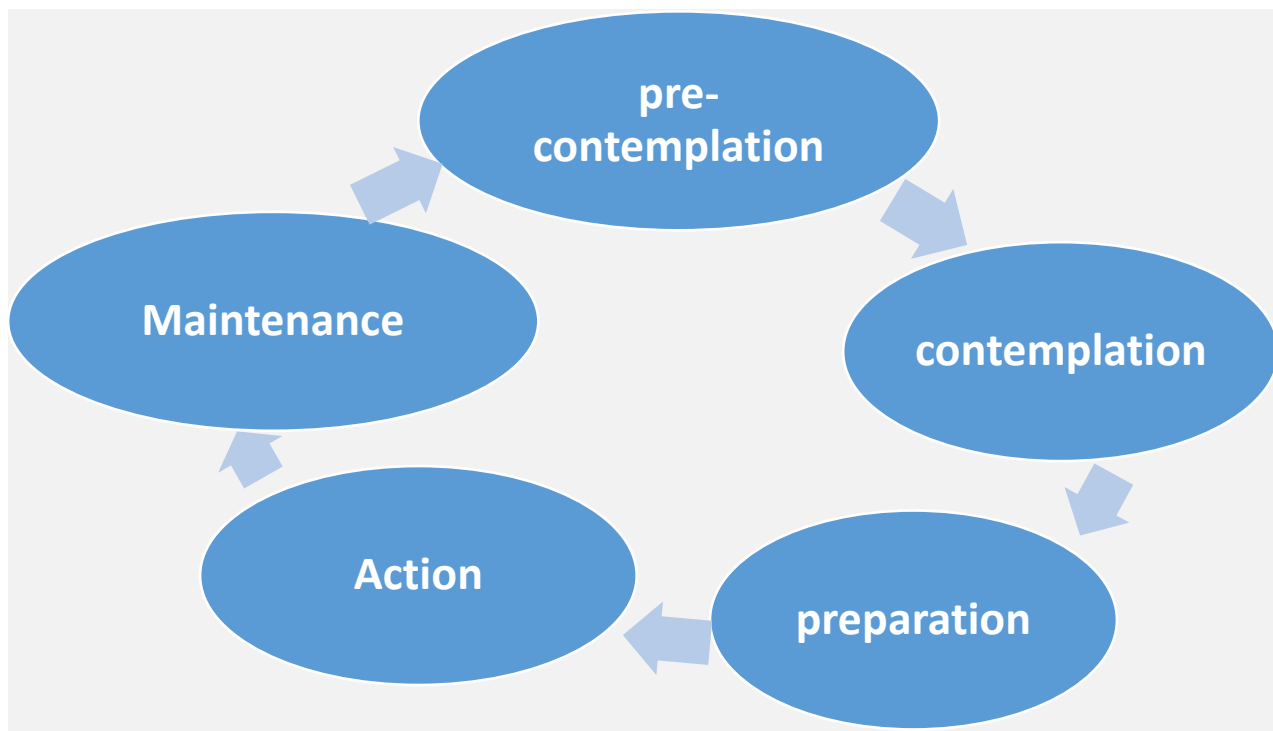


Figure 3 Prochaska and DiClemente's Transtheoretical ( "stages of change")

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Movement through these stages has been observed not to be merely a linear process, as has been described above, but can be cyclical in nature. Individuals may begin to contemplate change, but decide not to change and exit the cycle at the point of contemplation itself. Action or maintenance is often interrupted by relapse (i.e., a return to the problematic behavior). Individuals, especially those with addictive behavior problems like smoking, obesity or alcoholism often make several revolutions through the cycle either with or without formal intervention before achieving successful change (Prochaska and Diclemente,1984,1986 a; Schachter,1982) (60).

There are various factors that influence ‘‘stages of change’’ in individuals with alcohol use disorders. According to a study carried out by D’Souza, P.C and Mathai, P.J in 2017, the stages of motivation could be correlated significantly with various clinical, socio-demographic and alcohol use characteristics (23).

Despite the presumed importance of motivation to therapeutic outcome, the empirical evidence has been mixed. Some researchers (Finlay, 1977; Orford and Hawker, 1974) have failed to find a relationship between an alcoholic’s willingness to participate in treatment and outcome, whereas others (Goldfiedl,1969, Gossop,1972; Smart and Gray,1972) have found motivation related to outcome (61).

According to a study carried out amongst Canadian adolescents admitted at a residential substance abuse treatment center, the ‘‘stages of change’’ construct was used to assess risk for treatment dropout, here those belonging to the pre-contemplation stages demonstrated significantly attrition rate than those in the higher ‘‘stages of change’(62).

In a study of Department of Psychiatry, in a tertiary hospital of Nepal between July 2004 to June 2005, 51 consecutive consenting patients with Alcohol Dependence Syndrome were admitted in psychiatry ward. Most of the cases (i.e, nearly 70%) did not perceive themselves as having problem before developing complications. They did not consider habitual drinking as a problem and thus did not seek help for it. So, it can be said that they were in the pre-contemplation stage. Vast majority of patients were

brought to service by family members after the occurrence of some serious complication (63)

## 2.3 FACTORS ASSOCIATED WITH “STAGES OF CHANGE”

### 2.3.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS AND MOTIVATION:

2.3.1.1 AGE: In a study, correlation of age with motivation level was taken into consideration, results showed that mean pre-contemplation and contemplation scores were high in younger age groups while action and maintenance scores were found in older age groups. But statistically significant difference couldn't be noted, hence it can be said that in the study age did not significantly affect the 'stages of change'. The mean age of alcohol use was 20.88 years but most of the subjects in this study were of the age group between 31 to 50 years (76%) with mean age group 42.64 years, indicating that this is the age group when alcohol users usually seek help for medical complications resulting from their long term alcohol use(31).

In a national survey conducted to assess the risk factors for non-communicable diseases in Nepal between July 2012 and June 2013, the prevalence of alcohol consumption among current drinkers (consumed alcoholic beverages at least 1 time in the past 30 days), among men, the highest prevalence ( 37.6%) was found amongst 30- 44 year



olds, followed by 45-69 year olds (30.8%) and the lowest(21 %) among the youngest group of 15-29 years(64).

#### 2.3.1.2 ETHNIC GROUP:

In a study conducted among Luitel, N.P, the prevalence of AUD was found to be 3.6% among the TANU group (Brahmin, Chhetri), whereas the prevalence was around 12% among the TAU group (65).

Although no study could be found exploring the association between ethnic group and “stages of change”, a significant association between religion and “stages of change” was found in the study carried out by D’Souza, P.C and Mathai, P.J majority of the Christians and Hindus were found to be in the pre-contemplation stage, whereas majority of the Muslims were found to be either in the contemplation stages or action stage(23).

2.3.1.3 SOCIO-ECONOMIC STATUS: Those who were of higher socio-economic status were found to be at higher level of motivation compared to those of low socio-economic status, majority of whom were in the pre-contemplation stage(23).

#### 2.3.1.4 SEX:.

Men have been the primary subjects in studies linking alcohol use disorders and factors influencing ‘stages of change’, in the study D’Souza, P.C and Mathai, P.J in 2017, 100% of the subjects were men whereas in the study conducted in 2018 by Slepecky

M, Stanislav V et al participants were predominantly men. Similar findings were also observed in other studies (18, 60).

A study done in 2013 by SR Niraula concluded the prevalence of alcohol consumption in 17% in a cluster of 2340 samples of women of age more than 15 years in Dharan, Nepal higher rates of use were seen among women who belonged to hilly ethnic groups, those who were divorced and among those who smoked regularly (66).

2.3.1.5 EMPLOYMENT STATUS: In the study conducted in 2018 by Slepecky M, Stanislav V et al among patients with alcohol dependence almost half of the individuals (46.5%) were unemployed, 36.4% had a stable employment, 6.9% of patients were receiving a disability pension, 9% were retired but no statistically significant association could be found between employment status and the ‘stages of change’ (67).

2.3.1.6 MARITAL STATUS: In the 2018 study by Slepecky M, Stanislav V et al, marital status played a significant role both in the severity of alcohol use and the “stages of change” regarding drinking behavior. Those who were unmarried declared higher severity of alcohol dependence based on the AUDIT score and at the end of the treatment the married patients showed a higher readiness to change(67).

### 2.3.2 CLINICAL CHARACTERISTICS AND “STAGES OF CHANGE”:

Clinical factors are important in determining the ‘stages of change’, which has been detailed below.

#### 2.3.2.1 PHYSICAL ILLNESS/ COMORBIDITIES:

In one study among 294 general hospital inpatients, people with alcoholic liver disease, peripheral neuropathy, and the presence of comorbidities such as hypertension and neurological disorders were found to be at higher stages of motivation. But, in the same study, majority of the patients with diabetes and absence of comorbidity were in PC stage. Therefore, it could be concluded that ‘stages of change’ was found to be higher among inpatients with alcohol-attributable diseases than among inpatients with non-alcohol-attributable disease. Alcoholic liver disease, peripheral neuropathy, hypertension and neurological disorders have higher alcohol attributable fraction (AAF) compared to diabetes (23, 68).

In a study done amongst 59 patients in a rehabilitation center with recent spinal cord injury, 17% were non-drinkers, 83% were drinkers and 50% of the sample was screened as “at-risk” drinkers. Readiness to change questionnaire was used to assess the “stages of change” in these individuals. Among these 21% were in the pre-contemplation phase, 45% were in the contemplation phase, 34% in the action phase in regards to modifying their alcohol drinking behavior. Multivariate analyses indicated that positive history of harmful use of alcohol was associated with higher “stages of change”(69).

2.3.2.2 PSYCHIATRIC ILLNESS: According to the household survey conducted in Brazil by Almeida- Filho et al in 2007(54) and the structured interview conducted

among Bipolar men and women by Levander et al (2007)(55) there is a strong correlation between alcohol use disorders and psychiatric illness but there seems to be limitation in studies showcasing association between ‘stages of change’ and psychiatric illnesses among individuals with Alcohol Use Disorder.

According to a review paper by Diclemente, C.C , substance abusing individuals who have mental illness and mentally ill individuals with substance abuse problems have attitudes, opinions, beliefs and intentions which makes it difficult for them to adhere to different behavior change processes and are found to be less motivated. Both problems with commitment and problems with sustaining behavior changes have been observed in these individuals. Although it is quite evident that dually diagnosed individuals (1 mental illness and 1 substance use disorder) have more challenges in adapting to behavior change, it is still not clear what strategies can be employed among these individuals to make to more adhere to behavior change (70).

### 2.3.3 ALCOHOL USE CHARACTERISTICS AND “STAGES OF CHANGE”:

Although no studies measuring the association between abstinence attempts or previous admission to rehabilitation center/ hospital and “stages of change” could be found; majority of the subjects in previous studies have had multiple abstinence attempts and/or previous admissions in the past (31), which indicates that Alcohol Use Disorder could be considered as a chronic relapsing condition.

According to the study by Pandey A, Faye A et, al. individuals with age of initiation of alcohol use before 25 years demonstrated negative correlation with readiness to change,

in other words those who initiated alcohol use before 25 years were less motivated to change their behavior (31). Furthermore, another study found that people who initiated using alcohol before 15 years of age were more likely to develop Alcohol Use Disorders (71, 72).

**2.3.3.4 MODE OF REFERRAL:** In a study conducted in 2018 by Slepecky M, Stanislav V et al in Poland, Czech Republic and the Slovak Republic, among alcohol dependent inpatients the most frequent mode of referral was self-admission into the treatment center (35.2% of patients) followed by referral after coming into pressure from family members (20.3%), inability to manage everyday life (20.3%) and unpleasant health state forcing to patient to seek admission (12.3%) the remaining 12.3% were court orders (67). Findings regarding mode of referral were different in the study D'Souza, P.C and Mathai, P.J in 2017 in India, which showed much higher number sought treatment upon request or force by family members (69%). So, there are various modalities by which the individual could have sought help at treatment centers and the order of the frequency of mode of referral varies from study to study. Likewise, association between mode of referral and level of motivation also existed, in comparison to those who were referred by the family and others to seek help, those that came into the treatment center by self-will were found to be at a higher level of motivation (23).

## **2.4 LOCUS OF CONTROL:**

### **2.4.1 INTRODUCTION AND THEORY**

Locus of control is an important construct in cognitive social learning conceptualizations of alcoholism and has been studied extensively (Donovan and O'Leary, 1983; Rohsenow, 1983). Locus of control as formulated by Rotter (1996) refers to "the degree to which an individual perceives reinforcements as being contingent upon his/her own behavior or relatively permanent personality characteristic" or in other words, the degree to which an individual believes, the success/failure at overcoming alcoholism (or any other undesirable behavior) is dependent upon the degree of control of behavior by the individual himself/herself. The theory of locus of control has a dichotomous construct and suggests that individuals have either 'internal locus of control' or an 'external locus of control' and their subsequent behaviors are contingent upon this construct.

In accordance with the theory, an individual with an 'internal locus of control' believes that consequences that are associated to him/her occur as a result of his or her own action, whereas someone with 'external locus of control' believes that the consequences that are associated with him/her occur as a result of external factors and perceive themselves as not responsible for the consequence. Studies based on locus of control among alcoholic patients have suggested that patients tend to shift in their locus of control, from external to internal as they complete their treatment at rehabilitation centers(32).

#### 2.4.2 ALCOHOL USE AND 'LOCUS OF CONTROL'

A study by Mariano A.J, Donovan D.M in 1989 that compared 'locus of control' between problem drinkers with 'locus of control' among non-problem drinkers and those in remission indicated that those with problematic drinking habits were more external in their drinking related expectancies of control compared to non-problem drinkers and those who are currently in remission (73). Other studies have also concluded that alcoholics tend to have a more 'external locus of control' compared to non-alcoholics and previous problem drinkers who are currently in remission tend to shift their 'locus of control' from external to internal and this shift allows them to remain in remission(32, 74, 75). Finding from studies also indicate in case of a relapse, those who were previously in remission shift back to having an' external locus of control'(76, 77). Therefore, drinking related 'locus of control' is predictive of the outcome of treatment related to alcohol problems (32, 73-77). In another study conducted in Taiwan, among individuals with alcohol dependence, those with severe dependence tended to have 'external locus of control' and were ambivalent( contemplation stage) towards their drinking while those who had light dependence tended to have more 'internal locus of control' and were in the action (action stage) of the "transtheoretical model" indicating that the more severe the alcohol problem, the greater the 'external locus of control' and less the 'stages of change' and less severe the alcohol problem, the greater the 'internal locus of control' and more the 'stages of change' drinking behavior (78).

## 2.5: PERCEIVED SOCIAL SUPPORT

### 2.5.1 INTRODUCTION AND THEORY

Shumaker and Brownell (1984) described social support as “an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipients.” Family, friends, teachers, community, or any social groups can be sources of social support(34). Social support can either be **tangible support** or assistance provided by others (35) or it could be **perceived social support**, which is an individual’s confidence that they will receive the required assistance when they actually require it(36). In this study perceived social support will be assessed using the MSPSS scale(37).

### 2.5.2 ALCOHOL USE AND ‘SOCIAL SUPPORT’

The therapeutic benefits of social support has been documented extensively in previous studies(79, 80), social support has also known to be beneficial in recovery from substance use. Besides predicting further abstinence, it also increases treatment retention(81). At the general level, it can be suggested that lack of positive social relationships increases the likelihood of negative psychological states such as anxiety response and these in turn can influence physical health either directly by affecting physiological process which further influences susceptibility towards disease or the increase in risk of disease as a result of behavioral changes secondary to the negative psychological state(80). One behavioral change that can happen secondary to negative psychological state includes alcohol abuse among others.



## METHODOLOGY

### 3.1 Study Design

The study was a cross-sectional study.

### 3.2 Study Area

The study was conducted in rehabilitation and detoxification centers in Kathmandu, Nepal. Kathmandu, which is the capital city of the country, is located in the central part of the country (State 3) and has a population of 4 million. People from all over the country reside here. Furthermore, many people come to Kathmandu to seek medical care. Hence, the study can be representative of individuals with Alcohol Use Disorder from all over the country.



*Figure 4: Map of Kathmandu, Nepal*

### 3.3 Study Population

The population under study were individuals with Alcohol Use Disorder in Kathmandu, Nepal.

### 3.4. Sample

Samples were selected from patients with alcohol problems in various rehabilitation centers. There are around 20 rehabilitation centers in the capital.

#### 3.4.1 Inclusion criteria

- 1) Individuals should be 18 years and above.
- 2) Individuals who have endorsed alcohol as either their primary drug of choice or as their secondary drug of choice and had used alcohol at least once in the previous year (from the day of data collection).
- 3) Individuals who give informed written consent to participate in the research.
- 4) Male and female patients (individuals) with Alcohol Use Disorder (AUDIT score  $\geq 8$ ) admitted to in various rehabilitation and detoxification centers.

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#### 3.4.2 Exclusion criteria

Patient with clinical condition (severe withdrawal) which may render them unable to communicate with the interviewer and thus making them unable to participate in the study.

### 3.5 Sample Size Calculation

The statistical assessment for factors influencing “stages of change” with Alcohol Use Disorder patients in rehabilitation centers of Kathmandu, Nepal required development of multiple linear regression model.

For calculation of the sample size, the minimum required ratio of observation to variables is 5:1, but the preferred ratio is 15:1 or 20:1 (Joseph F Hair JR, 2010)

So, as the proposed number of independent variables for this study is 15, by maintaining the ratio of 15:1,  $15 \times 15 = 225$  observations are required.

Another 15% were added for missing or incomplete responses. So adding 34, we get 259, making 260 the appropriate number of observations for this study.

### 3.6 Sampling Technique

- Rehabilitation centers were randomly selected from a list of registered rehabilitation and detoxification centers in Kathmandu. After selecting the centers, the investigators called the responsible personnel at the centers and explained the objectives and the process of the research to personnel at the Rehabilitation Centers were contacted and explained about the study.
- There were variation in regards to the number of admitted patients from center to center. Upon inquiry with the Rehabilitation centers, it had been realized that the average number of patients who endorsed alcohol as either their primary drug of choice or as their secondary drug of choice and had used alcohol at least once in the previous year who is expected to be around 40, so 6 centers were

randomly selected in the beginning to meet the sample size of 260. However, as the sample size was inadequate; 2 more centers were randomly selected from the remaining centers.

### 3.7 RESEARCH INSTRUMENTS

#### 3.7.1 INSTRUMENTS USED.

**Screening tool:** AUDIT scale, which was used to screen patients for Alcohol Use Disorder. Nepali version of the scale will be used. The scale contains 10 items.

**Part 1:** Socio-demographic and clinical characteristics, **Part 2:** Alcohol use characteristics and **Part 3:** Mode of referral was assessed with the self-developed questionnaire.

**Part 1: Socio-demographic and Clinical Characteristics:** which includes 9 items: 1) Age, 2) sex, 3) ethnic group, 4) marital status, 5) education, 6) employment status, 7) Income, 8) Psychiatric disorders, 9) Physical Illness.

**Part 2: Alcohol Use Characteristics:** which includes 3 items: 1) Number of previous abstinence attempts, 2) Age of initiation of alcohol use, 3) Number of previous admissions at rehabilitation centers for alcohol use.

**Part 3: Mode of Referral** was assessed with 1 question, which inquired about their method of arrival at the rehabilitation center. The options presented to the participant were self-referral, request or pressure by family/ friends, clinician referral/health promotion campaigns, requirement by law for misbehavior/crime and others.

**Part 4: Locus of control** was assessed using **Drinking Related Internal-External Locus of Control Scale**. Nepali version will be used. The scale contains 25 items.

**Part 5: Social Support**, was assessed using **Multidimensional Scale of Perceived Social Support**. Nepali version of the scale was used. The scale contains 12 items.

**Part 6: “stages of change”** was assessed using **University of Rhode Island Change Assessment Scale (URICA)**. The scale contains 24 items. Nepali version of the scale was used.

### 3.7.2 INSTRUMENT DEVELOPMENT

**Screening tool: AUDIT scale: Alcohol use Disorder Identification Test (AUDIT):**

AUDIT: The AUDIT scale was be used to identify individuals with Alcohol Use Disorder. The scale has 10 items. It is a simple method developed by WHO to screen for AUD among alcohol users. A brief assessment is required in order to screen for excessive drinking. The 1<sup>st</sup> edition was published in 1989, and it has been updated once in 1992(82). The reference standard for AUDIT incorporates key elements of harmful and hazardous drinking as defined by WHO and in the ICD-10 system (82). According to a systematic review of screening for alcohol problems in primary care settings, the diagnostic performance of AUDIT was found to be effective and compared well with other popular alcohol use screening instruments(42).

In another systematic review of articles published between 2002 and 2009, which included 47 studies from different countries and in diverse setting and among diverse

patient population, the AUDIT scale was found to have validity and efficiency at identifying individuals with harmful use and alcohol dependence(83). Although different scores and cut-offs have been used in different studies, scores of  $\geq 8$  will be used to diagnose AUD, 8-14 harmful use,  $\geq 15$  as cut-off for alcohol dependence(82) as proposed by the authors of the scale. The same values were applied in this study. Total of 10 items, measured from 0 through 4 for the first 8 items, last 2 items measured as either 0, 2 or 4. For our study, the Cronbach's alpha for AUDIT screening tool was found to be 0.804.

**Part 1: Socio-demographic and clinical characteristics, **Part 2: Alcohol Use characteristics**, and **Part 3: Mode of referral** will be assessed using self- developed questionnaire, developed by the researcher in accordance with the conceptual framework. The questionnaire will be developed in English language and then translated to Nepali language by an expert in Nepali language who is also well versed in English and back- translated in English by an expert in English language who is also well versed in Nepali language. The above 3 questionnaires were structured by the researcher and not taken from already validated questionnaires so they were validated using item-objective congruence(IOC) by three experts who were familiar with the research topic and had experience in scientific research. The score provided by the experts were in the range of (-1,0,+1) and score equal or more than 0.8 was accepted. If the score was less than 0.8 it was revised according to the advice of the experts.**

**Part 4: Drinking Related Internal-External Locus of Control Scale**, is a 25 item questionnaire developed by Keyson and Janda (32) and contains 25 items. For each of

the 25 items in the questionnaire there are two alternative statements (one statement designating internal control, while the other designates external control) about their drinking behavior. The participants has to choose one statement, whichever represents more closely to his or her behavior. It is a self-report instrument and good construct validity, concurrent validity( both convergent and divergent) and reliability has been demonstrated for the DRIE (84). Donovan and Leary (1978) suggested the DRIE as a reliable and valid measure to assess locus of control relative to drinking behavior(  $\alpha=0.77$ )(85). The DRIE will be scored based on the external factor response endorsed by the participants (33). It contains 25 paired questions and seeks forced choice answers from the participants, where they select one answer from one pair of opposite statements. Scores 7 and more will correspond to external locus of control, whereas patients with scores 6 and less will be considered to have internal locus of control(32, 85).

The DRIE is scored on the External direction by summing the number of external response options endorsed.

Total Score—Sum of external items endorsed across the entire scale:

$1b+2b+3a+4b+5a+6b+7a+8b+9a+10b+11b+12a+13a+14b+15a+16b+17b+18b+19a+20a+21b+22b+23a+24b+25a$

Factor 1—Intrapersonal Factor Sum =  $9a+11b+13a+14b+16b+17b+25a$

Factor 2—Interpersonal Factor Sum =  $3a+4b+6b+7a+10b+22b+23a$

Factor 3—General Control Factor Sum =  $5a+8b+20a$

**Part 5: Perceived Social Support**, will be assessed using **Multidimensional Scale of Perceived Social Support (37)**. MSPSS is a 12 item scale which has 3 subscales, namely a) Family b) Friends c) Significant other, these represent 3 different sources of support. 4 questions each for 3 subscales.

For interpretation, of the scale: The total score (sum of all 12 items) was calculated and then divided by 12, which was the **mean score** of perceived social support.

Although there are no established norms for scoring of MSPSS, usually the mean score difference between different groups (e.g: married and unmarried) are taken in to consideration. The group with the higher score having more perceived social support. But, the authors of the scale have provided a guide ( with cut-off scores) to be used as an alternative method of scoring and this was applied in the study(37). The Cronbach's alpha for MSPSS in our study was found to be 0. 918.

*Table 3.1 Mean score reference for MSPSS*

Mean score	Perceived social support
1 to 2.9	Low
3 to 5	Moderate
5.1 to 7	High

MSPSS has 3 subscales, significant other (SO), Family and Friend. To avoid confusion among the participants, family was defined everyone else in the immediate family besides the significant other, whereas significant other was defined as any one person whom the participant considered special to him/her. This was explained to the participants before starting the questionnaire filling process and after the questionnaire was distributed.



MSPSS has good internal and test-retest reliability as well as moderate construct reliability. Cronbach's alpha, for the scale as a whole was .88, while for the subscales, namely, Significant others, Family and Friends it was .91,.81 and .85 respectively(37). For the purpose of the study the questionnaire was translated in the Nepali language by an expert in the Nepali language who was also well-versed in the English language and it was back-translated into English language by an expert in the English language who was also well-versed in the Nepali language.

**Part 6: “stages of change”** will be assessed using **University of Rhode Island Change Assessment Scale (URICA)**, a self-assessment tool intended to measure motivation to modify their behavior as they progress through a process of the “stages of change” . It was developed by McConaughy, Prochaska and Velicer 1983 (86).

The individual responds in a scale format which is based on how the individual (respondent) is feeling at that point in time. A therapist is able to interpret the answers of the questionnaire and determine what areas may need work, what level of treatment may be required and also at what stages of the problem the individual is at. It has four sub-scales that measure the ‘stages of change’; pre-contemplation, contemplation, action and maintenance.

Each item is rated from 1 to 5 using a likert- scale, where 1 indicates” strongly disagree” and 5 indicates ”strongly agree”. After that, a scoring grid is used to score each stages on the “stages of change” model. 4 stages from TTM are used, namely- pre-contemplation, contemplation, action and maintenance. The 4 stages are represented by 4 clusters which are assessed using score- grids, the total score is divided by 6, and further calculation is done as follows.

Table 3.2 Score calculation for URICA

	Precontemplation	Contemplation	Action	Maintenance
Question Numbers	1	3	2	10
	5	6	4	12
	7	9	8	15
	16	13	11	20
	19	14	18	21
	22	17	23	24
Total:				
Divide by:	6	6	6	6
Mean:				

In order to obtain a Readiness to Change score, first sum items from each subscale and divide by 6 to get the mean for each subscale. Then sum the means from the Contemplation, Action, and Maintenance subscales and subtract the Precontemplation mean ( $C + A + M - PC = \text{Readiness}$ ).

Using the above formula( $C+A+M-PC$ ) a readiness score was created, which has a possible range of -2 to +14, then the final score was assigned into clusters and measured accordingly(as shown below). For the general population, the following cut-off scores may be appropriate: (<https://habitslab.umbc.edu/urica-readiness-score/>).

8 or lower classified as People in Precontemplation

8-11 classified as People in Contemplation

11-14 classified as People in Preparation or Action

>14 Maintenance

Psychometric properties of URICA demonstrate a stable four-factor structure using confirmation factor analysis and subscale consistency (Carney, et, al

(1995):Cronbachs alpha :.80-.84 for each of 4 subscales; DiClemente, et. al (1990): Cronbachs alpha :Precontemplation (.69) Contemplation (.75) Action (.82) Maintenance (.80)). In our study, the Cronbach's alpha was found to be 0.75.

For the purpose of the study the questionnaire was translated in the Nepali language by an expert in the Nepali language who was also well-versed in the English language and it was back-translated into English language by an expert in the English language who was also well-versed in the Nepali language.

### 3.8 Data Collection

Before data collection, ethical approval was sought from National Health Research Council (NHRC) Nepal. The letter introducing the researcher and stating the study objectives and methodology was received from NHRC and that was shared with responsible personnel at each of the centers which are randomly selected. Then, these centers were requested to provide the researchers with the permission to conduct the study at their centers. After receiving the permission, researchers requested to see the record lists of patients with alcohol problems who were admitted at the centers at the time of data collection.

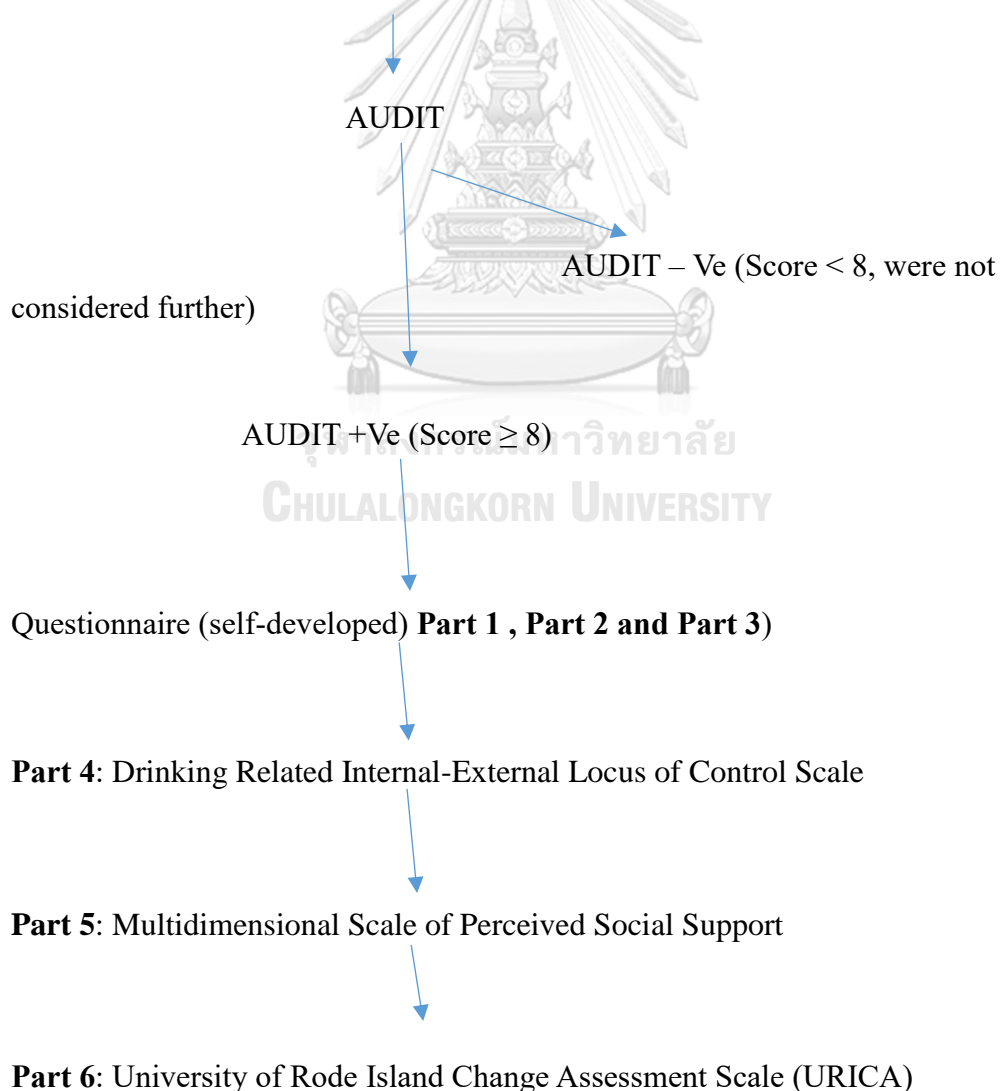
As, only 2 of the 8 centers were alcohol specific treatment centers, the rest included patients with alcohol as well as other substance users.

To identify those patients with alcohol use disorder, those patients who had listed alcohol as their primary substance or as their secondary substance (primary substance being another, secondary substance used primary substance not available or unaffordable) at the time of admission and had used alcohol at-least once in the previous year were provided with the screening questionnaire (AUDIT).

After that patients were approached one by one and information regarding the study was provided to them. From those who agree to participate in the study an informed consent was taken and patients who provided the consent and satisfied the inclusion criteria were enrolled in the study. They were also provided information regarding anonymity, freedom to participate, right to withdraw, confidentiality, access to final report and also be assured that the data will not be used for purposes other than the current study).

**The data collection procedure will proceed as follows:**

A written informed consent from the patient.



Any confusion among the participants regarding questions were cleared and explained by the researcher and the research assistants.

Duration of Data collection: 1 month

A total of 8 Drug and Alcohol Rehabilitation centers were visited in the process of the study. In the beginning, 6 rehabilitation centers were randomly selected from a total of 23 rehabilitation centers (simple random selection was applied). After this personnel (authorities) at the centers were contacted via phone and provided information regarding the study and requested for permission to conduct the study at their centers. They were also enquired for information regarding possible number of participants. All 6 centers agreed to participate. When the sample size couldn't be reached from the initially selected 6 rehabilitation centers, 2 more centers were selected.

A total of 256 screening questionnaires (AUDIT) were distributed among patients from the 6 selected rehabilitation centers, but only 193 samples could be collected from these as 63 participants did not pass the screening test( AUDIT score <8). Thereafter, 2 more centers were randomly selected from the remaining 17 centers. Total number of participants screened with AUDIT was 382.

Out of 382 screened, 254 (66.4%) passed the screening test (AUDIT $\geq$  8) and were provided with the complete set of questionnaire. 29 questionnaires were excluded from the total (254) for incomplete answers (e.g: some sections left unmarked) and unclear answers (e.g: tick marks on two numbers of a likert scale). So, final total of 225 (58.4%) was achieved (sample size).

*Table 3.3 Participants, before and after screening from 8 rehabilitation Centers*

Rehabilitation Center	Before Screening n	AUDIT (+ve) N	Final*
Narconon Nepal	48	38	34
Ashraya Nepal	55	39	36
Cripa	27	22	18
Recovering Group	42	29	25
Hope Foundation	39	31	28
Namaste Upakar	45	34	29
Sankalpa	27	22	20
Maya Nepal	45	39	35
Total	382	254	225

\*After cleaning of data

### 3.9 Data Analysis

After completing the data collection, data was entered in Excel and analyzed in SPSS 22 licensed by Chulalongkorn University. Both descriptive and inferential statistics were used to give a clear picture on “stages of change” and to show association and direction of dependent and independent variables.

For descriptive statistics, categorical data was analyzed by frequency and percentage plus continuous data was reported in mean, range and standard deviation (S.D). Intended for inferential statistics, bivariate analysis was performed to determine the association between the independent variables and dependent variable – “stages of change” using Chi-square test.

Later, all the variables were selected to perform multivariate analysis (multiple regression). Designed for multivariate analysis, the statistical association was considered significant if p-value was  $<0.05$ .

*Figure 3.4 Research objective and respective statistics applies.*

RESEARCH OBJECTIVES	STATISTICS USED
1) To describe the “stages of change” (according to the Transtheoretical Model) among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.	Descriptive Statistics( frequency, percentage)
2) To describe the socio-demographic characteristics, clinical characteristics, Alcohol use characteristics, Locus of Control, Mode of referral and Perceived Social support among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.	Descriptive Statistics( frequency, percentage, in addition- mean and standard deviation for continuous variables)
3) To identify the factors influencing “stages of change” among Alcohol Use Disorder patients in Rehabilitation Centers of Kathmandu, Nepal.	Bivariate analysis( chi-square) and Multivariate analysis( multiple linear regression).

### 3.10 Limitations of the study

- The study was conducted in Rehabilitation Centers (Residential treatment centers) in Kathmandu, Nepal and may or may not represent patients with

‘Alcohol Use Disorder’ in the general population (outside the rehabilitation centers).

- The “stages of change” wasn’t assessed before the admission so stage progression (if it occurred) couldn’t be assessed.
- Also, different patients had been admitted at different times before the study (ranging from 1 week to 4 months), which could have affected the “stages of change” but the effect of time since admission on “stages of change”; wasn’t assessed in the study.
- As all the participants in the study were men, the results may not be generalizable in women.
- The use of self-response questionnaires could have led to response bias as participants may over or under rate, alcohol use characteristics, perceived social support, locus of control, or “stages of change”.

### [3.11 Confidentiality and rights of participants](#)

Any information related to the participant was kept confidential. Even though the study will be published names and other identifying information of the participants will not be mentioned in the reports or summaries of the reports. The data was kept confidential during the process of research and will be kept so in the process of reporting. All data including the participants answer to the questions was destroyed after the final reporting was completed and data was entered into a software. No harms and/or risks of any kind was inflicted upon participants. Participants were able to refuse to answer any question or may have refused to take part in any portion of the interview if they felt that the questions were personal or if talking about them made them uncomfortable.



### 3.12 Benefits and applications:

The study will not only provide information regarding “stages of change” of patients with AUD but will also provide information regarding the socio-demographic, clinical and alcohol use related characteristics, mode of referral of the participants, locus of control and social support status of patients with alcohol use disorder in rehabilitation centers of Kathmandu, Nepal . This information will potentially help both health workers involved in this area of work and policy makers and authorities regarding the development of policies and interventions for the welfare of individuals with ‘alcohol use disorder’.



## RESULTS

This research has employed a cross-sectional method with the objective of investigating the Factors influencing “stages of change” among Alcohol Use Disorder patients in Rehabilitation Centers in Kathmandu, Nepal.

### 4.1. Socio-demographic, Clinical, Alcohol Use Characteristics, Mode of referral, Perceived Social Support and Locus of control of the patients with AUD

#### 4.1.1. Socio-demographic and Clinical Characteristics of patients with Alcohol Use Disorder

Table 1 shows the socio-demographic and clinical characteristics of the study participants. The mean age of the participants was 33.7, with a standard deviation of 11.2 years. The study participants were all male. This is because the rehabilitation centers housed all male or all female members. More than half (54.7%) of the participants were in the age group of 25 -45 years. Forty eight percent of the participants was ‘married’ and the rest were either single or divorced. The 3 highest ethnic groups consisted of 25% Chhetris, 18.2% Brahmins and 11.2% Tamangs. More than one third of the participants had high school education or above, while 7% were illiterate and 14% could only read and write but had never attended formal schooling. The majority of the participants were unskilled workers (laborers), followed by business owners, government employees and students. Almost 18% were unemployed. More than half the participants reported to having an income lower than NPR 20,000 (USD=175.4). An interesting finding is that more than a third of the participants had a pre-existing

psychiatric disorder, while almost half of them had a physical co-morbidity. Description of socio-demographic and clinical characteristics, locus of control, mode of referral and social support was research objective no.2.

*Table 0.3 Socio- demographic and Clinical Descriptive (n = 225)*

Characteristics	Patients	
	n	(%)
<b>Age (years)</b>		
18-24	61	(27.1)
25-45	123	(54.7)
>45	41	(18.2)
Range	18-61	
Mean $\pm$ sd	33.7 $\pm$ 11.2	
<b>Marital Status</b>		
Single	96	(42.7)
Married	110	(48.9)
Divorced/widow	19	(8.4)
<b>Ethnic Group</b>		
<i>Traditional Alcohol Non-Users (TANU)</i>		
Brahmin	41	(18.2)
Chhetri	57	(25.3)
<i>Traditional Alcohol Users</i>		
Newar	23	(10.2)
Gurung	22	(9.8)
Tamang	25	(11.2)
Others ( Rai, Limbu, Tamang, Madheshi and others)	57	(25.3)

Characteristics	Patients	
	n	(%)
<b>Education</b>		
Illiterate	16	(7.1)
Can read and write	32	(14.2)
Primary School (Grade 1-4)	22	(9.8)
Middle School (Grade 5-8)	39	(17.3)
Secondary School (Grade 9 and 10)	34	(15.1)
High School (11 and 12)	51	(22.7)
≥Bachelors	31	(13.8)
<b>Occupation</b>		
<i>Unemployed</i>	40	(17.8)
<i>Employed</i>		
Business	39	(17.3)
Farmer	18	(8.0)
Laborer	44	(19.6)
Government Service	29	(12.9)
Student	29	(12.9)
Others (e.g: Drivers, Cooks, Security Guards)	26	(11.6)
<b>Monthly Income (NRS)*</b>		
≤ 10,000	63	(28.0)
>10,000	162	(72.0)
<b>History of Psychiatric Disorders</b>		
<i>No</i>	141	(62.7)

Characteristics	Patients	
	n	(%)
<i>Yes</i> (At least 1)	84	(37.3)
<b>Depression</b>		
No	193	(85.8)
Yes	32	(14.2)
<b>Anxiety</b>		
No	199	(88.4)
Yes	26	(11.6)
<b>Bipolar Disorder</b>		
No	207	(92.0)
Yes	18	(8.0)
<b>Schizophrenia</b>		
No	212	(94.2)
Yes	13	(5.8)
<b>Personality Disorder</b>		
No	212	(94.2)
Yes	13	(5.8)
<b>Others *(e.g:Insomnia, acute psychoses)</b>		
No	213	(94.7)
Yes	12	(5.3)

### History of Physical Comorbidity

No	128	(56.9)
Yes (At least 1)	97	(43.1)
<b>Hypertension</b>		
No	191	(84.9)
Yes	34	(15.1)
<b>Diabetes Mellitus</b>		

Characteristics	Patients	
	n	(%)
No	200	(88.9)
Yes	25	(11.1)
<b>Chronic Liver Disease</b>		
No	204	(90.7)
Yes	21	(9.3)
<b>Chronic Kidney Disease</b>		
No	218	(96.9)
Yes	7	(3.1)
<b>Chronic Respiratory Disease</b>		
No	204	(90.7)
Yes	21	(9.3)
<b>Others *(e.g: Gastritis, Peptic ulcer)</b>		
No	217	(96.4)
Yes	8	(3.6)

\*114 NRS = 1USD

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#### 4.1.2. Alcohol Use Disorder Identification Test (AUDIT) scores and classification:

As we can see from Table 4.2, 57 (25.3 %), participants had scores at the level of Harmful Use (AUDIT score 8-14), whereas the rest 168 (74.7%) were screened to have alcohol dependence (AUDIT score 15 - 40).

*Table 0.4 Alcohol use disorder (AUDIT) score (n=225)*

Alcohol Use Disorder (AUDIT score)	Patients
---------------------------------------	----------

	n (%)
Harmful Use	57 (25.3)
Alcohol Dependence	168 (74.7)

#### 4.1.3 Alcohol Use Characteristics

The average age of initiation of alcohol drinking was found to be  $20.65 \pm 6.87$  years; with the minimum age found to be 10 years and the maximum 57.

A total of 177 participants started drinking alcohol after the age 15 years, whereas the remaining 48 participants started drinking before or at the age of 15. Regarding previous abstinent attempts, 25 participants had no previous abstinent attempts, 59 had been abstinent once in the past, 52 had 2-3 abstinent attempts in the past, whereas 89 had 4 or more abstinent attempts in the past. Out of a total of 225 participants, 101 participants did not have previous admissions at a rehabilitation center or hospital for alcohol related problems, whereas 52 had been admitted once before, whereas 72 had been 2 or more times in the past.

The precise range and standard deviation for previous admissions and previous abstinent attempts couldn't be calculated because patients with multiple admissions and multiple attempts had difficult remembering the exact figure.

*Table 0.5 Alcohol Use Characteristics (n=225)*

Characteristics	Patients	
	n	(%)
<b>Age of Initiation (years)</b>		
≤15	48	(21.3)
>15	177	(78.7)
Range	10-57	
Mean (sd)	20.65	6.87
<b>Abstinence Attempts (times)*</b>		
0	25	11.1
1	59	26.2
2-3	52	23.1
≥4	89	39.6
<b>Number of previous admissions (Hospital or Rehabilitation Centers)*</b>		
0	101	44.9
1	52	23.1
≥2	72	32.0

\*Range and Standard Deviation couldn't be calculated because unreliable information provided by majority of those with  $\geq 4$  abstinent attempts and  $\geq 2$  previous admissions.

#### 4.1.4 Mode of Referral

The majority (close to 80%) of the participants reported being referred to the center by their family members. Whereas only 12 % had come to the rehabilitation center by their



own self-will. The remaining (9%) of the individuals had come by either clinical/health promotion campaign referrals or for committing crimes/requirement by law.

*Table 0.6 Mode of referral (n=225)*

<b>Mode of Referral</b>	<b>Patients</b>	
	<b>n</b>	<b>(%)</b>
Self	28	(12.4)
Family	177	(78.7)
Clinicians/ Health Promotion Campaigns/ Law/ Crime	20	(8.9)

#### 4.1.5 Drinking Related Locus of control

The majority of the participants 1 in 4 patients (24.4%) had internal locus of control as measured by DRIE (Drinking Related internal- external locus scale), whereas close to 3 in 4 patients (75.6%) had external locus of control in regards to their drinking habits. The scale values (scores) from 0-6 were taken as internal locus of control whereas those  $\geq 7$  were considered to have external locus of control, as was adopted in previous studies (85) (32).

*Table 0.7 Drinking Related Locus of Control (n=225)*

Drinking Related Locus of Control	Patients	
	n	(%)
Internal	55	(24.4)
External	170	(75.6)

#### 4.1.6 Perceived Social Support (General)

In regard to the perceived social support (general), more than 50% of the participants, had high social support, whereas 38.2% of the participants had moderate social support, while only 7.1% had low social support. The domain of social support are divided into 3 aspects, namely: Social support from a ‘Significant Other’, social support from ‘Family’ and social support from ‘Friends’.

The mean and standard deviation (in brackets) for MSPSS score (general) was 4.93 (1.15), for the subscales, significant other(SO) 5.01 (1.34), for family 5.31(1.38) and for friends 4.49( 1.38).

#### ***Perceived Social Support- Significant other***

The perceived social support- Significant Other, which was measured as a sub-scale of perceived social support, revealed similar results as seen for the general perceived social support. More than 50% of the patients having High social support from their significant other. Whereas, 38.2% having moderate social support followed by only about 8% having low social support in terms of social support received from their significant other.

### ***Perceived Social Support- Family***

Perceived Social Support- Family, also showed that the largest proportion( 63.1%) of the patients in high social support from their families, whereas around 29% had moderate social support and the remaining 8% had low social support from their families.

### ***Perceived Social Support- Friends***

In terms of social support received from friends, the largest proportion were noted to have moderate social support from friends (52.4%), whereas 36.4% had high social support from friends, whereas just over 11% had low social support.

*Table 0.8 Perceived Social Support (n=225)*

<b>Perceived Social Support</b>	<b>Patients</b>	
	<b>n</b>	<b>(%)</b>
<b>General</b>		
Low	16	(7.1)
Moderate	86	(38.2)
High	123	(54.7)
<b>Significant Other</b>		
Low	18	(8.0)
Medium	86	(38.2)
High	121	(53.8)
<b>Family</b>		
Low	18	(8.0)
Moderate	65	(28.9)
High	142	(63.1)
<b>Friends</b>		
Low	25	(11.1)
Moderate	118	(52.4)
High	82	(36.4)

#### 4.1.7 ‘Stages of Change’

‘‘stages of change’’ is the dependent variable for the study and was measured using the URICA scale. Based on the total score, each participant was divided into different categories. The majority of the patients (56%) were in the contemplation stage, whereas 28% were in the pre-contemplation stage while 16% were in the action stage. However, none of the study participants were found to be in the ‘Maintenance’ stage and hence it has been excluded from statistical analyses. Determination of the ‘‘stages of change’’ was Research Objective no.1.

*Table 0.9 Distribution of patients based on ‘‘stages of change’’ model (n=225)*

‘‘Stages of Change’’	Patients	
	n	(%)
Pre-Contemplation	63	(28.0)
Contemplation	126	(56.0)
Action	36	(16.0)

#### 4.2 Association of Socio-demographic, Clinical, Alcohol Use Characteristics, Mode of referral, Social Support and Locus of Control with ‘stages of change’ in patients of AUD

The bivariate analysis of the independent and dependant variables was done using chi-square test. The association was considered significant at P- value  $\leq .05$ .

#### 4.2.1 Association of Socio-demographic and Clinical Characteristics with ‘stages of change’

The ‘stages of change’ and socio-demographic and clinical characteristics were studied here were assessed through chi square test. In all three age groups, almost half of the participants were in the contemplation group, while more youth participants (age  $\leq 24$  years) were in the pre-contemplation stage rather than the action stage. However, from the results of the chi- square test, there was no significant association between age and ‘stages of change’ (p- value = 0.881). Bivariate analysis was done to identify factors influencing ‘stages of change’ which was research objective no.3 .Only 4 variables, history of psychiatric disorders, history of physical disorders, perceived social support and locus of control were found to have statistically significant association with ‘stages of change’ in the bivariate analysis.

*Table 0.10 Association between Socio- Demographic/Clinical Factors and 'stages of change'*

Characteristics	‘stages of change’			p- value
	Pre-Contemplation n (%)	Contemplation n (%)	Action n (%)	
<b>Age (Years)</b>				0.881
18-24	20 (32.8)	33 (54.1)	8 (13.1)	
25-45	32 (26)	70 (56.9)	21 (17.1)	
>45	11 (26.8)	23 (56.1)	7 (17.1)	
<b>Ethnic Group</b>				0.061
<i>TANU</i>				
Brahmin	11 (26.8)	23 (56.1)	7 (17.1)	

Characteristics	'stages of change'			p- value
	Pre-Contemplation n (%)	Contemplation n (%)	Action n (%)	
Chhetri	13 (22.8)	36 (63.2)	8 (14.0)	
<i>TAU</i>				
Newar	3 (13)	18 (78.3)	2 (8.7)	
Gurung	4 (18.2)	11 (50.0)	7 (31.8)	
Tamang	7 (28)	13 (52)	5 (20.0)	
Others	25 (43.9)	25 (43.9)	7 (12.3)	
<b>Marital Status</b>				0.089
<i>Married</i>	23 (20.9)	66 (60.0)	21 (19.1)	
<i>Others</i>				
Single	32 (33.3)	53 (55.2)	11 (11.5)	
Divorced	8(42.1)	7(36.8)	4(21.1)	
<b>Education</b>				0.151
Illiterate	6(37.5)	8(50)	2(12.5)	
Can read and write	9(28.1)	19(59.4)	4(12.5)	
Primary School	4(18.2)	11(50)	7(31.8)	
Middle School	18(46.2)	16(41)	5(12.8)	
Secondary School	9(26.5)	21(61.8)	4(11.8)	
High School	8(15.7)	35(68.6)	8(15.7)	
Bachelors and above	9(29)	16(51.6)	6(19.4)	
<b>Occupation</b>				0.713

<b>Characteristics</b>	<b>'stages of change'</b>			p- value
	Pre-Contemplation n (%)	Contemplation n (%)	Action n (%)	
<i>Unemployed</i>	10(25)	26(65)	4(10)	
<i>Employed</i>				
Business	9 (23.1)	23 (59)	7 (17.9)	
Farmer	7 (38.9)	7 (38.9)	4 (22.2)	
Laborer	9 (20.5)	25 (56.8)	10 (22.7)	
Government Service	10 (34.5)	14 (48.3)	5 (17.2)	
Student	9 (31)	16 (55.2)	4 (13.8)	
Others	9 (34.6)	15 (57.7)	2 (7.7)	
<b>Monthly Income (in NRS)*</b>				0.094
≤ 10,000	24 (38.1)	33(52.4)	6 (9.5)	
>10,000	39 (24.1)	99(61.1)	24(14.8)	
<b>History of Psychiatric Disorders</b>				0.008
No	30 (21.3)	89 (63.1)	22 (15.6)	
Yes	33 (39.3)	37 (44)	14 (16.7)	
<b>History of Physical Comorbidity</b>				0.019
No	30 (23.4)	82 (64.1)	16 (12.5)	
Yes	33 (34.0)	44 (45.4)	20 (20.6)	

\*114 NRS = 1USD

#### 4.2.2 Association between Alcohol use Characteristics and “stages of change”

The various alcohol use characteristics were analysed against the “stages of change” in the participants using then chi square analysis. The values of <0.05 were taken to be significant. The table below shows the results of bivariate analysis:

*Table 0.11 Association between alcohol use characteristics and "stages of change"*

Alcohol Use Characteristics	“Stages of change”			p- value
	Pre-Contemplation n (%)	Contemplatio n (%)	Action n (%)	
<b>Number of Previous Abstinence Attempts</b>				0.311
0	9 (36.0)	11 (44.0)	5 (20.0)	
1	21 (35.6)	29 (49.2)	9 (15.3)	
2-3	13 (25.0)	34 (65.4)	5 (9.6)	
≥4	20(22.5)	52 (58.4)	17 (19.1)	
<b>Age of Initiation</b>				0.570
≤15	12 (25.0)	30 (62.5)	6 (12.5)	
> 15	51 (28.8)	96 (54.2)	30 (16.9)	
<b>Number of Previous Admissions (Hospital/ Rehabilitation Centers)</b>				0.673
0	28 (27.7)	56 (55.4)	17 (16.8)	



Alcohol Use Characteristics	“Stages of change”			p- value
	Pre-Contemplation n (%)	Contemplatio n n (%)	Action n (%)	
1	15 (28.8)	32 (61.5)	5 (9.6)	
≥2	20(27.8)	38 (52.8)	14 (19.4)	

It is interesting to note that the alcohol drinking characteristics were not found to be significantly associated with the different ‘stages of change’.

The severity of alcohol use disorder determined from the screening tool (AUDIT) was also analyzed to find if any association existed between it and the ‘stages of change’. This variable was only analyzed in the biavriate analysis and would not have been considered for multiple linear regression. However, there was no significant association (p- value = 0.401) between the AUDIT score and the ‘stages of change’. AUDIT score represents severity of alcohol use, higher the score more severe the use.

Table 0.12 Association between AUDIT and “stages of change”(n=225)

Characteristic	“stages of change”			p- value
	Pre- n (%)	Contemplation n (%)	Action n (%)	
<b>AUDIT Group (severity of alcohol use)</b>				0.401
Harmful Use (9- 14)	12 (21.1)	35 (61.4)	10 (17.5)	
Alcohol Dependence (15 - 40)	51 (30.4)	91(54.2)	26(15.5)	

#### 4.2.3. Association between Mode of Referral and ‘stages of change’

The study included mode of referral as an independent variable to assess its influence on the ‘stages of change’. The modes of referral to the rehabilitation was classified as ‘Self’, ‘Family/ Friends’ and through ‘clinicians, health promotion campaigns or through law after committing a crime’. However, the study did not find any association between the mode of referral and the “‘stages of change’” of the participants (p- value = 0.285). As stated above, almost 79% of the participants had been referred by their family.

*Table 0.13 Association between Mode of Referral and “‘stages of change’”*

Characteristic	‘stages of change’			p-value
	Pre-Contemplation	Contemplation	Action	
	n(%)	n(%)	n(%)	
<b>Mode of Referral</b>				0.285
Self	6 (21.4)	15 (53.6)	7 (25.0)	
Family	48 (27.1)	102 (57.6)	27 (15.3)	
Clinicians/ Health Promotion Campaigns/	9 (45.0)	9 (45.0)	2 (10.0)	

#### 4.2.4 Association between Perceived Social Support and ‘stages of change’.

On bivariate analysis between perceived social support and ‘stages of change’, there was a significant difference (p-value = 0.004) between the different ‘stages of change’ and the varying levels of social support, as shown in table 4.12 Although the different domains of social support (i.e. Significant Other, Family and Friends) were also

analyzed for descriptive statistics; they have not been considered for bivariate analysis. As we can see, higher number of participants who had high social support were in the action (20.3%) and contemplation (60.%) when compared to participants having low perceived social support (10.8% and 51 % respectively).

*Table 0.14 Association between Perceived Social Support and "stages of change"*

	'Stages of change'			p-value
	Pre-Contemplation n(%)	Contemplation n (%)	Action n(%)	
<b>Perceived Social Support</b>				0.004
Low/ Moderate	39 (38.2)	52 (51.0)	11 (10.8)	
High	24 (19.5)	74 (60.2)	25 (20.3)	

#### 4.2.5. Association between Locus of Control and "stages of change"

The drinking related locus of change indicates a person's tendency to infer whether or not they are able to control their drinking behavior. The Locus of control was found to be significantly different in the different different 'stages of change' ( p- value = 0.02). From table 4.13 We can see that most participants (61.8%) with internal locus of control were in the contemplation stage, whereas a significant number ( 32.4 %) of those with external locus of control were in the pre-contemplation stage.

*Table 0.15 Association between Locus of control and "Stages of change"*

Characteristic	'Stages of change'			p-value
	Pre-Contemplation	Contemplation	Action	

	n(%)	n(%)	n(%)	
<b>Locus of Control</b>				0.02
Internal	8 (14.5)	34(61.8)	13(23.6)	
External	55 (32.4)	92(54.1)	23(13.5)	

#### 4.2.5. Association between Locus of Control and ‘Severity of alcohol use’

As shown in the table below, there was a statistically significant association (p value: 0.04) between locus of control and severity of alcohol use. Among patients with external locus of control, 80% had alcohol dependence (more severe form) whereas among those with internal locus of control, only 60% had alcohol dependence.

*Table 0.16 Association between Locus of control and 'severity of alcohol use'*

	Severity of alcohol use (AUDIT)		p- value
	Harmful Use	Alcohol Dependence	
	n (%)	n (%)	
<b>Locus of Control</b>			0.04
Internal	22 (40.0%)	33 (60.0%)	
External Locus	35 (20.6%)	135(79.4%)	

#### 4.3 Factors influencing ‘stages of change’

All 15 independent variables were selected for the multiple linear regression model; in order to identify to the factors influencing “‘stages of change’” which was the third research objective.

The variables were manually entered in the linear regression model in the statistical software SPSS version 22. A multiple linear regression was run by the forward method. The value yielded by the regression was put into an equation; from which prediction of URICA score ('stages of change') can be done. The regression model and equation is detailed as follows:

The regression model included three independent variables that were found to influence the URICA score, which are: Psychiatric Disorder, Marital Status and Education. These variables were grouped before being put in the regression model as follows:

1. History of Psychiatric Disorder: Absent (0) and Present (1)
2. Marital Status: Married (0) and Single/ Divorced/ Widowed (1)
3. Education: High School and above (0) and Below High School (1)

According to the regression model, the grand mean of the URICA score in the study population was 9.841 ( $B_0$ ). The coefficients of the variables History of Psychiatric Disorder, Marital Status and Education were -0.932, -0.641 and -0.648 respectively. The factors were significant at p-values of 0.005, 0.040 and 0.047 respectively. Based on these values, the following linear regression equation was developed for the model.

$$\text{URICA score} = 9.841 - 0.932 (\text{History of Psychiatric Disorder}) - 0.641 (\text{Marital status}) - 0.648 (\text{Education})$$

Table 0.17 Multiple Linear Regression Model summary

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		R-square
	B	Std. Error	Beta			Lower Bound	Upper Bound	
(Constant)	9.841	.308		31.929	.000	9.234	10.449	.017
History of Psychiatric Disorder	-.932	.325	-.189	-2.869	.005	-1.573	-.292	
Marital Status	-.641	.310	-.134	-2.065	.040	-1.252	-.029	
Education	-.648	.324	-.131	-1.999	.047	-1.286	-.009	

- **Interpretation of the linear regression model:**

When the marital status and education remains constant, a person with history of psychiatric disorder will have a URICA score 0.932 less than a person without psychiatric disorder.

When the psychiatric disorder and education remains constant, a person who is married will have a URICA score 0.641 higher than a person who is not married.

When the marital status and psychiatric disorder remains constant, a person with high school education or higher will have a URICA score 0.648 higher than a person with education lower than high school.

## DISCUSSION

Alcohol contributes to more than 200 diseases, including AUD. AUD along with FAS has 100% AAF (3). AUD is also one of the biggest public health problems of today. The role of alcohol and its detrimental consequences on health is well established but the treatment process of substance(alcohol) use is complex and multidimensional (7). The “stages of change” model, as a conceptual model provides a guide to approach the complex phenomenon of substance use. Much like how Watson’s and Cricks description of the double helix has helped us better understand the structure of DNA, the “stages of change” model has likewise helped us better understand the structure and the process of behavior change (38).

Residential treatment centers( Rehabilitation centers) for substance abuse, first emerged in the late 1950s in the United States with the aim to create an environment of abstinence for the individuals and help them recover from their alcohol and drug use problem(87). According to NIH, rehabilitation centers can be effective in treating individuals with substance abuse problems. Lincensed treatment centers provide 24 hour coverage and besides providing safe housing they also provide medical attention when needed (88).

According to SAMHSAs National survey on drug use and health among the 22.5 million people in the U.S who need treatment for either illegal drug or alcohol use problem, in the year 2014, only 4.2 million received treatment(89).For Nepal, the data regarding this was not available.

A variety of therapeutic options( e.g: short term residential treatment, therapeutic community, recovery housing) are provided by the centers to the patients (90).

In Kathmandu, Nepal, residential treatment centers (rehabilitation centers) were located in either high density urban areas(4 centers) or in semi-urban areas( outskirts of the city) and provided an abstinent environment. All the centers which were visited used therapeutic community as their modality of treatment, where not just the treatment staff but also those recovering act as key agents of support to others members of the residential recovering group. This is the basic tenet of therapeutic community(87). Upon enquiry with the staff at the each of the 8 centers, it was realised that the programs focused mostly on raising the motivation of the patients and principally employed non-pharmacological approach( except in the detoxification period, which is the earliest phase, lasting between 3 days to 1 week). Patients usually stay for a period of 6 months, after which an assessment is carried out by the treatment staff and a decision is reached regarding releasing the patient back into the community. Focussed discussions,one to one sessions and group discussion sessions are carried out in the centers on a regular basis. Patients also participate in literature sessions, Building relationship sessions and Game sessions.

In regards to the results obtained from the study, upon performing bivariate analysis ( $\chi^2$ ) of the socio-demographic factors, none were found to be significantly associated with 'stages of change'. However, upon running multivariate test( linear regression model) marital status was found to be significant.

Among clinical characteristics, psychiatric disorders and physical illness both showed significant association in bivariate analysis with "stages of change". But upon running multivariate analysis (linear regression model) only psychiatric disorders showed significant association with "stages of change".



Mode of referral failed to show a significant association between “stages of change” in both bivariate and multivariate analyses. Locus of Control and Percived Social Support was found to have significant association with “stages of change” in bivariate analysis but did not show any significance in multivariate analysis.

### 5.1 ‘Stages of Change’ among AUD patients in Rehabilitation Centers of Kathmandu, Nepal.

In our study, 28% of the inpatients in rehabilitation centers were found to be in the pre-contemplation stage, whereas 56 % were found to be in the contemplation stage while the remaining 16% were found to be in the action stage. In another study conducted among 6000 male outpatients who were screened positive for alcohol abuse, 25% were in the pre-contemplation stage and did not show any readiness to change, whereas 75% revealed readiness to change with (contemplatin 24%, action 51%)(22). This is different from our study in which most of the patients ( 56%) were in the contemplation stage.

### 5.2 Association of Age with AUD and “stages of change”

The mean age of the patients in our study was 33.7 years. According to a previous community based study conducted in Nepal, prevalence of AUD was lowest in the 18-24(youth) age group and highest in 45- 54 age group. The prevalence of alcohol dependence increased with increasing age until 45-54 age group after which it dropped (13). Our study supports this finding with greater fraction (73%) of the patients in the adult (>24) category and smaller fraction (27 %) being of 18-24(youth) age group. But some studies also suggest patients who seek help for substance use problems are usually

older adults who have who have already held a full-time job and had children, and younger patients do not seek help as readily(91) .

Although the percentage of youths(18-24 year old) patients were more in pre-contemplation and less in the action stage relative to >24year old patients, in bivariate analysis and multivariate analysis no significant association was seen between age of the patient and ‘‘stages of change’’. Hence, we may conclude that age did not significantly influence ‘stages of change’.

### 5.3 Association of gender with AUD and ‘‘stages of change’’

100% of our sample was male, primarily because of the fact among the 23 alcohol rehabilitation and detoxification centers in Kathmandu, Nepal only 1 female exclusive rehabilitation center was present, whereas the remaining 22 were exclusively male, and upon simple random selection only male centers got selected. The significantly more exclusively male rehabilitation centers in Kathmandu could reflect the phenomenon that alcohol use is predominantly male phenomenon. In a national survey conducted in Nepal among 4,143 participants(15-69 year olds), 88.3% women and 58% men reported to be life-time abstainers( having never had drunk alcohol in their lives).In the same survey, current drinkers, measured at 17.4% (28% men, 7.1% women). It is also consistent with another study from Colombia where males represented 88% of the sample of individuals with AUD (47). Therefore it could be suggested that prevalence of alcohol consumption and alcohol use disorder is significantly more in men (64). There is also a chance the vast difference between male and female treatment centers could be due to social stigma being greater against women who use alcohol therefore,

despite the possibility of AUD they may decide not to seek treatment(31). Regarding association between sex (gender) and “stages of change”, no significant association was found on bivariate analysis.

#### 5.4 Association of ethnic group with AUD and “stages of change”

Regarding ethnic group, the patients represented more than 9 ethnic groups. 43.5% of the patients were from the TANU group, whereas the other 56.5 % represented TAU group. This is a slight variation from a previous study done in a different city (Dharan) of Nepal among over 2300 individuals from 500 households, where the TAU group represented 68% of the sample with alcohol dependence (13). Studies have found socio-demographic, cultural and biological basis as a cause of difference in harmful use and alcohol dependence among different ethnic groups, as in the study from Taiwan where aboriginal tribes had higher harmful use and dependence than Han Chinese(92) . Even though a significant difference existed in the fraction of our patients between the TAU and TANU, on bivariate analysis and multivariate analysis no statistically significant association was found between ethnic group and “stages of change”. No studies measuring “stages of change” and its association with ethnic group could be found in Nepal.

#### 5.5 Association of marital status with AUD and “stages of change”

The patients were equally divided on the basis of marital status; a little less than 50% married whereas slightly more than 50% either single, divorced or widowed. Marital status was not found to be significantly associated with “stages of change” on bivariate

analysis but was found to be associated in multivariate (linear regression) analysis. Based on the regression equation, married people were predicted to have a higher URICA score (higher “stages of change”) when compared to single, divorced or widowed patients. This finding supports that of another study from Poland, where in a sample of 380 alcohol dependent inpatients, the unmarried patients were found to have a higher severity of alcohol use (higher score on AUDIT) scale and after completion of the inpatient therapeutic program (6 weeks to 12 weeks) the married patients were found to be at a higher “stages of change” in comparison to unmarried patients(67).

#### 5.6 Association of education with AUD and “stages of change”

In the study from India by D’Souza, P.C and Mathai, P.J (2017) among inpatients with alcohol dependence, 4% of the subjects were illiterate while 34% had high school education. Whereas in our study, 7.1% were illiterate while 22.7% had been educated upto high school and only 13.8% had education beyond high school. In a study conducted amongst 224 adults at Outpatient Alcoholism treatment program at the Texas Research Institute for mental sciences in 1990, 36% had completed high school treatment, while none of the patients were illiterate (60). This could reflect the difference in the education level among alcohol users in developing countries versus that of the developed world. In the study by D’Souza, P.C and Mathai, P.J (2017), socioeconomic status (which includes education, income and occupation) influenced the ‘stages of change’, with higher socioeconomic status being associated with higher “stages of change”. In our study education, occupation and monthly income did not have statistically significant association with “stages of change” on bivariate analysis.

Education did show significant association on multivariate analysis, where according to the regression equation those with education below high school level were found to be at a lower “stages of change” when compared to those with education at or above higher school. For the 7.1% of patients who were illiterate, questions were read out to them by the staff at the rehabilitation centers, further interpretation was done on the basis of patient’s own judgments, further explanations not provided.

### 5.7 Association of mode of referral with AUD and “stages of change”

In this study, the vast majority of the patients, 79% were brought to the center either by force or request by family and less 13% of the individuals came by their own self-will. This result is similar to a previous study from India where 70% of the patients were brought to treatment centers by family members. (31), in which the mean score for pre-contemplation was higher in those brought by family than among those who came by self-will. The mean score for action stage was higher amongst those who came by self-will compared to those who brought by family. This finding is also similar to another study at a tertiary care hospital in India, where those brought by family had a lower motivation level to change in comparison to those who came by their own self-will(31). However, a statistically significant association couldn’t be found between model of referral and “stages of change” in bivariate and multivariate analyses in our study.

### 5.8 Association of age of initiation of alcohol use with AUD and “stages of change”

The mean age of initiation was  $20.65(\pm 6.87)$  in our study. This finding was similar to that of another study done among 200 consecutive patients admitted for alcohol related patients in a tertiary hospital where the mean age was  $21.39 (\pm 5.34)$  (93) while the mean age of initiation from yet another study carried from India was  $23.9 (\pm 5.63)$ (94). In all three studies the mean age of initiation was early 20s. Regarding Age of initiation of alcohol use, there have been various studies which have indicated there is strong relationship between people who start drinking “heavily” at early age (by the age 15 years) have a stronger chance to have alcohol abuse or dependence, later on in their lives (71, 72, 95, 96). But other studies have concluded that the link between early age of initiation and AUD is not a causal link but is due to the underlying genetic factors. People who are prone to develop AUD genetically, start drinking early (97, 98). (99)AUD is 62% heritable(98). In our study the youngest age of initiation was 10 whereas the oldest age of initiation was 57. About 20% of the individuals had started before the age of 15, whereas close to 80% of the patients started alcohol use after the age of 15. Furthermore, our study did not find statistical significance in both bivariate and multivariate analysis between “stages of change” and age of initiation of alcohol use.

### 5.9 Association of number of previous admissions with AUD and “stages of change”

In our study, slightly more than 10% of patients had no previous attempts of abstinence whereas almost 90% had made at least one attempt in the past to abstain from alcohol. This supports the study from India, where 92% of the subjects had at least 1 abstinent attempt in the past and 60% had multiple attempts(31). In our study, 62% of the patients had multiple (more than 1) attempts in the past. This also supports the statement as to

why some claim alcoholism to be a chronic relapsing condition (100-102). But, we should use this term cautiously as from this study although we have data for those who have relapsed in the past and come back to treatment, we don't have data regarding those who have not relapsed and have not come back to the center.

#### 5.10 Association of history of psychiatric disorder with AUD and “stages of change”

According to a 2004 study in the U.S (which used data from the National Epidemiologic Survey on Alcohol and related conditions), there was found to be a statistically significant association between independent mood and anxiety disorder with substance use disorder (56). Those who seek treatment for substance abuse have a complex set of difficulties other than pure substance use, including mental health issues (103), which could be the reason for their relapse, thus raising the possibility that substance use disorder may not be a relapsing condition in itself. The findings from our study also reflects the fact that patients with AUD have had or currently have some form of psychiatric disorders, with 37.3% of the patients admitting to a history of psychiatric disorder, mood disorder (depression-14.2%) and anxiety disorder (11.6%) being the most common disorders; which is comparable to the findings from the study in the U.S., mentioned above.

Our study found significant association between psychiatric disorders and “stages of change” on bivariate analysis as well as on multivariate analysis. The linear regression model predicted that AUD patients who had a history of psychiatric disorders will have a lower URICA score in comparison to patients without psychiatric disorders. Lower URICA score correlates with a lower stage in the “stages of change” model. This

finding supports the findings by Diclemente, C.C, that substance abusing individuals have difficulties in commitment towards behavior change as well sustaining the change after committing to it; thus making it a bigger challenge for individuals with psychiatric disorders (70).

### 5.11 Association of history of physical illness with AUD and “stages of change”

Our study found statistically significant association between physical illness and “stages of change” on bivariate analysis, indicating that the presence or absence of physical illness does affect “stages of change”. On the bivariate analysis, almost 2/3rds (64%) of the patients without history of physical illness were in Contemplation stage whereas less than half (45%) of those with some sort of physical illness were in the Contemplation stage. Likewise, around 34% of the patients with physical illness were Pre-contemplation stage whereas only 23% of those without physical illness were in the Pre-contemplation stage. Therefore, more patients without physical illnesses exhibited more ‘readiness to change’ compared to those with physical illness. But, in the study by D’souza and Mathai ( 2017) patients with liver disease, peripheral neuropathy, hypertension and neurological ‘disorders were found to have higher stage whereas those with Diabetes and without physical comorbidity were found to be in lower “stages of change”(23). This seems to be different from the findings in our study, which could be due to the fact that association between individual diseases and “stages of change” wasn’t checked in our study (only yes/no disease versus “stages of change”). According to another study from Germany, among hospital inpatients, those who had alcohol attributable disease had a higher motivation to change than those who had no alcohol attributable disease(68).In our study, diseases weren’t classified as



either alcohol attributable and alcohol non-attributable and response was only sought as yes/no for diseases under broad categories( Kidney disease, Respiratory disease, Liver disease. etc) and causality of the diseases were also not explored. Therefore, assessment regarding alcohol attributable fraction couldn't be done in our study, which could be considered a limitation of the study.

#### 5.12 Association of history of locus of control with AUD and “stages of change”

There is a general understanding based on previous studies that alcoholics tend to have a more ‘external locus of control’ compared to non-alcoholics and those patients with problematic alcohol drinking in the past who are currently in remission tend to shift their ‘locus of control’ from external to internal and this shift allows them to remain in remission (32, 74, 75). Likewise there are also studies that indicate that the phenomenon of relapse, will shift the focus back to ‘external locus of control’(76, 77). Our findings have revealed that the majority (3/4<sup>th</sup>) of patients despite being in residential treatment (in remission in an abstinent environment) have external locus of control (which is contrary to the previous findings). It could be due to the fact that although they were currently in residential treatment, they had not completed their treatment and were in the process of change (shift of locus of control). Furthermore, majority of them had been referred to the centers by their family (requested or compelled); which may explain the lack of shift of locus of control. The association between locus of control and “stages of change” was also found to be statistically significant on bivariate analysis where higher percentage of those with internal locus

of control were found to be in higher ‘‘stages of change’’ in comparison to those with external locus of control.

.In a study conducted in Taiwan, among individuals with alcohol use disorder, those with severe dependence tended to have ‘external locus of control’ and were ambivalent (contemplation stage) towards their drinking while those who had light dependence tended to have more ‘internal locus of control’ and were in the action stage. (78). Similarly in our study, among those with internal locus of control, 60% had alcohol dependence (more severe) whereas among those with external locus of control, 80% had alcohol dependence. This result was statistically significant on bivariate analysis, indicating locus of control affects the severity of alcohol use.

### 5.13 Association of history of perceived social support with AUD and ‘‘stages of change’’

The mean score of perceived social support (general) was 4.93. Majority of the patients (>50%) had high social support, whereas a small fraction (<10%) had low social support. Perceived social support was divided into 3 sub-scales (significant other, family, friends). Majority of the patients had high range of support in the subscales ‘significant other’ and ‘family’ (with mean scores 5.01 and 5.31 respectively). Among the subscale ‘friends’, the mean score was 4.49 and the majority of patients had moderate social support from friends. Patients with low/moderate perceived social support were found to be at lower ‘stages of change’ in comparison to those with higher social support. On bivariate analysis, social support was found to be significantly associated with ‘‘stages of change’’ but the statistical significance couldn’t be found on multivariate analysis.

Although there is evidence that social support catered through social relationships can motivate patients in dealing with problematic behavior, including overcoming substance use(104), theories also suggest that the composition of the support group (size, frequency of received support) also affects the treatment outcome rather than just the presence or absence of social support(105). Particularly social support provided from peers who use the substance themselves (or have other problematic behavior) can have detrimental impacts on individuals seeking to change behavior (enter remission) or continue with the improved behavior (sustain remission/prevent relapse) (106). In our study while majority of the patients revealed they had high perceived social support from their significant other and their respective families, majority mentioned they received only moderate support from friends (peers). This may indicate the possibility that some of the patients were part of social networks where peer pressure from friends who consume alcohol themselves may not have positive effects on their recovery process; however since this was beyond the scope of this study, it was not addressed further. This is an area where further research can be conducted (preferably qualitative research) to explore the scope of social support among patients of AUD. Studies have also been done on expressed emotion (EE) such as overprotection or criticism from a spouse (significant other) or other sources of social support may have detrimental effects on the recovery process and may facilitate relapse(107), patients who have such relationships may have perceived themselves to have high social support without realizing the fact that such relationships are in fact a deterrent to the recovery process, affecting their motivation level or “stages of change”. Therefore, one of the reasons why we couldn’t achieve significant association between perceived social support and “stages of change”, could be because of the complexity of the issue of social support.

### 5.14 CONCLUSION

This study was a cross-sectional observational study conducted among patients of 8 drug and alcohol rehabilitation centers of Kathmandu, Nepal, patients who had identified alcohol as their primary substance or as a secondary substance were identified to be enrolled in the study, but after undergoing the screening test only 66.4% were found to have alcohol use disorder, after removal of incomplete questionnaire 58.4%(225) of the original enrolled patient's questionnaire were evaluated for assessment.

Close to 75% of those who screened positive for AUD had alcohol dependence. Majority of the patients (55%) were in the contemplation stage, whereas only 16% were in the action stage, which was comparable to previous studies. Factors that influenced the “stages of change” were history of psychiatric disorder, education and marital status. More specifically, those who were married, did not have history of psychiatric disorders and were married were likely to be at higher ‘stages of change’ and thus more motivated to change their behavior.

### 5.15 Recommendations

#### **Recommendations for future research**

- 1) Future research involving social support mechanism, coping strategies and personality traits among patients of AUD, especially qualitative studies.
- 2) A case control or cohort study design that is community based and conducted in a larger population will help understand the issues to a greater extent.

- 3) Studies should be conducted examining the effectiveness of interventions at rehabilitation centers as well as the patient empowerment programs being run there.

### **Recommendations for policy makers**

- 1) Policy and strategies drafted in 2009 should be implemented as soon as possible
- 2) Alcohol related national policies should be strengthened (e.g. Minimum legal age for drinking; legally permitted Blood Alcohol Concentration for driving; written national policies about sale and advertisement of alcoholic beverages etc.)
- 3) Public health policy should allocate adequate budget for alcohol related disorders and its control measures.
- 4) Nationwide health promotion strategies such as campaigns, posters, pamphlets, advertisements making people aware about the harmful effects of alcohol abuse and ways in which people can prevent/ remit from these.
- 5) Provision of rehabilitation care at government institutions at a low price.
- 6) Health promotion campaigns to screen people at risk for developing AUD, and provision of proper counselling and other interventions.
- 7) Social support groups for patients with AUD. This can include group sessions like Alcoholic Anonymous. This will help to increase social support among those affected.
- 8) Proper monitoring and evaluation of formulated policies and to redirect efforts and resources

**Recommendations for clinical practice**

- 1) Detailed counselling for patients diagnosed at stages of less severe AUD, like harmful use of alcohol abuse.
- 2) Treatment of cases of AUD should be individualized and tailored to the individual's unique medical, psychiatric, cultural, and social situation; since it has been shown that these factors can play a role in the 'stages of change' among these patients.
- 3) Government and Private hospitals should include education programs regarding alcohol misuse and conduct skills training that helps them cope with their situation and improve various aspects of their life.

APPENDICES



## APPENDIX A

Information Sheet and Letter of Consent (English)

## INFORMATION SHEET

Date...../Month...../Year.....

Title of the research project: FACTORS INFLUENCING 'STAGE OF CHANGE' IN INDIVIDUALS WITH ALCOHOL USE DISORDER IN REHABILITATION CENTERS OF KATHMANDU, NEPAL.

Name of the principal researcher: Dr. Pranab Dahal

Contact address: Gyaneshwor, Kathmandu, Nepal

Telephone number: 9818643589

I am currently a M.P.H student at Chulalongkorn University, Thailand. I am conducting this study as part of my thesis, it is an observational study about alcohol drinking habits and a behavior change process called 'Stage of Change' in Kathmandu, Nepal. I will be conducting this study in 8 drug and alcohol rehabilitation centers of Nepal, a part of results obtained from the study will be published in scientific papers and presented in health conferences. Please enquire with the researcher if you have any further queries.

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CONSENT FORM

CHULALONGKORN UNIVERSITY

Research participant ID/Number.....

I, the signatory of this letter, wish to consent to take part in this research project.

I have been notified of the details of the research rationale and the research objectives, details of how I will be participating in the study, as well as the benefits to be obtained from this research. I have thoroughly read the details in the document providing information for the research participants and have received explanations from the researcher so that I am able clearly to understand the information.



*I therefore apply to take part in this research project, as specified in the document providing information for research participants. Concerning this, I consent to participate in the study and answer the questions present in the questionnaire of the research study.*

It has been explained to me that I have the right to withdraw from the research at any time during the research without having to state the reason. This withdrawal will in no way negatively affect me.

I have been assured and confirm that the researcher will treat me in accordance with what is specified in the document providing information for the research participants and any information about me will be treated by the researcher as confidential. The research will be presented as a whole picture only. No information in the report will lead to identifying me as an individual, except when I consent to it so doing.

If I am not treated according to what is specified in the document providing information for the research participants, I have the right to file a complaint to the Research Ethics Review Committee.

I have signed my name hereto in the presence of a witness. I have also received a copy of the document providing information for the research participants and a copy of the letter of consent.

(Signature)..... (Signature).....

(.....) (.....)

Principal researcher

Research participant

(Signature).....

(.....)

Witness

Information Sheet and Letter of Consent (Nepali)

अनुसन्धानमा भाग लिने सहमति पत्र

सहभागी कोड नम्बर.....

ठेगाना

.....

मिति..... ि, यो पत्रको हस्िाक्षरकरकिया, यस अनुसन्धानि भाग मिन सहिि गना चाहन्छु. अनुसन्धान पररयोजनाको शीर्ाक: FACTORS INFLUENCING 'STAGE OF CHANGE' IN INDIVIDUALS

WITH ALCOHOL USE DISORDER IN REHABILITATION CENTERS OF KATHMANDU, NEPAL (काठिाडौंका पुनर्ास केन्द्रहरूिा 'िदिरा प्रयोग वर्कार' भएका व्यक्तिहरूिा 'परर्रिानको चरण' िाइ असर गने कारकहरू).

प्रिखु अनुसन्धानकिका ाो नाि: डा. प्रणर् िाहािअनुसन्धानकिकाको ठेगाना: ज्ञानेश्वोर, काठिाडौं, नेपाि

टेमिफोन नम्बर: ९८१८६४३५८९

िािाई अनुसन्धानका उद्देश्यहरू अनुसन्धानको कारण, ि अध्ययनि कसरी भाग मिने छु भन्ने वर्णहरूका साथै यस अनुसन्धानबाट प्राप्ि हुने फाइहरूबारे पतन सूचचि गररएको छ। िैिे अनुसन्धानि भाग मिने सहभागीहरूिाई जानकारी प्रिन गने कागजाििा भएका वर्णहरू रामरी पढेको छु। िैिे अनुसन्धानकिकाबाट जानकारी र स्पष्टीकरण पतन प्राप्ि गरेको छु र स्पष्टसंग जानकारी बङ्ु न सक्षरकि छ।

ि अध्ययनि भाग मिन र अनुसन्धान अध्ययनको प्रश्नार्िीिा उपक्स्थि प्रश्नहरूको उत्ि दिन सहिि गछु।

िािाई व्याख्या गररएको छ कक कुनै पतन सिधिया, कारण बिाए बबना अनुसन्धानबाट बादहर तनक्स्कने अचधकार िािाई छ। यसै कुनै पतन दहसाबिा

वििाई नकारात्िक असर पन े छैन। वििाई यो आश्रासन दिइएको छ कक अन्ेकिं िसंग सूचना कागजाििा उल्िेखखि अनुसार व्यर्हार गनेछन र विेरो बारेिा सबै जानकारी अन्ेकिं गोप्य राखने छन. ् साथै, अनुसन्धानको ररपोटा िात्र सम्पणू ा िस्ीरको रूपिा प्रस्ििु गरनेछ र ररपोटािा उल्िेख हुन े कुनै पतन जानकारीिे वििाई व्यक्तिगि रूपिा पदहचान गना सककने छैन. यदि िसंग कागजाििा िोककए बिोक्जि व्यर्हार गररण भने वििाई अनुसन्धान नैतिक सििक्षरका

समितििा (Research Ethics Review Committee) गनु ासो गन े अचधकार छ।

िैिे विेरो नाििा साक्षरकीको उपक्स्थतििा हस्ििक्षरकर गरेको छु। विैिे अनुसन्धानिा सहभागीिाई जानकारी प्रिन गन े कागजािको प्रतिमिवप र सहिति पत्रको एक प्रतिमिवप पतन प्राप्ि गरेको छु।

(हस्ििक्षरकर).....

(हस्ििक्षरकर).....

(.....)

(.....)

प्रिखु अनसु न्धानकिया

सहभागी

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

(हस्ििक्षरकर).....

(.....)

साक्षरकी

APPENDIX B  
QUESTIONNAIRE (ENGLISH)

Participant Code Number:.....

Date:.....

AUDIT ( screening tool for AUD)

Be sure to select the one you actually believe to be more true rather than the one you would like to be true. This is a measure of personal belief and there are no right or wrong answers.

Please tick the answer that is correct for you

How often do you have a drink containing alcohol?

- Never
- Monthly or less
- 2-4 times a month
- 2-3 times a week
- 4 or more times a week

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

- 1 or 2
- 3 or 4
- 5 or 6
- 7 to 9
- 10 or more

S.N	Brands	Unit	Quantity	Available Peg	Unit in Peg
1	Sealed Peg (Hard drinks)	1 क्वार्टर	180 ML	6 Peg	30 ML=1 Peg
2	Beer	1 Bottle	750 ML	3 Peg	250 ML= 1 Peg
3	Jhad/Chyang/Nighar/Tongba	1 Mana	500 ML	2.5 Peg	200 ML= 1 Peg
4	Local( home brewed)-Rakshi	1 small tea glass	120 ML	2 Peg	60 ML= 1 Peg

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

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

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

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

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

- 
- 
- Never
- Less  than monthly
- Monthly
- Weekly
- Daily or almost daily

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

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

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

- Never
- Less  than monthly
- Monthly
- Weekly
- Daily or almost daily

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

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

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

- No
- Yes, but not in the past year
- Yes,  during the past year

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

No

Yes, but not in the past year

Yes, during the past year

#### Scoring the audit

“Scores for each question range from 0 to 4, with the first response for each question (eg never) scoring 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 (eg. daily or almost daily) scoring 4. For questions 9 and 10, which only have three responses, the scoring is 0, 2 and 4 (from left to right).”

“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.”

“Saunders JB, Aasland OG, Babor TF *et al.* Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption — II. *Addiction* 1993, 88: 791–803.”

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PART 1: Socio-Demographic and clinical Profile

Age : .....

Sex:  1.Male

2.Female

Marital Status:  1.Single

2.Married

3. Divorced

4.

Widowed

Ethnic group:

1.Brahmin

2. Kshatriya

3. Newar

4.Gurung  5. Rai

6. Magar

7. Limbu  8. Madhesi  9.Tamang

10.Others.....

Education:



1. Illiterate (cannot read and write)       2. Can read and write  
 3. primary school (grade 1- 4)       4. middle school (grade 5-8)        
 5. secondary school (grade 9 and 10)       6. high school (grade 11 and 12)  
 7. Bachelors       8. masters and above.  
 9. others ( including vocational schools)

Occupation:

1. Business       2. Farmer       3. Labor  
 4. Government Service       5. Unemployed       6. Student       7. Others

Income/month(NPR):

1. <10,000       2. 10,000-20,000       3. 20,000-40,000       4. >40,000

Have you ever been diagnosed with any one or more of the following psychiatric disorders ?

- 1 Depression       2. Anxiety       3. Bipolar Disorder  
 4. Schizophrenia       5. Personality Disorder  
 6. Others (specify).....

Have you ever been diagnosed with any one or more of the following physical illnesses?

1. Hypertension       2 Diabetes       3 Liver Diseases  
 4 Kidney Disease       5. Respiratory Diseases.  
 6. Others (specify).....

PART 2: Alcohol Use Characteristics.

Age of initiation of alcohol use: .....(years)

Number of previous abstinence attempts: .....

Number of previous admissions at rehabilitation centers/ hospitals for alcohol use:  
.....

### PART 3: Mode of referral

#### 13. Mode of referral

- 1. Self
- 2. Family or friends (request or pressure)
- 3. Clinician referral/health promotion campaigns
- 4. Requirement by law for misbehavior/crime
- 5. Others (specify).....



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### PART 4: DRINKING RELATED INTERNAL EXTERNAL CONTROL ( DRIE)

Be sure to select the one you actually believe to be more true rather than the one you would like to be true. This is a measure of personal belief and there are no right or wrong answers.

1.	One of the major reasons why people drink is because they cannot handle their problems. People drink because circumstances force them to.
2.	The idea that men or women are driven to drink by their spouses is nonsense. Most people do not realize that drinking problems are influenced by accidental happenings.

3.	I feel so helpless in some situations that I need a drink. Abstinence is just a matter of deciding that I no longer want to drink.
4.	I have the strength to withstand pressures at work. Trouble at work or home drives me to drink.
5.	Without the right breaks one cannot stay sober. Alcoholics who are not successful in curbing their drinking often have not taken advantage of help that is available.
6.	There is no such thing as an irresistible temptation to drink. Many times there are circumstances that force you to drink.
7.	I get so upset over small arguments, that they cause me to drink. I can usually handle arguments without taking a drink.
8.	Successfully licking alcoholism is a matter of hard work, luck has little to do with it. Staying sober depends mainly on things going right for you.
9.	When I see a bottle, I cannot resist taking a drink. It is no more difficult for me to resist drinking when I am near a bottle than when I am not.
10.	The average person has an influence on whether he drinks or not. Oftentimes, other people drive one to drink.
11.	When I am at a party where others are drinking, I can avoid taking a drink. It is impossible for me to resist drinking if I am at a party where others are drinking.
12.	Those who are successful in quitting drinking are the ones who are just plain lucky. Quitting drinking depends upon lots of effort and hard work (luck has little or nothing to do with it).
13.	<input type="checkbox"/> I feel powerless to prevent myself from drinking when I am anxious or unhappy. <input type="checkbox"/> If I really wanted to, I could stop drinking.
14.	<input type="checkbox"/> It is easy for me to have a good time when I am sober. <input type="checkbox"/> I cannot feel good unless I am drinking.

15.	As far as drinking is concerned, most of us are victims of forces we can neither understand nor control. By taking an active part in our treatment programs, we can control our drinking.
16.	I have control over my drinking behavior. I feel completely helpless when it comes to resisting a drink.
17.	<input type="checkbox"/> If people want to badly enough, they can change their drinking behavior. <input type="checkbox"/> It is impossible for some people to ever stop drinking.
18.	With enough effort we can lick our drinking. It is difficult for alcoholics to have much control over their drinking.
19.	<input type="checkbox"/> If someone offers me a drink, I cannot refuse him. <input type="checkbox"/> I have the strength to refuse a drink.
20.	Sometimes I cannot understand how people can control their drinking. There is a direct connection between how hard people try and how successful they are in stopping their drinking.
21.	I can overcome my urge to drink. Once I start to drink I can't stop.
22.	Drink isn't necessary in order to solve my problems. I just cannot handle my problems unless I take a drink first.
23.	<input type="checkbox"/> Most of the time I can't understand why I continue drinking. <input type="checkbox"/> In the long run, I am responsible for my drinking problems.
24.	If I make up my mind, I can stop drinking. I have no will power when it comes to drinking.
25.	Drinking is my favorite form of entertainment. It wouldn't bother me if I could never have another drink.

The DRIE is scored on the External direction by summing the number of external response options endorsed.

Total Score—Sum of external items endorsed across the entire scale:

$$1b+2b+3a+4b+5a+6b+7a+8b+9a+10b+11b+12a+13a+14b+15a+16b+17b+18b+19a+20a+21b+22b+23a+24b+25a$$

Factor 1—Intrapersonal Factor Sum =  $9a+11b+13a+14b+16b+17b+25a$

Factor 2—Interpersonal Factor Sum =  $3a+4b+6b+7a+10b+22b+23a$

Factor 3—General Control Factor Sum =  $5a+8b+20a$

Part 5: Multidimensional scale of perceived social support (MSPSS)

	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1) There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2) There is a special person with whom I can share joys and sorrows.	1	2	3	4	5	6	7
3) My family really tries to help me.	1	2	3	4	5	6	7
4) I get the emotional help & support I need from my family.	1	2	3	4	5	6	7
5) I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6) My friends really try to help me.	1	2	3	4	5	6	7
7) I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8) I can talk about my problems with							

my family.	1	2	3	4	5	6	7
9) I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10) There is a special person with whom I can share joys and sorrows.	1	2	3	4	5	6	7
11) My family is willing to help me make decisions.	1	2	3	4	5	6	7
12) I can talk about my problems with my friends.	1	2	3	4	5	6	7

Scale Reference:

Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived Social Support.

*Journal of Personality Assessment* 1988; 52:30-41.

Total Scale: Sum across all 12 items, then divide by 12.

Mean scale score ranging from 1 to 2.9 could be considered low support; a score of 3 to 5 could be considered moderate support; a score from 5.1 to 7 could be considered high support.

PART 6: University of Rhode Island Change Assessment Scale (URICA)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1) I'm not the problem one. It doesn't make much sense for me to consider changing.	1	2	3	4	5
2) I am finally doing some work on my problem.	1	2	3	4	5
3) I've been thinking that I might want to change something about myself.	1	2	3	4	5
4) At times my problem is difficult, but I'm working on it.	1	2	3	4	5
5) Trying to change is pretty much a waste of time for me because the problem doesn't have to do with me.	1	2	3	4	5
6) I'm hoping that I will be able to understand myself better.	1	2	3	4	5
7) I guess I have faults, but there's nothing that I really need to change.	1	2	3	4	5
8) I am really working hard to change.	1	2	3	4	5
9) I have a problem and I really think I should work on it.	1	2	3	4	5
10) I'm not following through with what I had already changed as well as I had hoped, and I want to prevent a relapse of the problem.	1	2	3	4	5
11) Even though I'm not always successful in changing, I am at least working on my problem.	1	2	3	4	5
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

12) I thought once I had resolved the problem I would be free of it, but sometimes I still find myself struggling with it.	1	2	3	4	5
13) I wish I had more ideas on how to solve my problem.	1	2	3	4	5
14) Maybe someone or something will be able to help me.	1	2	3	4	5
15) I may need a boost right now to help me maintain the changes I've already made.	1	2	3	4	5
16) I may be part of the problem, but I don't really think I am.	1	2	3	4	5
17) I hope that someone will have some good advice for me.	1	2	3	4	5
18) Anyone can talk about changing; I'm actually doing something about it.	1	2	3	4	5
19) All this talk about psychology is boring. Why can't people just forget about their problems?	1	2	3	4	5
20) I'm struggling to prevent myself from having a relapse of my problem.	1	2	3	4	5
21) It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved.	1	2	3	4	5
22) I have worries but so does the next guy. Why spend time thinking about them?	1	2	3	4	5
23) I am actively working on my problem.	1	2	3	4	5
24) After all I had done to try and change my problem, every now and then it comes back to haunt me.	1	2	3	4	5



	Precontemplation	Contemplation	Action	Maintenance
Question Numbers	1	3	2	10
	5	6	4	12
	7	9	8	15
	16	13	11	20
	19	14	18	21
	22	17	23	24
Total:				
Divide by:	6	6	6	6
Mean:				

In order to obtain a Readiness to Change score, first sum items from each subscale and divide by 6 to get the mean for each subscale. Then sum the means from the Contemplation, Action, and Maintenance subscales and subtract the Precontemplation mean ( $C + A + M - PC = \text{Readiness}$ ).

For the general population, the following cut-off scores may be appropriate:

[\(https://habitslab.umbc.edu/urica-readiness-score/\)](https://habitslab.umbc.edu/urica-readiness-score/)

or lower classified as People in Pre-contemplation

8-11 classified as People in Contemplation

11-14 classified as People in Action

QUESTIONNAIRE (NEPALI)

### AUDIT [Alcohol Use Disability Identification Test]

गएको १ वर्षमा तपाईंले रक्सीजन्य पदार्थ के कति पिउनुभएको थियो भन्ने बारेमा केहि कुराकानी गरौं

तपाईं रक्सीजन्य पेय पदार्थ कतिको पिउनु हुन्छ ? (जस्तै: जाँड, रक्सी, वियर, भोड्का, तोङ्गवा आदि)

कहिल्यै पिउँदिन..... प्रश्न नं. ९/१० मा जानुहोस् ।

महिनामा १ पटक वा त्यो भन्दा कम..... महिनममा २-४ पटक  
..... हप्तामा २-३ पटक.....  
हप्तामा ४ पटक वा त्यो भन्दा बढि.....

तपाईं प्रायःजसो के पिउनु हुन्छ ? (जस्तै: जाँड, रक्सी, वियर, भोड्का, तोङ्गवा, छ्याङ्ग आदि)

तपाईंले साधारणतया..... (प्रायःजसो पिउने रक्सीजन्य पदार्थ) पिउँदा एक दिनमा कति मात्रामा पिउनु हुन्छ ? (रक्सीजन्य पेय पदार्थको मात्रालाई प्यागमा बदलेर लेख्नुहोस्)

१ देखि २ प्याग .....

३ देखि ४ प्याग .....

५ देखि ६ प्याग .....

७ देखि ९प्याग .....

१० भन्दा धेरै प्याग .....

(उत्तरदाताले भनेको इकाईलाई प्यागमा बदल्नको लागि तलको टेबल हेर्नुहोस् ।)

S.N	Brands	Unit	Quantity	Available Peg	Unit in Peg
1	Sealed Peg (Hard drinks)	1 क्वाटर	180 ML	6 Peg	30 ML=1 Peg
2	वियर	1 बोत्तल	750 ML	3 Peg	250 ML=1 Peg

3	जाँड/छयाङ्ग/निघार/ तोङ्गवा	1 माना	500 ML	2.5 Peg	200 ML= 1 Peg
4	लोकल रक्सी	1 सानो चिया गिलाँस	120 ML	2 Peg	60 ML= 1 Peg

तपाईं एक पटकमा २.५ माना भन्दा बढी जाँड वा ३ गिलाँस भन्दा बढी रक्सी वा २ बोतलभन्दा बढी बियर वा एक क्वाटर (a small bottle) भन्दा बढी भोड्का/रम (आदि) कत्तिको पिउनु हुन्छ ?

कहिल्यै पनि पिउँदिन.....

महिनामा १ पटक भन्दा कम (महिनाै पिच्छे, भन्दा कम) पिउँछु.....

महिनाै पिच्छे, पिउँछु.....

पिच्छे, पिउँछु.....

सधैँ वा प्रायःजसो पिउँछु .....

बितेको वर्मषा, तपाईंले एक पटक बपउन शरूु गरेपछी, आँफुलाई रोकनै नसबक्कने गरी बपएराख्ने अवस्था। छोड्न uf¥xf ePsf अवस्था कती पटक आयो होला ?

कहिल्यै पनि गाह्रो भएन.....

महिनामा १

पटक भन्दा कम (महिनाै पिच्छे, भन्दा कम) गाह्रो भयो....

महिनाै पिच्छे, गाह्रो भयो .....

हप्तै

पिच्छे, गाह्रो भयो .....

सँधैँ वा प्राय गाह्रो

भयो.....

गएको एक वर्षमा तपाईंले रक्सीजन्य पदार्थ पिएको कारणले साधारणतया आँफुले गर्न काम कत्तिको पुरा गर्न सक्नु भएन ?

सधैँ वा प्राय पुरा गर्न सके.....

महिनामा १ पटक भन्दा कम (महिनाै पिच्छे, भन्दा कम) पुरा गर्न सकिन...

महिनै पिच्छे पुरा गर्न सकिन..... हप्तै  
 पिच्छे पुरा गर्न सकिन ..... कहिल्यै पुरा गर्न  
 सकिन (सधै पुरा गर्न नसकेका) .....

गएको एक वर्षमा तपाईंले अघिल्लो रात धेरै रक्सीजन्य पदार्थ पिउनु भएको कारणले भोली  
 पल्ट बिहानै पिउने पर्ने कत्तिको भएका थियो ? कहिल्यै पनी भएका थिएन  
 .....

महिनामा १ पटक भन्दा कम (महिनै पिच्छे भन्दा कम) भएको थियो....

महिनै पिच्छे भएको थियो..... हप्तै  
 पिच्छे भएको थियो.....

सधै वा प्राय भएको थियो.....

गएको एक वर्षमा तपाईंले रक्सीजन्य पदार्थ पिउनु भएको कारणले गर्दा आफैलाई कत्तिको  
 दोषि पश्चाताप) ठान्नु भयो ? (जस्तै: बेकारमा रक्सी लिएछु भन्ने)

कहिल्यै पनी दोषि ठानीन.....

महिनामा १ पटक भन्दा कम (महिनै पिच्छे भन्दा कम) दोषि ठाने.....

महिनै पिच्छे दोषि ठाने ..... हप्तै पिच्छे  
 दोषि ठाने ..... सधै वा प्राय दोषि ठाने

CHULALONGKORN UNIVERSITY

गएको एक वर्षमा तपाईंले रक्सीजन्य पदार्थ लिएको कारणले गर्दा अघिल्लो रातमा भएका  
 कुराहरु सम्झन कत्तिको गाह्रो भयो ?

कहिल्यै पनि गाह्रो भएन.....

महिनामा १ पटक भन्दा कम (महिनै पिच्छे भन्दा कम) गाह्रो भयो....

महिनै पिच्छे गाह्रो भयो ..... हप्तै पिच्छे  
 गाह्रो भयो ..... सधै वा प्राय गाह्रो  
 भयो.....

तपाईंले रक्सीजन्य पदार्थ पिउनु भएको कारण तपाईं वा अन्य कसैलाई चोटपटक लागेको वा घाईते हुनुभएको थियो ?

थिएन..... थियो, तर  
गएको वर्षमा होईन.....

थियो, हालै गएको वर्ष (यहि वर्ष भित्र).....

तपाईंको नातेदार, साथी, डाक्टर वा अरु स्वास्थ्य कार्यकर्ताहरूले तपाईंको रक्सी पिउने बानीमा चासो दिएर नपिउनको लागि सल्लाह दिनु भएको थियो ?

थिएन..... थियो, तर  
गएको वर्षमा होईन.....

थियो, हालै गएको वर्ष (यहि वर्ष भित्र).....



सहभागी कोड नम्बर.....

मिति .....

भाग १: सामाजिक - िनसांजयिकी र जलितनकि प्रोफाइ

कृपि खालि  मा (✓) चिन्ह िगाउनहु ोस वा खालि स्थानमा वास्विवक पाठ थप्नु  
ोस

१। उमेर .....बर्ा

२। लिङ्ग  १। पुरु  २। िदहि

३। ववौहक जस्थति  १। अवर्ादहि  २। बबबादहि

- ३। सम्बन्धवर्द्धि  ४। वर्धर्ा / वर्धरु  
 ४। ितिि समहु  १। ब्रक्मिन  २। क्षरकबत्रय  ३।  
 नेर्ार  
 ४। गरुु ड  ५। राइ  ६।  
 िगर  
 ७। मिम्ब  ८। िधेसी

९। िििड

- १०। अन्य .....

५। त्क्षा

- १। अमशक्षरकि (िेख पद् गना नजान्ने)  २। साधारण पद्न र  
 िेख िात्र जान्ने  
 ३। प्राथमिक बबद्यािय (कक्षरका १-४)  ४। तनम्न िध्यमिक  
 बबद्यािय(कक्षरका ५-८)  
 ५। िाध्यमिक वर्द्यािय (कक्षरका ९- १०)  ६। उच्च िाध्यमिक  
 वर्द्यािय (कक्षरका ११- १२)  
 ७। स्नािक (Bachelors)  ८।  
 स्नािकोत्िर(masters)  
 ९। अन्य (व्यार्सातयक मशक्षरका सदहि).....

६। पेिा  १। व्यापार  २। खेिी  ३। श्रि

४। सरकारी सेर्ा  ५। बेरोजगार (यदि गि १ बर्िाेखख रोजगारी  
 नभएि)

६। वर्द्याथी  ७। अन्य .....

७। प्रति महहना आि (नेपािी रुपैामा)

१।  <₹0,000२।  ₹0,000 - २0,000३।  २0,000- ४0,000४।  > ४0,000

८.तनन्म उल्िेखखि रोगहरु मद्धे के िपाडिई चिककत्सक द्वारा कुनै रोग िागेको भतन पहहिन भएको छ?

 अर्साि ( डडप्रेसन )

 चचन्िा बबकार (एञ्जयदट डडसोडरे )

 उन्ित्ि अर्सादपनु ाब्यथा (बाइपोरि डडसोडरे )

 िनोभाजन (क्स्कजोफ्रेतनया)

 पसोनामिटी डडसोडरे

 अन्य (उल्िेख गनहा ोस ).....

९.तनन्म उल्िेखखि रोगहरु मद्धे के िपाडिई चिककत्सक द्वारा कुनै रोग िागेको भतन पहहिन भएको छ?

 उच्च रतिचाप (हाइ ब्िड प्रेशर )

 िधि ेह (डायबबदटज )

 किजो सम्बकन्ध सिस्या

 मिगौिा सम्बकन्ध सिस्या

 स्ास प्रस्ासि सिस्या

 अन्य (उल्िेख गनहा ोस ).....

भाग II : रलसीको प्रोग सम्बन्धि प्रश्नावि कृपया खामिा (v) चचन्ह  
िगाउनहु ोस ्रा खािी स्थानिा र्ास्विक पाठ थप्नहु ोस ्

१०। महिरा प्रोगको आरम्भको उमेर (साना घांट हरू र कहहिकाँही रलसीको िायने  
बाहेक, राम्रै साँग खान थािेको) ..... बर्ा

११। ववगिमा कति पटक िपाई ? महहना भन्िा बढी समि को िाचग रलसी  
वपउन ु भएन .....

१२। बबगिमा कति पटक िपाई रजलस वपउने समस्िका कारण अस्पाि  
अथवा पनु वासा केन्द्र (सधु ार गह ) मा भनाा हुन ु भएको छ?  
.....

१३. के िपाई रलसी बाहेक तनम्न कुन ै पतन पिथा प्रोग गनहा ुन्छ?

चरु ोट

गाँजा

सपु ाडी

खनौ / सिु िी

अन्य (उल्िेख गनहा ोस ).....

भाग III : लसफररस को बबि / प्रकृिा

कृपया खामि  बतसािा (v) चचन्ह िगाउनहु ोस ्

१. िपाई यस केन्निा कसरी पगु नभु यो? (मसफररस को बबि / प्रकृया )

१। आँफै



- २। पररररार र्ा साथी (को अनरु ोध र्ा िबाब)
- ३। डातर / स्ास्य वर्कास अमभयानको सल्लिाह
- ४। अपराध र्ा गरै कानन् ी व्यर्हार
- ५। अन्य (उल्लिेख गनहा ोस ).....

भाग IV : Drinking Related Internal - External Locus of Control

कृपया खामि  बतसािा (v) चचन्ह िगाउनहु ोस ्.

1.	<p><input type="checkbox"/> माबनसहरुले रक्सी बपउनकु ो मख्ुय कारण आफ्नो समस्या हरु सँग जझ्ुन नसकन ु हो</p> <p><input type="checkbox"/> माबनसहरु आफ्नो पररबस्थबतको कारणले गर्ाष रक्सी बपउन वाध्य हन् छन</p>
2.	<p><input type="checkbox"/> परुर् वा मबहला हरु आ-आफ्नो श्रीमान ्र श्रीमती को करणले गर्ा रक्सी बपउछन भन्न ु िेक्कारको कु रा हो</p> <p><input type="checkbox"/> धेरै मान्छेलाई थाहा नहनु सक्छ माबनस आफू सँग घटेको घटनाको करणले रक्सी बपउन पग्ु छ</p>

3.	<p><input type="checkbox"/> केही पररबस्थतीहरुमा म आफू लाई यबत कमजोर महसुस गछुष बक, मलाई रक्सी बपउनै पने िाध्यता हन्ु छ</p> <p><input type="checkbox"/> रक्सी नबपउन को लाबगु “म आज खीं बपउबर्न” भनेर अठोट गन षु नै काफी छ</p>
4.	<p><input type="checkbox"/> आफ्नो कायषस्थल को तनाि सहन सक्ने क्षमता म सँग छ</p> <p><input type="checkbox"/> घर वा कायषस्थलमा आइपने तनावको कारणले मलाई रक्सी बपउन वाध्य िनाउछ</p>
5.	<p><input type="checkbox"/> सबह पररबस्थबत नआएको खण्डमा मबनर् रक्सी नापीइकन िस्न सत्रनै</p> <p><input type="checkbox"/> रक्सी छोड्न नसक्नकु ो एउटा कारण, यस क्षेत्रसँग सम्िबधत बनकाय ए बिज्ञहरुको सहायता नबलन ु हो</p>
6.	<p><input type="checkbox"/> रक्सी नाबपबयकन िस्न सक्रै नसक्ने भन्ने खालको कु न ै पबन त्यस्तो पररबस्थबत अथवा कु नै बकबसम को पेय पद्दार्थष हर्ु नै</p> <p><input type="checkbox"/> धेरै जस्तो पररबस्थबत नै हो जस्ले माबनसलाई रक्सी बपउन िाध्य पाछ</p>
7.	<p><input type="checkbox"/> सा-साना बििाह्ररुले मलाई यबत उर्ाबसन िनाउछन बक त्यबह मेरे रबक्स बपउने कारक िन्छ</p> <p><input type="checkbox"/> म रबक्स नाबपबयकन बििार् हरु सम्हाल्न र सल्ु झाउन सकछु</p>

8.	<p><input type="checkbox"/> रक्सी छाडन सफल हुनुमा आफ्नो मेहेनेत प्रमुख कारण हो र यसमा भाग्य वा परबस्थितको कुनै भूमिका हुँदैन ।</p> <p><input type="checkbox"/> सै परबस्थित बमलेको खण्डमा मात्रै रक्सी बपउन छोड्न सबकन्छ</p>
9.	<p><input type="checkbox"/> रक्सी देखेपछि नपिडकन बस्नै सकिदैन ।</p> <p><input type="checkbox"/> रक्सी देखे पनि नदेखे पनि म नपिडकन बस्न सक्छु ।</p>
10.	<p><input type="checkbox"/> रक्सी पिउने वा नपिउने भन्ने विषयमा आफू माबथ आफ्नै सोचको प्रभाव िढी महत्वपणुष हन्ुछ्</p> <p><input type="checkbox"/> धेरै पटक अरुहरुले भनेका कारणले रक्सी पिइन्छ ।</p>
11.	<p><input type="checkbox"/> समारोहहरुमा अरुले रक्सी पिइरहेको अवस्थामा पनि म नपिडकन बस्न सक्छु ।</p> <p><input type="checkbox"/> समारोहहरुमा अरुले रक्सी पिइरहेको अवस्थामा म आफूलाई पिउन बाट रोक्न सकिदैन ।</p>
12.	<p><input type="checkbox"/> रक्सीको लत छाडन सक्नेहरु वास्तवमै भाग्यमानी हुन् ।</p> <p><input type="checkbox"/> रक्सी छाडन सक्नेहरुको पछाडि धेरै प्रयास र मेहनत हुने गर्छ र यसमा भाग्यको केही भूमिका हुँदैन ।</p>
13.	<p><input type="checkbox"/> म चिन्तित वा दूख भएको अवस्थामा रक्सी पिउनबाट आफूलाई रोक्न सकिदैन ।</p> <p><input type="checkbox"/> साच्चिनै चाहेको खण्डमा रक्सी छाडन सक्छु ।</p>

14.	<input type="checkbox"/> रक्सी नपिएको अवस्थामा पनि रमाइलोसँग बस्न सजिलै छ । <input type="checkbox"/> रक्सी नपिएसम्म म ठिक महशुस गर्न सकिदैन ।
15.	<input type="checkbox"/> बभ्रुन नसकिने र सम्हाल्न नसकिन्ने परिस्थितिको बशकार भएर माबनस रबक्स बपउने िाध्य हन्ु छ। <input type="checkbox"/> आफ्नो उपचारमा सबिय भाग बलएर, हामीले हाप्रो रबक्स बपउने िानीलाइ बनयन्त्रण गनष सकछौं
16.	<input type="checkbox"/> मेरो रक्सी पिउने िानी मा आफ्नो नियन्त्रण छ । <input type="checkbox"/> रक्सी पिउने/नपिउने विषयमा म आफूलाई अत्यन्त कमजोर महशुस गर्दछु ।
17.	<input type="checkbox"/> मानिसहरुले चाहेको खण्डमा आफ्नो पिउने बानी परिवर्तन गर्न सकछन् । <input type="checkbox"/> केही व्यक्तिहरुको हकमा पिउन बन्द गर्नु असम्भव हो ।
18.	<input type="checkbox"/> प्रशस्त प्रयास गरेको खण्डमा हामी रक्सी नपिउने हुन सकछौं । <input type="checkbox"/> रक्सीको कुलतमा लागि सकेपछि पिउने वा नपिउने भन्ने विषय आफ्नो नियन्त्रणमा राख्न गाह्रो हुन्छ ।
19.	<input type="checkbox"/> कसैले मलाई रक्सी पिउन निमन्त्रणा दिन्छ भने म त्यसलाई नकार्न सकिदैन । <input type="checkbox"/> मसँग रक्सी खान्न भन्ने शक्ति छ ।

20.	<input type="checkbox"/> मानिसहरु आफ्नो पिउने बानीलाई कसरी नियन्त्रणमा राख्छन् भन्ने कुरा म कहिलेकाहिं बुझ्न सकिदैन । <input type="checkbox"/> रक्सीको कुलतबाट उम्कन व्यक्तिहरु कति प्रयास गर्छन् भन्ने विषयले उनीहरु कति सफल हुन्छन् भन्ने कुरालाई प्रभावित गर्छ ।
21.	<input type="checkbox"/> पिउन इच्छा भए पनि म त्यसलाई रोक्न सक्छु । <input type="checkbox"/> पिउन सुरु गरेपछि म आफूलाई रोक्न सकिदैन ।
22	<input type="checkbox"/> मेरो समस्याहरु समाधान गर्न पिउनै पर्छ भन्ने जरुरी छैन । <input type="checkbox"/> पिउन नथालेसम्म समस्याहरुलाई सुल्झाउन सकिदैन ।
23	<input type="checkbox"/> म किन पिउने कार्यलाई निरन्तरता दिइरहेको छु भन्ने कुरा म आफैँ बुझ्न सकिदैन । <input type="checkbox"/> कालान्तरमा मेरो पिउने समस्याको लागि म आफैँ जिम्मेवार हुनेछु ।
24	<input type="checkbox"/> मैले दृढि निश्चित गरेको खण्डमा मेरो पिउने बानीलाई रोक्न सक्छु । <input type="checkbox"/> जहाँसम्म पिउने नपिउने प्रश्न छ म आफूलाई यस मामलामा अत्यन्त कमजोर पाउँछु ।
25	<input type="checkbox"/> मेरो लागि रक्सी पिउने राम्रो मनोरञ्जनको साधन हो ।
	<input type="checkbox"/> मैले अर्को पटक पिउन पाइन भने पनि यो मेरो लागि कुनै समस्याको विषय हुने छैन ।

**भाग V : Social Support (Multidimensional Scale of Perceived Social Support)**

कृषि विकास वालिहरु पढ्नहुँदा र हरेक वालिमा विषयको बबिलसगं सबै भन्दा लाम्लो  
अंकमा घेरा हाल्नहुँदा

	एकिकि धेरै असहिकि	धेरै असहिकि	असहिकि	टिस्थ (Neutral)	सहिकि	धेरै सहिकि	एकिकि धेरै सहिकि
1. विज्ञान आसुर्यकि परेको सिया विज्ञान साथ दिने एउटा बबिलर व्यक्ति छ	१	२	३	४	५	६	७
2. विरो सखु र विखु का कुराहरु बाढन मिल्ने एउटा बबिलर व्यक्ति छ	१	२	३	४	५	६	७
3. विरो परररारि विज्ञान रसुरि वि दिदि गन का कोमशश गछा	१	२	३	४	५	६	७

4. विज्ञान आसुर्यक परेको भार्नातिक साहयि र सहयोग विरो परररारबाट	एकिकि धेरै असहिकि	धेरै असहिकि	असहिकि	टिस्थ (Neutral)	सहिकि	धेरै सहिकि	एकिकि धेरै सहिकि
5. विज्ञानि वि प आस्थउछु	१	२	३	४	५	६	७

विलु याउन सतने एउटा बबशर्े व्यक्ति िेरो साथि छ							
6. िेरा साथीहरुिे साच्चै नै ििाई सहयोग गना कोमशश गछान	१	२	३	४	५	६	७
7. अस्था बबग्रा ििेरा साचथहरु िाचथ बबश्रास गना सतछु	१	२	३	४	५	६	७
8. ििेरो परररार संग आफना सिस्थाहरुका बारेिा कुरा गना सतछु	१	२	३	४	५	६	७
9. िसंग यस्िा साथीहरु छन जो संग ि आफनो सखु - िखु का कुरा हरु बादन सतछु	१	२	३	४	५	६	७
10. िेरो जीर्न ि एउटा यस्िो व्यक्ति छ जसि िेरो भार्नाहरुको किर गछा	१	२	३	४	५	६	७

	एकिि धेरै असहि ि	धेरै असहिि	असहिि	िटस्थ (Neutral)	सहिि	धेरै सहिि	एकिि धेरै सहिि
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11. िेरो पररर्ारि ििाइ आफ्नो तनणया मिने बबर्य िसहयोग गिाछ	१	२	३	४	५	६	७
12. िेरा साथीहरुसंग ि आफ्नो सिस्याहरुको बारेिा कुरा गना सतछु	१	२	३	४	५	६	७

भाग VI: University of Rhode Island Change Assessment Scale (URICA)

कृपया ििका र्ातयहरु पढ्नहु ोस र हरेक र्ातया िपाइको बबचारसंग सबै  
भन्िा मिल्िो अकंिा घेरा

हाल्नहु ोस

	बबल्कुि असहिि	असहिि	अतन क्श्च	सहि ि	बबल्कुि सहि
1) ि िात्र सिस्या हैन। आफुिाई पररर्िना गरेर केदह हुन्छ जस्िो िाग्िैन।	१	२	३	४	५
2) ि आफ्नो सिस्याको बारेिा केदह गना थािेको छु।	१	२	३	४	५
3) ि आफुिा केदह पररर्िना हुनपु छा भन्ने सोचन थािेको छु।	१	२	३	४	५
4) सिय सिया िेरो सिस्याहरु जदटि हुन्छन, िर पतन ियसि िाचगरहन्छु।	१	२	३	४	५
	बबल्कुि असहिि	अस ह	अतन क्श्च	सहिि	बबल्कुि सहिि



		ि			
5) सिस्‍याहरु िेरो कारणि आइपरेका होइनन, त्यसैिे िैिे आफुिाई पररर्िना गन ़ासिय को बरबािी िात्र हो।	१	२	३	४	५
6) आफुिाई अझ राम्रो संग तछन्न ि सफि हुन्छु भन्ने बबरिा ि आशार्ािी छु।	१	२	३	४	५
7) िेरा केदह कमि किजोरी हुन सतछन, िर िैिे आफुिाई पररर्िना नै गनपु न े केदह छैन।	१	२	३	४	५
8) आफुिाई पररर्िना गना ि तनकै प्रयासरि छु।	१	२	३	४	५
9) ििाई सिस्‍या छ, र िैिे यसको बारेिा केदह गनपु न े जस्िो ििाई िाग्छ।	१	२	३	४	५
10) िैिे पदहै पररर्िना गररसकेको कुराहरु आशा गरेजति अनसु रण गरेको छैन, र ि िेरा परु ाना सिस्‍या िै फेरी िोहोयाएर फककान दिन चाहन्न।	१	२	३	४	५
11) आफुिाई पणु रुा पिा पररर्िना गना सफि नभए िापतन ि आफ्नो सिस्‍याहरु संग िडडरहेको छु।	१	२	३	४	५
12) ििाई िाग्ो कक एक पटक सिस्‍याको सिाधान हुने बबक्त्िकै ि ितु ि हुनछे ़ु , िर सिय सिथिा ि पनु ः त्यदह सिस्‍या संग िडडरहेको हुन्छु।	१	२	३	४	५

13) ि संग आफ्नो सिस्‍याहरु संग जङ्गु न ेरिरका हरु अझ धेरै भए हुन्‍यो।	१	२	३	४	५
14) शायि 'कोदह' र्ा 'केदह' िे ििाइ िििि गना सतछ।	१	२	३	४	५

	बबल्कुि असहिि	असहिि	अतनक्श्च	सहिि	बबल्कुि सहिि
15) िैिे ल्याएका पररर्िनाहरुिाई यथार्ि राख्न ििाइ तनकै ठुिो प्रेरणा को खाँचो छ।	१	२	३	४	५
16) ि सिस्‍या को एक भाग हुन सतछु , िर ििाइ र्ास्िबि यस्िो होिा जस्िो िागिैन।	१	२	३	४	५
17) ििाइ आशा छ कसैसंग िेरोिाचग कुनै राम्रो सल्िाह हुन सतछ।	१	२	३	४	५
18) पररर्िनाको बारेिा ि जसि पतन कुरा गना सतछ, ि ि यसिा काया नै गरररहेको छु।	१	२	३	४	५
19) िनोवर्जानको बबरिा कुराहरु बेकार हुन। िातनसहरु आफ्ना सिस्‍यािाइ बबमसना ककन सतिनन?	१	२	३	४	५
20) आफ्नो सिस्‍या नोहोररयोस भन्नेिा ि सिका छु र यसिा तनरन्ि काया गरररहेछु।	१	२	३	४	५
21) यो तनराशाजनक छ, िर िेरो सिाधान भैसकेका सिस्‍याहरु पनु ः िोहोररन िागेका छन जस्िो ििाइ िागछ।	१	२	३	४	५

22) चिचकन्चिरि सिस्स्याग्रस्छि , चिरि को छैन र? यसका बारेिा सोचरे ककन सिय खचा गन?े	१	२	३	४	५
23) चि आफ्नो सिस्स्याहरु चिचथ चिचिरुकिाका साथ काया गरररहेको छु।	१	२	३	४	५
24) सिस्स्याहरु चिाइ परररिना गन ेचिा यति धेरै काया गररसति पतन ति सिस्स्या बारम्बार चिाइ चिसाउन आइरहनछन।	१	२	३	४	५



## REFERENCES



จุฬาลงกรณ์มหาวิทยาลัย  
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1. Peacock A, Leung J, Larney S, Colledge S, Hickman M, Rehm J, et al. Global statistics on alcohol, tobacco and illicit drug use: 2017 status report. *Addiction*. 2018;113(10):1905-26.
2. Department WHOSA, Health WHODO, Abuse S, Organization WH. Global status report: alcohol policy: World Health Organization; 2004.
3. Unit WHOMoSA. Global status report on alcohol and health, 2014: World Health Organization; 2014.
4. Organization WH. Global status report on alcohol 2004: World Health Organization; 2004.
5. Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, Patra J. Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *The lancet*. 2009;373(9682):2223-33.
6. Organization WH. Public health problems caused by harmful use of alcohol: gaining less or losing more? : WHO Regional Office for South-East Asia; 2006. Report No.: 9290222735.
7. Room R, Babor T, Rehm J. Alcohol and public health. *The lancet*. 2005;365(9458):519-30.
8. Chirita V, Untu I. Kaplan and Sadock's synopsis of psychiatry: Behavioural Sciences/Clinical Psychiatry. *Bulletin of Integrative Psychiatry*. 2016;22(1):119-23.
9. Cosic D, Dahal S, Kitzmuller M. Climbing Higher: Toward a Middle-Income Nepal. World Bank; 2017.
10. Jāhāna S. Human development report 2016: human development for everyone: United Nations Publications; 2016.
11. Dhital R, Subedi G, Gurung YB, Hamal P. Alcohol and Drug Use un Nepal. Kathmandu: Child Workers in Nepal Concerned Centre (CWIN). 2001.
12. Pradhan B, Chappuis F, Baral D, Karki P, Rijal S, Hadengue A, et al. The alcohol use disorders identification test (AUDIT): validation of a Nepali version for the detection of alcohol use disorders and hazardous drinking in medical settings. *Substance abuse treatment, prevention, and policy*. 2012;7(1):42.
13. Jhingan H, Shyangwa P, Sharma A, Prasad K, Khandelwal S. Prevalence of alcohol dependence in a town in Nepal as assessed by the CAGE questionnaire. *Addiction*. 2003;98(3):339-43.
14. Amundsen M, Kirkeby T, Giri S, Koju R, Krishna S, Ystgaard B, et al. Non-communicable diseases at a regional hospital in Nepal: Findings of a high burden of alcohol-related disease. *Alcohol*. 2016;57:9-14.
15. Shakya D, Shyangwa P, Shakya R. Psychiatric emergencies in a tertiary care hospital. *J Nepal Med Assoc*. 2008;47(169):28-33.
16. Shakya D, Shyangwa P, Sen B. Physical Diseases in cases admitted for alcohol dependence. *Health Renaissance*. 2008;5(1):27-31.
17. Parajuli VJ, Macdonald S, Jimba M. Social-contextual factors associated with alcohol use among adolescents of traditional alcohol user and nonuser ethnic groups of Nepal. *Journal of ethnicity in substance abuse*. 2015;14(2):151-65.
18. Girish N, Kavita R, Gururaj G, Benegal V. Alcohol use and implications for public health: patterns of use in four communities. *Indian J Community Med*. 2010;35(2):238-44.
19. DiClemente CC, Bellino LE, Neavins TM. Motivation for change and alcoholism treatment. *Alcohol Research and Health*. 1999;23(2):87-92.
20. Ryan RM, Plant RW, O'Malley S. Initial motivations for alcohol treatment: Relations with patient characteristics, treatment involvement, and dropout. *Addictive behaviors*. 1995;20(3):279-97.

21. DiClemente CC. Conceptual Models and Applied Research. *Journal of Addictions Nursing*. 2005;16(1):5-12.
22. Williams EC, Kivlahan DR, Saitz R, Merrill JO, Achtmeyer CE, McCormick KA, et al. Readiness to change in primary care patients who screened positive for alcohol misuse. *Ann Fam Med*. 2006;4(3):213-20.
23. D'Souza PC, Mathai PJ. Motivation to change and factors influencing motivation in alcohol dependence syndrome in a tertiary care hospital. *Indian J Psychiatry*. 2017;59(2):183-8.
24. Miller WR, Rollnick S. *Motivational interviewing: preparing people for change*, edn. New York: Guilford. 2002.
25. Harris TR, Walters ST, Leahy MM. Readiness to change among a group of heavy-drinking college students: correlates of readiness and a comparison of measures. *Journal of American College Health*. 2008;57(3):325-30.
26. Palfai TP, McNally AM, Roy M. Volition and alcohol-risk reduction: The role of action orientation in the reduction of alcohol-related harm among college student drinkers. *Addictive Behaviors*. 2002;27(2):309-17.
27. Shealy AE, Murphy JG, Borsari B, Correia CJ. Predictors of motivation to change alcohol use among referred college students. *Addict Behav*. 2007;32(10):2358-64.
28. Carey KB, Henson JM, Carey MP, Maisto SA. Which heavy drinking college students benefit from a brief motivational intervention? *Journal of consulting and clinical psychology*. 2007;75(4):663.
29. Bertholet N, Gaume J, Faouzi M, Gmel G, Daepfen J-B. Predictive value of readiness, importance, and confidence in ability to change drinking and smoking. *BMC Public Health*. 2012;12(1):708.
30. Merrill JE, Wardell JD, Read JP. Is readiness to change drinking related to reductions in alcohol use and consequences? A week-to-week analysis. *Journal of studies on alcohol and drugs*. 2015;76(5):790-8.
31. PandeyAshish1 F, GawandeSushil2, Tadke Rahul3, KirpekarVivek4, BhaveSudhir. Phenomenology of alcohol dependence and assessment of motivation in male alcoholics in India. *PJMS*. Dec. 2014;Volume 4(Number 2).
32. Koski-Jännes A. Drinking-related locus of control as a predictor of drinking after treatment. *Addictive Behaviors*. 1994;19(5):491-5.
33. Keyson M, Janda L. *Drinking Related Internal External Locus of Control Scale (DRIE)* 2007. 2007.
34. Gurung R. *Health psychology: a cultural approach* (pp, 257-283). San Francisco: Jossey-Bass; 2006.
35. Yasin AS, Dzul kifli MA. The relationship between social support and psychological problems among students. *International Journal of Business and Social Science*. 2010;1(3).
36. Cheng C. Role of perceived social support on depression in Chinese adolescents: A prospective study examining the buffering model. *Journal of Applied Social Psychology*. 1997;27(9):800-20.
37. Dahlem NW, Zimet GD, Walker RR. The multidimensional scale of perceived social support: a confirmation study. *Journal of clinical psychology*. 1991;47(6):756-61.
38. DiClemente CC. Conceptual models and applied research: The ongoing contribution of the transtheoretical model. *Journal of Addictions Nursing*. 2005;16(1-2):5-12.
39. Neal RA. *URICA: Assessing Readiness To Change Among Male offenders At Intake*: Western Oregon University; 2011.

40. McConaughy EA. STAGES (OR CHANGE IN PSYCHOTHERAPY; MEASUREMENT AND SAMPLE PROFILES" EILEEN A. MCCONNAUGHY, JAMES O. PROCHASKA\* AND WAYNE F. VELICER. *Psychotherapy: Theory, research and practice*. 1983;20(3):3.
41. Organization WH. *The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines*: Geneva: World Health Organization; 1992.
42. Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. *Archives of internal medicine*. 2000;160(13):1977-89.
43. Association AP. *Diagnostic and statistical manual of mental disorders (DSM-5®)*: American Psychiatric Pub; 2013.
44. Abuse S, Administration MHS. *National Survey on Drug Use and Health (NSDUH)*. 2014.
45. Shealy AE, Murphy JG, Borsari B, Correia CJ. Predictors of motivation to change alcohol use among referred college students. *Addictive Behaviors*. 2007;32(10):2358-64.
46. Cargiulo T. *Understanding the health impact of alcohol dependence*. Oxford University Press; 2007.
47. Rincon-Hoyos HG, Castillo A, Prada SI. Alcohol use disorders and psychiatric diseases in Colombia. *Colombia Médica*. 2016;47(1):31-7.
48. SAu A. AUDIT (Alcohol Use Disorders Identification Test) to estimate the pattern and correlates of alcohol consumption among the adult population of West Bengal, India: a community based cross-sectional study. *Journal of clinical and diagnostic research: JCDR*. 2017;11(4):LC01.
49. Katulanda P, Ranasinghe C, Rathnapala A, Karunaratne N, Sheriff R, Matthews D. Prevalence, patterns and correlates of alcohol consumption and its' association with tobacco smoking among Sri Lankan adults: a cross-sectional study. *BMC public health*. 2014;14(1):612.
50. Reisdorfer E, Büchele F, Pires ROM, Boing AF. Prevalence and associated factors with alcohol use disorders among adults: a population-based study in southern Brazil. *Revista Brasileira de Epidemiologia*. 2012;15:582-94.
51. Luitel NP, Jordans M, Murphy A, Roberts B, McCambridge J. Prevalence and patterns of hazardous and harmful alcohol consumption assessed using the AUDIT among Bhutanese refugees in Nepal. *Alcohol and alcoholism*. 2013;48(3):349-55.
52. Shore JH, Beals J, Orton H, Buchwald D, Team A-S. Comorbidity of alcohol abuse and dependence with medical conditions in 2 American Indian reservation communities. *Alcohol Clin Exp Res*. 2006;30(4):649-55.
53. Corrao G, Bagnardi V, Zambon A, La Vecchia C. A meta-analysis of alcohol consumption and the risk of 15 diseases. *Preventive medicine*. 2004;38(5):613-9.
54. Almeida-Filho N, Lessa I, Magalhães L, Araújo MJ, Aquino E, de Jesus Mari J. Co-occurrence patterns of anxiety, depression and alcohol use disorders. *European archives of psychiatry and clinical neuroscience*. 2007;257(7):423-31.
55. Levander E, Frye MA, McElroy S, Suppes T, Grunze H, Nolen WA, et al. Alcoholism and anxiety in bipolar illness: differential lifetime anxiety comorbidity in bipolar I women with and without alcoholism. *Journal of affective disorders*. 2007;101(1-3):211-7.
56. Grant BF, Stinson FS, Dawson DA, Chou SP, Dufour MC, Compton W, et al. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the national epidemiologic survey on alcohol and related conditions. *Archives of general psychiatry*. 2004;61(8):807-16.
57. Grant BF, Stinson FS, Dawson DA, Chou SP, Ruan WJ, Pickering RP. Co-occurrence of 12-month alcohol and drug use disorders and personality disorders in the United States:

results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Alcohol Research & Health*. 2006;29(2):121.

58. Shakya Dhana R, Shyangwa Pramod M, Sen B. Psychiatric Comorbidity in Cases Admitted for Alcohol Dependence. *Delhi Psychiatry Journal*. 2009;12(2).
59. Krebs P, Norcross JC, Nicholson JM, Prochaska JO. Stages of change and psychotherapy outcomes: A review and meta-analysis. *Journal of clinical psychology*. 2018;74(11):1964-79.
60. DiClemente CC, Hughes SO. Stages of change profiles in outpatient alcoholism treatment. *Journal of substance abuse*. 1990;2(2):217-35.
61. Willoughby FW, Edens JF. Construct validity and predictive utility of the stages of change scale for alcoholics. *Journal of Substance Abuse*. 1996;8(3):275-91.
62. Gregoire TK, Burke AC. The relationship of legal coercion to readiness to change among adults with alcohol and other drug problems. *Journal of Substance Abuse Treatment*. 2004;26(1):35-41.
63. Shakya D, Shyangwa P, Sen B. Help seeking behavior in patients with alcohol dependence in a tertiary care hospital in eastern Nepal. *Journal of Psychiatrists' Association of Nepal*. 2011;1(1):15-9.
64. STEP I. Non communicable diseases risk factors: steps survey Nepal. 2013.
65. Luitel NP, Baron EC, Kohrt BA, Komproe IH, Jordans MJD. Prevalence and correlates of depression and alcohol use disorder among adults attending primary health care services in Nepal: a cross sectional study. *BMC Health Serv Res*. 2018;18(1):215.
66. Niraula SR, Shyangwa P, Jha N, Paudel R, Pokharel P. ALCOHOL USE AMONG WOMEN IN A TOWN OF EASTERN NEPAL. *Journal of the Nepal Medical Association*. 2004;43(155).
67. Slepecky M, Stanislav V, Martinove M, Kotianova A, Kotian M, Chupacova M, et al. Discrepancy between readiness to change, insight and motivation in alcohol-dependent inpatients. *Neuroendocrinology Letters*. 2018;39(2):135-42.
68. Lau K, Freyer-Adam J, Gaertner B, Rumpf H-J, John U, Hapke U. Motivation to change risky drinking and motivation to seek help for alcohol risk drinking among general hospital inpatients with problem drinking and alcohol-related diseases. *General hospital psychiatry*. 2010;32(1):86-93.
69. Bombardier CH, Rimmele CT. Alcohol use and readiness to change after spinal cord injury. *Archives of physical medicine and rehabilitation*. 1998;79(9):1110-5.
70. DiClemente CC, Nidecker M, Bellack AS. Motivation and the stages of change among individuals with severe mental illness and substance abuse disorders. *Journal of substance abuse treatment*. 2008;34(1):25-35.
71. McGue M, Iacono WG, Legrand LN, Elkins I. Origins and consequences of age at first drink. II. Familial risk and heritability. *Alcoholism: clinical and experimental research*. 2001;25(8):1166-73.
72. DeWit DJ, Adlaf EM, Offord DR, Ogborne AC. Age at first alcohol use: a risk factor for the development of alcohol disorders. *American Journal of Psychiatry*. 2000;157(5):745-50.
73. Mariano AJ, Donovan DM, Walker PS, Mariano MJ, Walker RD. Drinking-related locus of control and the drinking status of urban Native Americans. *Journal of studies on alcohol*. 1989;50(4):331-8.
74. Huckstadt A. Locus of control among alcoholics, recovering alcoholics, and non-alcoholics. *Research in nursing & health*. 1987;10(1):23-8.
75. Collins RL, Koutsky JR, Izzo CV. Temptation, restriction, and the regulation of alcohol intake: validity and utility of the temptation and restraint inventory. *Journal of Studies on Alcohol*. 2000;61(5):766-73.



76. Johnson EE, Nora RM, Tan B, Bustos N. Comparison of two locus of control scales in predicting relapse in an alcoholic population. *Perceptual and motor skills*. 1991;72(1):43-50.
77. Vielva I, Iraurgi I. Cognitive and behavioural factors as predictors of abstinence following treatment for alcohol dependence. *Addiction*. 2001;96(2):297-303.
78. Yeh MY. Measuring readiness to change and locus of control belief among male alcohol-dependent patients in Taiwan: Comparison of the different degrees of alcohol dependence. *Psychiatry and clinical neurosciences*. 2008;62(5):533-9.
79. Stevens E, Jason LA, Ram D, Light J. Investigating social support and network relationships in substance use disorder recovery. *Substance abuse*. 2015;36(4):396-9.
80. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. *Psychological bulletin*. 1985;98(2):310.
81. Dobkin PL, Civita MD, Paraherakis A, Gill K. The role of functional social support in treatment retention and outcomes among outpatient adult substance abusers. *Addiction*. 2002;97(3):347-56.
82. Saunders JB, Aasland OG, Babor TF, De la Fuente JR, Grant M. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*. 1993;88(6):791-804.
83. de Meneses-Gaya C, Zuardi AW, Loureiro SR, Crippa JAS. Alcohol Use Disorders Identification Test (AUDIT): An updated systematic review of psychometric properties. *Psychology & Neuroscience*. 2009;2(1):83.
84. Yeh M-Y, Lee L-W, Hwang F-M. The Chinese version of the drinking-related locus-of-control scale: A confirmatory factor analysis. *Journal of substance abuse treatment*. 2008;34(3):333-9.
85. Donovan DM, O'Leary MR. The Drinking-Related Locus of Control Scale. Reliability, factor structure and validity. *Journal of Studies on Alcohol*. 1978;39(5):759-84.
86. UMBC THL-. URICA- Overview Of The URICA [
87. Sacks S, Sacks JY. Research on the effectiveness of the modified therapeutic community for persons with co-occurring substance use and mental disorders. *therapeutic communities*. 2010;31(2):176.
88. Bass-Thomas CM. An Examination of the Effect of Recent Substance Abuse Treatment on Current Opioid Use. 2019.
89. Abuse S, Lipari R, Hughes A. The CBHSQ Report: April 23, 2015. 2013.
90. Bunt GC, Muehlbach B, Moed CO. The Therapeutic Community: an international perspective. *Subst Abus*. 2008;29(3):81-7.
91. Dawson DA, Grant BF, Stinson FS, Chou PS. Estimating the effect of help-seeking on achieving recovery from alcohol dependence. *Addiction*. 2006;101(6):824-34.
92. Cheng AT, Chen WJ. Alcoholism among four aboriginal groups in Taiwan: high prevalences and their implications. *Alcoholism: Clinical and Experimental Research*. 1995;19(1):81-91.
93. Johnson PR, Banu S, Ashok M. Severity of alcoholism in Indian males: Correlation with age of onset and family history of alcoholism. *Indian journal of psychiatry*. 2010;52(3):243.
94. Kadri A, Bhagylaxmi A, Kedia G. Study of socio-demographic profile of substance users attending a de-addiction centre in Ahmedabad city. *Indian Journal of Community Medicine*. 2003;28(2):74-6.
95. Clapper RL, Buka SL, Goldfield EC, Lipsitt LP, Tsuang MT. Adolescent problem behaviors as predictors of adult alcohol diagnoses. *International Journal of the Addictions*. 1995;30(5):507-23.

96. Grant BF, Dawson DA. Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of substance abuse*. 1997;9:103-10.
97. Prescott CA, Kendler KS. Early age at first alcoholic drink. *The American journal of psychiatry*. 2001;158(9):1530.
98. Sartor CE, Lynskey MT, Bucholz KK, Madden PA, Martin NG, Heath AC. Timing of first alcohol use and alcohol dependence: evidence of common genetic influences. *Addiction*. 2009;104(9):1512-8.
99. Grant JD, Scherrer JF, Lynskey MT, Lyons MJ, Eisen SA, Tsuang MT, et al. Adolescent alcohol use is a risk factor for adult alcohol and drug dependence: evidence from a twin design. *Psychological medicine*. 2006;36(1):109-18.
100. Leshner AI. Addiction is a brain disease, and it matters. *Science*. 1997;278(5335):45-7.
101. Volkow ND, Li T-K. Drugs and alcohol: treating and preventing abuse, addiction and their medical consequences. *Pharmacology & therapeutics*. 2005;108(1):3-17.
102. Schuckit MA. Alcohol-use disorders. *The Lancet*. 2009;373(9662):492-501.
103. Cunningham JA, McCambridge J. Is alcohol dependence best viewed as a chronic relapsing disorder? *Addiction*. 2012;107(1):6-12.
104. Moos RH. Theory-based processes that promote the remission of substance use disorders. *Clinical psychology review*. 2007;27(5):537-51.
105. Moos RH, Moos BS. Protective resources and long-term recovery from alcohol use disorders. *Drug and alcohol dependence*. 2007;86(1):46-54.
106. Tracy EM, Munson MR, Peterson LT, Floersch JE. Social support: A mixed blessing for women in substance abuse treatment. *Journal of social work practice in the addictions*. 2010;10(3):257-82.
107. O'Farrell TJ, Hooley J, Fals-Stewart W, Cutter HS. Expressed emotion and relapse in alcoholic patients. *Journal of consulting and clinical psychology*. 1998;66(5):744.

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