ผลการใช้รูปแบบบำบัดอย่างย่อเพื่อลดการดื่มเครื่องดื่มแอลกอฮอล์
ในกลุ่มที่มีพฤติกรรมการดื่มระดับปานกลาง
ใน 2 ชุมชนที่มีความชุกของการดื่มเครื่องดื่มแอลกอฮอล์สูง

นางสาวจิตรลดา อารีย์สันติชัย

EFFECT OF A BRIEF INTERVENTION MODEL ON REDUCING ALCOHOL CONSUMPTION AMONG MODERATE DRINKERS IN TWO HIGH DRINKING PREVALENCE COMMUNITIES

Ms. Chitlada Areesantichai

A Dissertation Submitted in Partial Fulfillment of the Requirements

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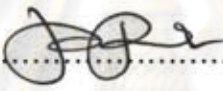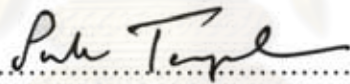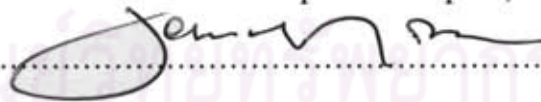|	
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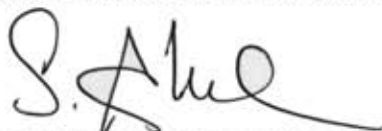
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จิตรลดา อารีย์สันติชัย : ผลการใช้รูปแบบบำบัดอย่างย่อเพื่อลดการดื่มเครื่องดื่มแอลกอฮอล์
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ALCOHOL CONSUMPTION AMONG MODERATE DRINKERS IN TWO HIGH
DRINKING PREVALENCE COMMUNITIES). อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ.ดร.สมโภชน์
เอี่ยมสุภาษิต. อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: John Marsden, Ph.D., 170 หน้า

การศึกษาครั้งนี้เพื่อต้องการหาประสิทธิผลของการใช้รูปแบบบำบัดอย่างย่อชุมชนในการลดการดื่ม
เครื่องดื่มแอลกอฮอล์ในกลุ่มผู้ดื่มในระดับปานกลาง โดยการศึกษาในชุมชนที่มีความชุกของการดื่มเครื่องดื่ม
แอลกอฮอล์สูง 2 แห่ง (ชุมชนหนองนาและบัวชุม จังหวัดลพบุรี) กลุ่มตัวอย่างผู้ดื่มระดับปานกลางอายุ 19-65 ปี
สมัครใจเข้าร่วมจำนวน 97 คน (47 คนจากหนองนาและ 50 คนจากบัวชุม) ดำเนินการให้การบำบัดอย่างย่อ
ชุมชน 4 ครั้ง ในระยะเวลา 2 เดือน โดยประเมินผลการดื่มเครื่องดื่มแอลกอฮอล์ (ความถี่ของการดื่ม ความถี่ของ
การดื่มหนัก ปริมาณแอลกอฮอล์ที่ดื่มเฉลี่ยต่อวัน และ ปริมาณแอลกอฮอล์ต่อวันที่ดื่ม) ก่อนและติดตามหลังการ
ให้รูปแบบบำบัดอย่างย่อชุมชน 1, 3 และ 6 เดือน โดยสังเกตการเปลี่ยนแปลงการดื่มเครื่องดื่มแอลกอฮอล์
ดังกล่าวและวัดด้วยสถิติ repeated measures general model และ linear regression พบว่า ในชุมชนทดลอง
มีการเปลี่ยนแปลงอย่างชัดเจน (มีนัยสำคัญทางสถิติ) ในความถี่ของการดื่ม ความถี่ของการดื่มหนัก และ
ปริมาณแอลกอฮอล์ที่ดื่มเฉลี่ยต่อวัน ในทุกครั้งที่ติดตามผล ในทางตรงกันข้ามพบค่าเฉลี่ยเพิ่มขึ้นในความถี่ของ
การดื่ม ความถี่ของการดื่มหนัก และปริมาณแอลกอฮอล์ที่ดื่มเฉลี่ยต่อวันทุกครั้งที่ติดตามผลในชุมชนบัวชุม
ดังนั้น รูปแบบการบำบัดอย่างย่อชุมชนนี้มีประสิทธิภาพดี มีความเชื่อถือได้ และสนับสนุนการพัฒนางาน
เกี่ยวกับชุมชนต่อไปในอนาคต

สาขาวิชา   : วิจัยเพื่อการพัฒนาสุขภาพ   ลายมือชื่อนิสิต...
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KEYWORDS : MODEL / ALCOHOL / MODERATE DRINKERS / COMMUNITY

CHITLADA AREESANTICHAI : EFFECT OF A BRIEF INTERVENTION MODEL ON REDUCING ALCOHOL CONSUMPTION AMONG MODERATE DRINKERS IN TWO HIGH DRINKING PREVALENCE COMMUNITIES. THESIS ADVISOR: ASSOC.PROF. Sompoch Iamsupasit, Ph.D., THESIS CO-ADVISOR: John Marsden, Ph.D., 170 pp.

This study investigated the effectiveness of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) to reduce alcohol consumption among moderate drinkers. Two high risk drinking prevalence communities (Nong-Na and Bua-Choom, in Lopburi province) took part in the study (the Bua-Choom community serving as the control). Subjects were 97 volunteer moderate drinkers, aged 19-65 years (47 from Nong-Na and 50 from Bua-Choom). TGCBI consisted of four sessions over two months. Alcohol consumption (drinking frequency, heavy drinking frequency, daily average alcohol and intensity of drinking) was assessed before intervention and at one, three and six month follow-up. Observed change on these measures was assessed using repeated measures general linear regression model and linear regression. The intervention community was associated with relatively great (statistically significant) in drinking frequency, heavy drinking frequency, daily average alcohol at all follow-up points. In contrast, there were averaged increases in drinking frequency, heavy drinking frequency and daily averaged alcohol consumption among the Bua-Choom group at all follow-up points. This TGCBI is empirically validated in this study, supporting further developmental work.

Field of Study: Research for Health Development   Student's Signature _____

Academic Year: 2009   Advisor's Signature _____

Co-Advisor's Signature _____

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LIST OF ABBREVIATIONS

I	Intervention Group
C	Control Group
BI	Brief Intervention
MI	Motivational Interview
TGCBI	Tailored Gold Oriented Community Brief Intervention Model
AUDIT	Alcohol Use Disorder Identification Test
TLFB	Alcohol Time-Line Follow-Back
GP	General Practitioners
gm	grams
Mo	Month
df	Degree of freedom
SD.	Standard Deviation
F	Variance Ratio
n	number of sample
ES.	Effect size
B	Model coefficient
χ^2	Chi-square
t	t-test statistic

CHAPTER I

INTRODUCTION

1.1 BACKGROUND

Alcohol is one of the five risk factors that contribute most to the global burden of disease (Anderson and Scott, 1992; Babor and Grant, 1992). It is considered to be the fifth most harmful psychoactive substance on the basis of its potential to cause physical harm, social harm and dependence (World Health Organization (WHO), Bien et al., 1993). The Food and Agriculture Organization of the United Nations (FAO), World Drink Trends 2003 ranks Thailand 40th out of 185 countries in terms of its per-capita alcohol consumption. Some 8.47 litres of absolute alcohol is consumed in the country per capita each year (World Health Organization Department of Mental Health and Substance Abuse, 2004). Reflecting this, there has been a substantial increase in the production, distribution and consumption of alcoholic beverages in Thailand in recent years. This reflects two national policies: the free trade of alcohol production and distribution across the Kingdom and the promotion of un-distilled liquor products to local communities (sub-districts called tambon)(OTOP) (Adit Laixuthai, Abha Sirivongs na Ayudhya, and Vichai Poshyachinda, 2001).

The National Household Survey for Substance and Alcohol Use (NHSSA) is a periodic survey of the Thai population aged 12-65 years. This study was conducted by the Administrative Committee of Substance Abuse Research Network (ACSAN). The first survey was conducted in 2001, the second in 2003 and the third in 2007. The main objective was to estimate the number of people in Thailand who had ever used psychoactive substances, with the specific objective to estimate the prevalence of alcohol use, alcohol use disorders and patterns of consumption. Results from 2003 showed that 58.5% had drunk alcohol in their lifetime. Among these, 48.4% reported drinking in the past 12 months and 34.8% reported drinking alcohol in the past 30 days. Among the last month drinkers, the rates of drinking all types of alcoholic beverages declined slightly in comparison with 2001. When comparing only the rates of drinking particular types of alcoholic beverages for more than 20 days out of 30

days in the survey between the two time periods, certain rates were higher in 2003 than in 2001. This result implies that regular drinkers in 2001 were still drinking regularly in 2003. In 2007, the survey estimated that 13.23 million people (28.4%) who had drunk alcohol in one year and 10.54 million (22.7%) who had drunk in one month had tended to become current drinkers; in sum more than half had drunk alcohol in the week before the interviews. The average consumption per drinking day among males and females were 88.91 grams and 51.99 grams. The prevalence of an alcohol-use disorder, which was about 2.79 million people (22.7%), were classified by the Alcohol Use Disorder Identification Test (AUDIT) as hazardous drinkers; 0.39 million (3.1%) as harmful drinkers and 0.23 million (1.9%) as dependent on alcohol. (Administrative Committee of Substance Abuse Academic Network, ACSAN, 2001, 2003 and 2007). The National Statistics Office (The National Statistics Office (NSO), 2006) conducted general population surveys in 1991, 1996 and 2001 on alcohol consumption among those aged 11 years and over. The data showed that the rate of alcohol drinking increased over this time. Moreover, the rate of alcohol use disorders also increased rapidly. The trend for social drinking (drinking 1-2 times per week) also increased, especially among males and adolescents (Assanangkornchai, Pinkaew, and Apakupakul, 2003).

A study of alcohol consumption behavior among the general population in Lop Buri Province from 1992-1996 conducted by the College of Public Health Sciences, Chulalongkorn University (Adit Laixuthai, Abha Sirivongs na Ayudhya, and Vichai Poshyachinda, 2001) aimed to study alcohol consumption behavior in Lop Buri Province. This study found that the rate of drinking per population during the last 30 days before the interview was relatively high in both Phatthana Nikhom (12.52 percent) and Chai Badan districts (15.60 percent). Lop Buri Province has three specific components. Firstly, it is an integrated community: urbanized and rural, both traditional and newly developed. Secondly, it is a developing, industrialized, expanding province where rural and urban communities have developed a drinking culture. Thirdly, according to the Excise Department, the rate of consuming grain spirit and special liquors is relatively high when compared with average national consumption.

Problems related to alcohol affect not only the drinker but also others including family members, friends, and the wider community. Driving when drunk is of the great national concern due to the high rate of road accidents related to alcohol drinking in 1996. The prevalence rate of drivers with alcohol in the blood during 6 months was over 50 mg/dl equivalent to 12.6% ranging 4.5-23.7% in other regions (Chongsuvivatwong et al., 1999). Among injured patients from road accidents at emergency rooms in the hospitals, 44% had alcohol in the blood over 0.1% (Suriyuwongpaisarn et al., 2002). In 2006, a report of road accidents showed 124,530 dead and 13,766 injured which increased to 16,965 cases from year 2003. Of all these casualties, 9,279 cases were drunk, showing a five times increase within ten years (Royal Thai Police Bureau, 2003). Furthermore, Alcohol drinking resulted in family and community problems, including quarrelling, family conflicts, separation and divorce. The rate of health problem, quarrelling and road accidents due to over drinking/drunkenness was 11, 15 and 8 percent respectively (Adit Laixuthai, Abha Sirivongs na Ayudhya, and Vichai Poshyachinda, 2001).

The majority of individuals with alcohol problems are able to reduce their drinking frequency and quantity and improve their health and social functioning status. But many will need assistance from empirically validated psychosocial treatment interventions. The public health approach to tackling drinking problems focuses on early identification and secondary prevention initiatives in which screening and brief interventions in primary care are seen as appropriate and acceptable interventions. As the label suggests, brief interventions are generally delivered over one to three sessions and typically include a succinct assessment of alcohol involvement, drinking pattern and related harms; normative comparisons with the general population; analysis of high risk drinking situations; a functional analysis of pros and cons of drinking; motivational feedback and advice; and the development of a personal change plan. Many brief interventions are designed for use by non-specialist or generic health and social care practitioners to use on an opportunistic basis. At least in primary care, brief interventions have been evaluated less frequently with dependent drinkers since this group usually requires a higher level of intervention service. In primary care, brief interventions are almost always designed for abbreviated delivery, typically in the context of a standard consultation (e.g. 5-15 minutes with a General Practitioners (GP); or up to 30 minutes with a practice nurse or psychologist).

Brief Intervention (BI) involves basic intervention processes and has been found to be cost-effective (Moyer, et al., 2002). It is composed of two steps: first, screening for alcohol involvement and related problems; and second, the provision of advice and information designed to encourage and help the individual make changes to their drinking behaviour to reduce risk and harm. An important goal is to prevent the escalation of alcohol-related problems and the transition to dependence. The elements of BI have been summarized using the 'FRAMES' acronym (Miller and Rollnick, 2002): **F**eedback to the individual about personal risk, impairment, and current status; **R**esponsibility placed on the individual for personal change; **A**dvice to change; **M**enu of alternative treatment or self-help options and strategies offered to the individual; **E**mpathic nature engendered by the clinician; and **S**elf-efficacy reinforcing the individual's sense of hope and optimism for success.

Problems associated with alcohol consumption are global and especially in Thailand where alcohol consumption has been screened. Prevention at an early stage among moderate drinkers is recommended and Furthermore, international systematic reviews of studies have supported the efficacy of BI. According to the Excise Department, Lop Buri province has a higher rate of alcohol consumption compared to that of the national average. In Thailand, BIs have been implemented in primary care settings and in hospital settings. There have been no BI assessments in the community. The focus of this study was on intervention to reducing alcohol consumption in high risk communities in Lop Buri province. The studied intervention was called "Tailored Goal Oriented Community Brief Intervention Model (TGCBI)". Over four sessions, the intervention helped moderate drinkers to voluntarily set up their goal and drinking reduction design suitable for them. The present study investigated the effectiveness of the intervention to reduce alcohol consumption and related problems in relation to a control condition.

1.2 RESEARCH QUESTION

The primary research question was as follows: Can Tailored Goal Oriented Community Brief Intervention Model (TGCBI) assist moderate drinkers to reduce their alcohol drinking?

1.3 HYPOTHESIS

The effect of Tailored Goal Oriented Community Brief Intervention Model (TGCBI) will reduce alcohol consumption among moderate alcohol consumers.

1.4 OBJECTIVE

To study the effect of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) on reducing alcohol consumption among moderate drinkers.

1.5 EXPECTED BENEFITS

1. The study can be applied to other high drinking prevalence communities in Lop Buri Province.

2. Health personnel will assume responsibility in screening alcohol consumption in their community and will implement TGCBI among moderate drinkers.

1.6 OPERATION DEFINITIONS

Brief Intervention (BI) is a short-term treatment without medication based on FRAMES components: Feedback, Responsibility, Advice, Menu of Options, Empathic counselling style and Self-efficacy. The intervention is delivered in 4 sessions.

Tailored Goal Oriented Community Brief Intervention Model (TGCBI) is a treatment consisting of 3 components. Firstly, FRAMES components describe the principles of the model. Secondly, drinkers voluntarily set up their goal and drinking reduction design suitable for them and their community and thirdly, the applied data resource for this model is derived from key informants in their community (including community leaders, families and health personnel) in combination with the FRAMES components of the model. The TGCBI was delivered in four sessions and each lasted for 15 to 60 minutes.

Control group were composed of individuals who shared the same criteria of the participants and lived in the control (non-intervention) community.

Intervention group is the subjects who meet the criteria of participants and live in the trial community. This group will receive a Tailored Goal Oriented Community Brief Intervention Model (TGCBI).

Standard drink is a unit of measurement, it is any drink containing 10 grams of alcohol.

Heavy drinking/Binge drinking is defined as the consumption of five or more standard drinks or more than fifty grams per occasion within the past month i.e. drinking more than six cans or three bottles of beer, or more than five glasses or half of a thin bottle of whiskey, or more than five glasses or half of a bottle of wine or more than ¼ bottle of grain spirit on one occasion.

AUDIT is a structured, standardized instrument, which has validity and reliability for diagnoses of alcohol dependence and harmful use or alcohol abuse in the general population. There are 10 questions consisting of three domains i.e. Risky or Hazardous Alcohol Use, Dependence Symptoms and High-Risk or Harmful Alcohol Use. The participants answer 10 questions. These questions have a total score of 40.

Participants are villagers who get a positive screening (range between 8-19 scores) by AUDIT and have lived in the control and intervention communities for at least 6 months before the project implementation.

Low drinkers are participants who score below 8 from the Alcohol Use Disorders Identification Test (AUDIT)

Moderate drinkers are participants who get an AUDIT score between 8 to 19.

A. Hazardous drinker: a risk population prone to health, physical or mental and may include social consequences to the drinker or others.

B. Harmful drinker: more serious drinkers, an alcohol addicted risk population, whose damage may be physical (e.g. liver damage) or mental (e.g. episodes of depression).

Heavy drinkers or Dependents are participants who get an AUDIT score equal and greater than 20.

Ethanol defined as the amount of alcohol consumed calculated in gram of absolute ethanol that is the volume (cc) x concentration (%) x specific gravity of alcohol=0.793 for each type of drink. i.e. a bottle of Thai beer (630cc, 6%), a bottle of Wine (750cc, 12%), a bottle of Whisky (750cc, 40%) and ¼ bottle of White spirit (150cc, 30% in trial community-35% in control community)

Frequency of drinking (drinking day/month): calculated by the summation of drinking days in the past month.

Frequency of heavy drinking (heavy drinking day/month): calculated by heavy drinking day in the past month.

Average daily intake (gm/day): calculated by monthly intake in grams of absolute ethanol divided by drinking day and non drinking day (30 days).

Intensity of drinking (gm/drinking day): calculated by monthly intake in grams of absolute ethanol divided by days of drinking in a month.

Total consumption in a typical month: calculated by the summation of monthly intake in grams of absolute ethanol.

Total AUDIT score: calculated by the summation scores of the participants' answers; the 10 questions consist of three domains i.e. Risky or Hazardous Alcohol Use, Dependence Symptoms and High-Risk or Harmful Alcohol Use in past month. These questions have a total score of 40.

Effect of Tailored Goal Oriented Community Brief Intervention Model (TGCBI) is the result of reducing alcohol consumption i.e. frequency of drinking, frequency of heavy drinking, average daily intake and intensity of drinking among moderate drinkers by using Tailored Goal Oriented Community Brief Intervention Model (TGCBI) in trial community.

CHAPTER II

LITERATURE REVIEW

This literature review on the effect of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) on reducing alcohol consumption among moderate drinkers in two communities is presented in six parts as follows:

2.1 ALCOHOL CONSUMPTION

Alcohol consumption is a basic part in learning about patterns of drinking, risk levels for patterns of drinking and the drinkers' pyramid, it is detailed as follows:

2.1.1 Pattern of Drinking

Babor et al., (2001) definition the term of Non drinkers, Moderate drinkers and Harmful drinkers as follows:

Non drinkers are participants who score below 8 from the Alcohol Use Disorders Identification Test (AUDIT).

Moderate d are participants who get an AUDIT scores between 8 to 19.

Heavy drinkers or Dependence are participants who get an AUDIT score equal and greater than 20.

In addition Babor and Grant, 1992 define heavy drinkers by irregular excessive alcohol consumption, e.g. of more than 65 g for women and 100 g for men of pure alcohol. Both have a higher risk for somatic problems, in particular heavy episodic drinkers experience a higher rate of injuries and accidents (BMA, 1995; Gmel et al., 2003: 105-116)

The term 'moderate drinkers' consists of further classification into hazardous and harmful drinkers as shown below;

a. Hazardous drinker: a risk population prone to health — physical, or mental, or they may include social consequences to the drinker or others. (Babor and Higgins-Biddle, 2001: 33)

b. Harmful drinker: more serious drinkers an alcohol addicted risk population damage may be physical (e.g. liver damage) or mental (e.g. episodes of depression). (WHO, 2004)

According to the pattern of safe drinking uses revised cut-off scores for AUDIT to bring it in line with Australia's National Health and Medical Research Council (NH & MRC, 2001: 4-5). A standard drink is 10 g of alcohol.

National Health and Medical Research Council (NH & MRC, 2001: 4-5) has categorized risks associated with drinking into three risk levels:

1. Low risk level defines a level of drinking as two standard drinks a day for female, and four standard drinks a day for male. There is only a minimum risk of harm. At this level, there may be health benefits for some of the population.

2. Risky level is that at which risk of harm significantly increases beyond any possible benefits.

3. High-risk drinking level is that at which there is substantial risk of serious harm, and above which risk continues to increase rapidly.

2.1.2 The Drinkers' Pyramid (Source from Babor, T. F. , and Higgins-Biddle, J. C., 2001. Brief intervention for hazardous and harmful drinking: A manual for use in primary care. Geneva, World Health Organization)
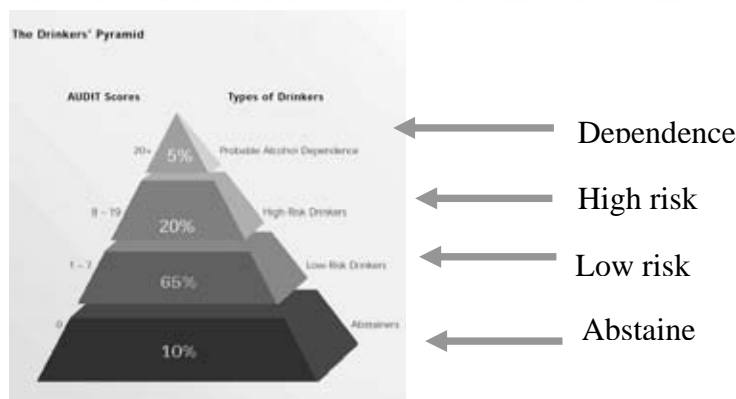
The type of drinking patterns i.e. non drinkers, hazardous drinker and harmful drinkers classified by AUDIT score and follow by Babor et al. (2001). Moreover, the risk levels and percentage of drinkers were useful for advice information in this intervention.

2.2 INTERVENTION

The intervention reviews were the main part of this study, they consist of Motivational Enhancement Therapy and Brief Intervention

2.2.1 Motivational Enhancement Therapy (MET)

Prochaska and DiClemente (1982, 1983, 1986) have described a trans-theoretical model of how people change addictive behaviors, with or without formal treatment. In a trans-theoretical perspective, individuals move through a series of stages of change as they progress in modifying problem behaviors. This concept of stages is important in understanding change. Each stage requires certain tasks to be accomplished and certain processes to be used in order to achieve change.

2.2.1.1 Process of MET

Miller and Rollnick (1991) have described five basic motivational principles underlying such an approach:

1. Express Empathy: The researcher seeks to communicate great respect for the subjects. Communications that imply a superior/inferior relationship between the researchers and subjects are avoided. The subjects' freedom of choice and self-direction will be respected. Moreover, the subjects can decide to make a change in their drinking and carry out that choice. Reflective listening (accurate empathy) is a key skill of motivational interviewing. It communicates the subjects as they are, while also supporting them in the process of change.

2. Develop Discrepancy: Motivation for change occurs when people perceive a discrepancy between where they are and where they want to be.

3. Avoid Argumentation: If handled poorly, ambivalence and discrepancy can resolve into defensive coping strategies that reduce the subjects discomfort but do not alter drinking and related risks. The subjects will argue to change. (Miller and Rollnick, 1991)

4. Roll With Resistance: The roll with the momentum, with a goal of shifting subjects perceptions in the process. Solutions are usually evoked from the subjects rather than provided by the therapist.

5. Support Self-Efficacy: The subjects who are persuaded that they have a serious problem will still not move toward change unless there is hope for success. This point is the same as Bandura's (1982a) description of "self-efficacy" as a critical determinant of behavior change. Self-efficacy is, in essence, the belief that one can perform a particular behavior or accomplish a particular task. The subjects must be persuaded that it is possible to change their own drinking and reduce related problems together with the specific belief that they can change the drinking problem.

2.2.2 BRIEF INTERVENTION

Brief intervention is basically a set of techniques that typically involve a screening or assessment process, feedback, participant engagement, simple advice or brief counseling, goal setting and follow up.

Heather, 1995; Moyer et al. (2002) proposed that brief intervention is designed to improve the health of population and patient groups as well as individuals. Brief Intervention has become increasingly valuable in the management of individuals with alcohol-related problems. Brief intervention takes a short time in only one session or over several sessions, it is low cost. Health personnel have increasingly focused on gaps between primary prevention efforts and more intensive treatment for persons with serious alcohol use disorders. Brief intervention can serve as treatment for hazardous and harmful drinkers or moderate drinkers, and as a way to facilitate referral of more serious cases of alcohol dependence to specialized treatment.

BI may takes 5 to 30 minutes, but some interventions, such as workbooks, pamphlets or other written material, are difficult to assess in terms of patient or provider time commitment. BI can be tailored to an individual or a population's need to do. (Moyer et al., 2002).

Alongside with the companion publication on the AUDIT, WHO has also produced a manual to aid primary health care workers in administering brief interventions to persons whose alcohol consumption has become hazardous or harmful to their health. Together, these manuals describe a comprehensive approach to alcohol screening and brief intervention (SBI) that is designed to improve the health of the population and patient groups as well as individuals.

2.2.2.1 Goals of brief intervention

Heather, 1995; Moyer et al. (2002) point out that the main goal of any brief intervention is to reduce the risk of harm as a result of the continuous use of psychoactive substances or more precisely, to reduce the chances and conditions which favor the development of substance-use related problems. Also the goals are individually established for each patient based on the clear identification of his/her current consumption pattern and associated risk.

2.2.2.2 Principle of Brief Intervention

Principle of effective Brief Intervention consists of the following: (FRAMES = Feedback, Responsibility, Advice, Menu of Options, Empathy and Self Efficacy) (Bien, Miller, and Tonigan, 1993; Miller and Rollnick, 2002; Miller and Sanchez, 1993).

1. **Feedback** Preparation for information feedback suitable for drinker' qualification is essential for Brief Intervention, drinking assessment and related problems of drinkers. It helps summarizing drinking behavior, problems incurred from AUDIT, risky factors related to drinking types and other general data concerning risky factors and dangers of drinking. If the patients give their accurate drinking information, they will be properly assisted from the information feedback acquired. Information feedback can be a comparison between drinking types of the patients and problems incurred against normal alcohol use and problems affecting other people.

2. **Responsibility** The principle of helping drinkers is providing knowledge that drinking behavior and drinking abstinence are their responsibility. Their determination to reduce or stop drinking is their own right; BI counselor cannot force them. The counselor can only offer useful suggestions as the saying-"whether to drink or to stop drinking depends on you; no one can change you or can decide for you; only you can do it". These contexts will help drinkers control themselves over troublesome behavior. This self-control proves to be an essential part in motivating the behavior change (stop drinking) and in lessening the drinker's aggravation against the BI counselor.

3. **Advice** The effective Brief Intervention is a good preparation of precise advice about the anticipated dangers for continuous drinking. Most BI patients are not aware that their current drinking behavior can lead to health problem and other troubles, or to worsen the problems. Succinct consultation to stop drinking will lessen risky factors for future problems and will enable the drinkers to have more awareness of their anticipated risks. Moreover, they will be rational in considering their drinking behavior.

4. **Menu of Options** Efficient Brief Intervention and self-help resource of the patients are various strategies for stopping drinking. This will help the patients choose the most appropriate and beneficial way for them at that condition. Giving alternatives to them will strengthen their will-power and responsibility to change their drinking behavior (stop drinking) and motivate them to stop drinking.

5. **Empathy** The BI counselor's warm reflection, emotion and understanding will enhance the efficiency of Brief Intervention. Moreover, it will build the relationship between the counselor and the patients resulting in their drinking reduction and their continuous meeting with the counselor.

6. **Self Efficacy** The last component for an effective Brief Intervention is giving the patients assertiveness that they can positively change their drinking behavior (stop drinking). The self efficacy helps them feel more confident in what they said or committed. Effective Brief Intervention should be administered in parallel with motivational counseling.

2.2.2.3 Setting

Brief intervention, which can be conducted in general health care settings, can help patients reduce risky drinking practices.

2.2.2.4 Group of Brief Intervention

Brief intervention (BI) is typically short, delivered in one session or over a number of sessions and has flexible goals which allow the participants to choose between abstinence and moderation. It is an intervention varying in length, structure, target and medium.

BI is most often used with patients who are not alcohol dependent, and its goal may be moderate drinking rather than abstinence (Bien, Miller and Tonigan, 1993; Graham and Fleming, 1997; O'Connor and Schottenfeld, 1998)

This study made TGCBI base on Brief Intervention which is simple, precise and brief. Moreover, the TGCBI was used by health personals in community.

2.3 THEORY

The following review explores and considers some major theories of behavior and behavior change that may be used to develop the model of this study. The first theory adopted herewith is a social cognitive theory, social foundations of thought and action (Bandura, 1986).

Bandura starts with an actual social cognitive view that people are not obsessed by an inner force or accidentally. The nature of persons is identified as symbolizing capability, forethought capability, vicarious capability, self-regulatory capability and self-reflective capability.

Symbolizing Capability: People's knowledge and symbolizing powers create courses of actions. It is believed that with the knowledge and symbolizing powers, people will change their actions and behaviors.

Forethought Capability: This is a prospective action that people set their goals and plans from their previous activities or experience. Also, their future activities whether those will be positive or negative actions come from their experience.

Vicarious Capability: Learning can come to people's mind only the session which affected them. This is different from the forethought capability in terms of only the experience which have an effect to themselves can create future behaviors.

Self-regulatory Capability: A majority of people's activities or behaviors come from a motivation. People will change their behaviors according to encouragement from other factors. Therefore, if we arrange facilitative environment conditions, recruit cognitive guides, and give incentives to their own efforts, people can make causal contribution to their own motivation and actions.

Self-reflective Capability: People have capability to analyze and reflect their process of thinking. People act on their thoughts and later analyze how their thoughts have served them to deal with the situation.

The following sections present some parts of "Social foundations of thought and action" by Bandura (1986:18-22).

2.3.1 Social Cognitive Theory (SCT)

In the social cognitive view people are neither driven by inner forces nor automatically shaped and controlled by external stimuli. Rather, human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other. The nature of persons is defined within this perspective in terms of a number of basic capabilities.

Symbolizing Capability

The remarkable capacity to use symbols, which touches virtually every aspect of people's lives, provides them with a powerful means of altering and adapting to their environment. Through symbols people process and transform transient experience into internal models that serve as guides for future action. Through symbols they similarly give meanings form, and continuance to the experiences they have lived through. By drawing on their knowledge and symbolizing powers, people can generate innovative courses of action. Rather than solving problems solely by enacting options and suffering the costs of missteps, people usually test possible solutions symbolically and discard or retain them on the basis of estimated outcomes before plunging into action. An advanced cognitive capability coupled with

the remarkable flexibility of symbolization enables people to create ideas that transcend their sensory experiences. Through the medium of symbols, they can communicate with others at almost any distance in time and space. Other distinctive human characteristics to be discussed shortly are similarly founded on symbolic capability. To say that people base many of their action on thought does not necessarily mean they are always objectively rational. Rationality depends on reasoning skills which are not always well developed or used effectively. Even if people know how to reason logically, they make faulty judgments when they base their inferences on inadequate information or fail to consider the full consequences of different choices. Moreover, they often missample and misread events in ways that give rise to erroneous conceptions about themselves and the world around them. When they act on their misconceptions, which appear subjectively rational, given their errant basis, such persons are viewed by others as behaving in an unreasoning if not downright foolish, manner. Thought can thus be a source of human failing and distress as well as human accomplishment.

Forethought Capability

People do not simply react to their immediate environment, nor are they steered by implants from their past. Most of their behavior, being purposive, is regulated by forethought. The future time perspective manifests itself in many ways. People anticipate the likely consequences of their prospective actions, they set goals for themselves, and they otherwise plan courses of action for cognized futures, for many of which established ways are not only ineffective but may also be detrimental. Through exercise of forethought, people motivate themselves and guide their actions anticipatorily. By reducing the impact of immediate influences, forethought can support foresightful behavior, even when the present conditions are not especially conducive to it. The capability for intentional and purposive action is roofed in symbolic activity. Future events cannot serve as determinants of behavior, but their cognitive representation can have a strong causal impact on present action. Images of desirable future events tend to foster the behavior most likely to bring about their realization. By representing foreseeable outcomes symbolically, people can convert future consequences into current motivators and regulators of foresighted behavior. Forethought is translated into action through the aid of self-regulating mechanisms. In analyses of telic or purposive mechanisms through goals and outcomes projected forward in time, the future acquires causal efficacy by being represented cognitively in the present. Cognized futures thus become temporally antecedent to actions. Some writers have misinterpreted the acknowledgment that experience influences thought to mean that thoughts are nothing more than etchings of environmental inputs in the host organism (Rychlak, 1979: 435-438). When thought is miscast as mechanical mediationism it is imprinted histories,

rather than cognized futures, that impel and direct behavior. This is dearly not the view of cognition and personal agency to which social cognitive theory subscribes. Forethought is the product of generative and reflective ideation.

Vicarious Capability

Psychological theories have traditionally assumed that learning can occur only by performing responses and experiencing their effects. Learning through action has thus been given major, if not exclusive, priority. In actuality, virtually all learning phenomena, resulting from direct experience, can occur vicariously by observing other people's behavior and its consequences for them. The capacity to learn by observation enables people to acquire rules for generating and regulating behavioral patterns without having to form them gradually by tedious trial and error. The abbreviation of the acquisition process through observational learning is vital for both development and survival. Because mistakes can produce costly, or even fatal consequences, the prospects for survival would be slim indeed if one could learn only from the consequence of trial and error.

Humans come with few inborn patterns. This remarkable plasticity places high demand on learning. People must develop their basic capabilities over an extended period, and they must continue to master new competencies to fulfill changing demands throughout their life span. It therefore come as no surprise that humans have evolved an advanced vicarious learning capacity. Apart from the question of survival, it is difficult to imagine a social transmission system in which the languages life styles, and institutional practices of the culture are taught to each new member just buy selective reinforcement of fortuitous behaviors, without the benefit of models to exemplify these cultural patterns. Some complex skills can be mastered only through the aid of modeling. In other behavior patterns that are formed by unique combinations of elements selected from numerous possibilities, there is little, if any, chance of producing the novel patterns spontaneously, or something even resembling them. Where novel forms of behavior can be conveyed effectively only by social cues, modeling is an indispensable aspect of learning. Even when it is possible to establish new patterns of behavior through other means, the acquisition process can be considerably shortened through modeling. Most psychological theories were cast long before the advent of enormous advances in the technology of communication. As a result, they give insufficient attention to the increasingly powerful role that the symbolic environment plays in present-day human lives. Indeed, in many aspects of living, televised vicarious influence has dethroned the primacy of direct experience. Whether it be thought patterns, values, attitudes, or styles of behavior, life increasingly models the media.

Self-Regulatory Capability

Another distinctive feature of social cognitive theory is the central role if assigns to self-regulatory functions. People do not be have just to suit the preferences of others. Much of their behavior is motivated and regulated by internal standards and self evaluative reactions to their own actions. After personal standards have been adopted, discrepancies between a performance and the standard against which it is measured activate evaluative self-reactions, which serve to influence subsequent behavior. An act, therefore, includes among its determinants self-produced influences.

Self-directedness is exercised by wielding influence over the external environment as well as enlisting self-regulatory functions. Thus, by arranging facilitative environmental conditions, recruiting cognitive guides, and creating incentives for their own efforts, people make causal contribution to their own motivation and actions. To be sore, self-regulatory functions are fashioned from, and occasionally supported by, external influences. Having some external origins and supports, however, does not refute the fact that the exercise of self-influence party determines the course of one is behavior.

Bandura (1977), identifies six ways in which self-regulation is achieved: 1) self-monitoring is a person's systematic observation of their own behavior; 2) goal-setting is the identification of incremental and long-term changes that can be obtained; 3) feedback is information about the quality of performance and how it might be improved; 4) self-reward is a person's provision of tangible rewards for themselves; 5) self-instruction occurs when people talk to themselves before and during the performance of complex behavior, and 6) enlistment of social support is achieved when a person finds people who encourage their efforts to exert self-control.

Self-Reflective Capability

If there is any characteristic that is distinctively human, it is the capability for reflective self-consciousness. This enables people to analyze their experiences and to think about their own thought processes. By reflecting on their varied experiences and on what they know, they can derive generic knowledge about themselves and the world around them. People not only gain understanding through reflection, they evaluate and alter their own thinking. In verifying thought through self-reflective means, they monitor their ideas, act on them or predict occurrences from them, judge the adequacy of their thoughts from the results, and change them accordingly. While such meta-cognitive activities usually foster veridical thought (Flared, 1978a), they can also produce faulty thought patterns through reciprocal causation. Forceful actions arising from erroneous beliefs often create social effects that confirm the misbeliefs (Snyder, 1980: 105-130). Among the types of thoughts that affect action, none is more central or pervasive than

people's judgments of their capabilities to deal effectively with different realities. It is partly on The basis of self-percepts of efficacy that they choose what to do, how much effort to invest in activities, how long to persevere in the face of disappointing results, and whether tasks are approached anxiously or self-assuredly (Bandura, 1982a). In the self-appraisal of efficacy, there are many soirees of information that must be processed and weighed through self-referent thought. Acting on one's self percepts of efficacy brings successes or missteps requiring further self reappraisals of operative competencies. The self-knowledge which underlies the exercise of many facets of personal agency is largely the product of such reflective self-appraisal. Self reflectivity entails shifting the perspective of the same agent, rather than reifying different internal agents ourselves regulating each other. Thus, in their daily transactions, people act on their thoughts and later analyze how well their thoughts have served them in managing events. But it is the one and the same person who is doing the thinking and then later evaluating the adequacy of his or her knowledge, thinking skills, and action strategies. The shift in perspective does not transform one from an agent to an object. One is just as much an agent reflecting on one's experiences as in executing the original courses of action. The same self performing multiple functions does not require positing multiple selves pursuing different roles.

2.3.2 Protection Motivation Theory

The second theory is about protection motivation theory. Rogers (1975) explains in his theory of protection motivation that if people perceive their risk, they will have confidence to change their behavior to reduce their risk. His original theory proposed that people will identify their risk on whether it will be a probability of risk or severe risk. For instance, if they perceived that they will 'get a heart attack' (severe risk), it is more serious than 'a possibility to get a heart attack'. Then, they will find how to reduce their risk. Alcohol drinking risk motivation will have a greater effect on heavy drinkers with a severe disease than average drinkers without any disease. Miller and Sanchez (1993: 55-81) discussing "Motivation young adults for treatment and lifestyle change" in Issues in Alcohol Use and Misuse in Young Adults referred to Rogers as follows:

History and Orientation: Protection Motivation Theory (PMT) was originally (Rogers, 1975) proposed to provide conceptual clarity to the understanding of fear appeals. A later revision of Protection Motivation Theory (Rogers, 1983) extended the theory to a more general theory of persuasive communication, with an emphasis on the cognitive processes mediating behavioral change.

Core Assumptions and Statements: Protection Motivation Theory (Rogers, 1983) is partially based on the work of Lazarus (1966) and Leventhal (1970) and describes adaptive and maladaptive coping with a health threat as a result of two appraisal processes. A process of threat appraisal and a process of coping appraisal, in which the behavioral options to diminish the threat are evaluated (Boer and Seydel, 1996: 95-120). The appraisal of the health threat and the appraisal of the coping responses result in the intention to perform adaptive responses (protection motivation) or may lead to maladaptive responses. Maladaptive responses are those that place an individual at health risk. They include behaviors that lead to negative consequences (e.g. smoking) and the absence of behaviors, which eventually may lead to negative consequences (e.g. not participating in breast cancer screening and thus missing the opportunity of early detection of a tumor).

The Protection Motivation Theory proposes that the intention to protect oneself depends upon four factors:

1) The perceived severity of a threatened event (e.g., a heart attack)

2) The perceived probability of the occurrence, or vulnerability (in this example, the perceived vulnerability of the individual to a heart attack)

3) The efficacy of the recommended preventive behavior (the perceived response efficacy)

4) The perceived self-efficacy (i.e., the level of confidence in one's ability to undertake the recommended preventive behavior).

This theory consists of two main factors. The first factor is the perceived level of risk—the level of health threat as judged by the individual. This is influenced by two factors: perceived probability of risk and perceived seriousness of risk. These two factors interact, perhaps in multiplicative fashion, to determine the overall level of perceived risk severity and are depicted in Figure 1. Without a threshold level of such concern, there is insufficient motivation for change. A high level of perceived risk engenders a search for possible actions that one could take to reduce risk, and also yields emotional arousal.

Rogers's proposes the second factor is self-efficacy. This factor is important because the mere arousal of fear or anxiety does not reliably lead to behavior change. The literature on fear introduction is mixed, with some successes and some failures.

Figure 1: Protection Motivation Theory (Rogers)
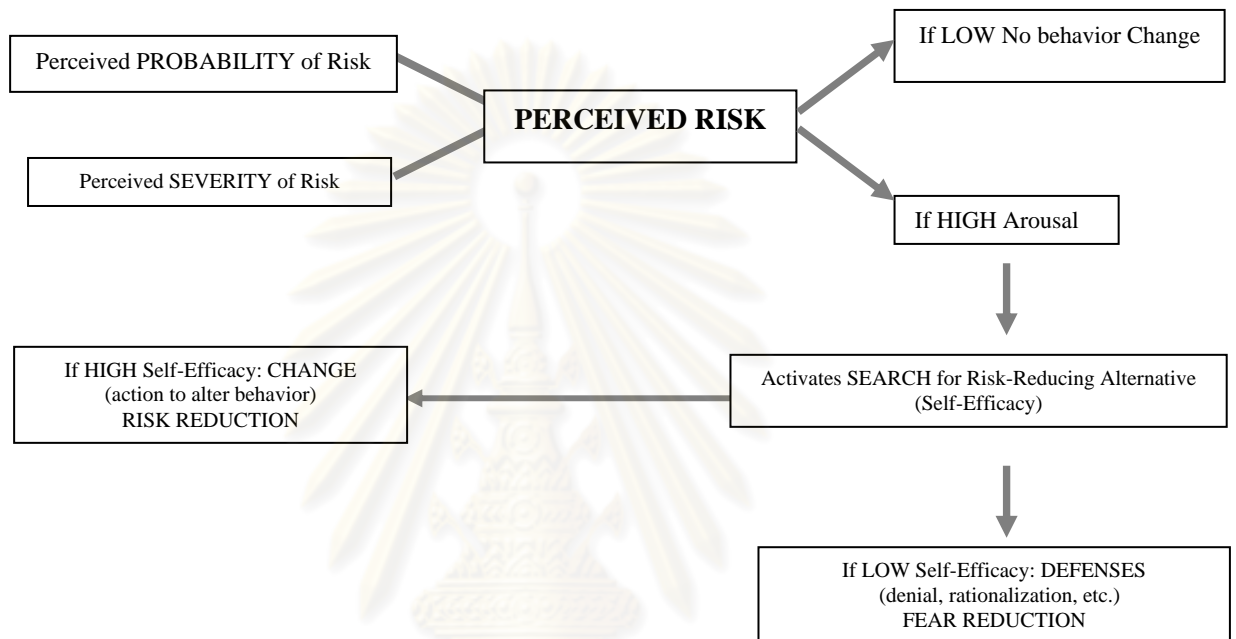
Protection motivation is the result from the threat and coping appraisal. Threat appraisal is the estimation of the chance of getting a disease and estimates of its severity. Response efficacy and self-efficacy are the two elements of coping appraisal. Response efficacy is expectancy that carry out recommendations which can remove the threat. Self-efficacy is the belief in the ability to execute the recommended courses of actions successfully. Protection motivation is a mediating variable whose function is to arouse, sustain and direct protective health behavior (Boer and Seydel, 1996: 95-120).

FRAMES has six elements described by Miller and Sanchez (1993) which they believed that there are active ingredients in the relatively brief interventions that have been shown by research to induce change in problem drinkers. The full meanings of FRAMES are:

1. FEEDBACK of personal risk or impairment

2. Emphasis on personal RESPONSIBILITY for change

3. Clear ADVICE to change

4. A MENU of alternative change options

5. Therapist EMPATHY

6. Facilitation of participant SELF-EFFICACY or optimism

Rogers (1975) mentioned about his conceptual system that motivation for change would effectively increase the interventions which enhance perceived risk and self-efficacy. The elements of the FRAMES approach fit the general description. The feedback and clear advice to change are aimed to increase people's perception of risk. Our drinker's check-up information further suggests that an empathic style increases the participant's acceptance of risk perception, whereas a confrontational style tends to remind resistance and reduce risk perception (Miller, 1983). Self-efficacy is one of six components of FRAMES. The perception of self-efficacy may be additional enhanced by an emphasis on personal responsibility, and by offering a menu from which to choose personally acceptable and useful strategies.

Edwards et al. (1977) also mentioned one common element, personal feedback in regard to risk status. In contrast, according to Miller (1985) personal feedback is a consistent theme in effective motivational programs. Most of the brief interventions literature has also emphasized, either directly or implicitly, the individual's personal responsibility for change. Brief direct advice to change has been associated with reductions in addictive behaviors (Burnum, 1984). Motivation also can be enhanced when participant can freely choose a change strategy from a menu of alternatives, rather than being given only a single option. Providing a variety of possible approaches increases the opportunity for effective participant treatment matching (Miller and Hester, 1986), and may also enhance the important perception of personal choice and control which promotes intrinsic motivation (Deci, 1975). Self-help instructional programs normally offer a menu of alternative change strategies, from which readers can select appropriate methods for their own situation. (Miller and Munoz, 1982) The therapists working with problem drinkers are consistent in pointing to therapist empathy as a strong predictor of success (Ends and Page, 1957) and

clinical description of effective brief interventions have often included explicit mention of Empathy as a key element of style. (Chafetz, 1961; Edwards et al., 1977) This empathic process of reflective listening and accurate understanding appears to be one of the stronger markers of the therapist effectiveness with problem drinkers. The last one is self-efficacy emerges as a common theme in programs which motivate change. This is the belief in one's ability to perform a specific task or accomplish a specific change. (Bandura, 1982a) By large, no one element alone but all of these six different combination (Feedback, Responsibility, Advice, Menu, Empathy, and self-efficacy) are necessary for effective intervention or even with intervention. Interventions, even brief, which have yielded larger effects on drinking problems, have included different combination of these elements.

2.3.3 Theory of Planned Behavior

Ajzen (1991) developed the theory of planned behavior. He mentioned human action is guided by three beliefs. Firstly, 'behavioral beliefs' about the likely outcomes of behavior, and the evaluation of these outcomes. Secondly, 'normative beliefs' is about the normative expectations of others and motivation to comply with these expectations. Lastly, 'control beliefs' is about the presence of factors that may facilitate or obstruct performance of the behavior and the perceived power of these factors. In sum, behavioral beliefs produce a favorable or unfavorable attitude toward the behavior; normative beliefs result in perceived social pressure or subjective norm; and control beliefs give rise to perceived behavioral control. In combination, attitude toward the behavior, subjective norm, and perception of behavioral control lead to the formation of a behavioral intention. Generally, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behavior in question. Finally, given a sufficient degree of actual control over the behavior, people are expected to carry out their intentions when the opportunity arises. Intention is thus assumed to be the immediate antecedent of behavior. However, because many behaviors pose difficulties in their execution that may limit volitional control, it is useful to consider perceived behavioral control in addition to intention. To the extent that perceived behavioral control is veridical, it can serve as a proxy for actual control and contribute to the prediction of the behavior in question. The following figure is a schematic representation of the theory.

TPB Diagram
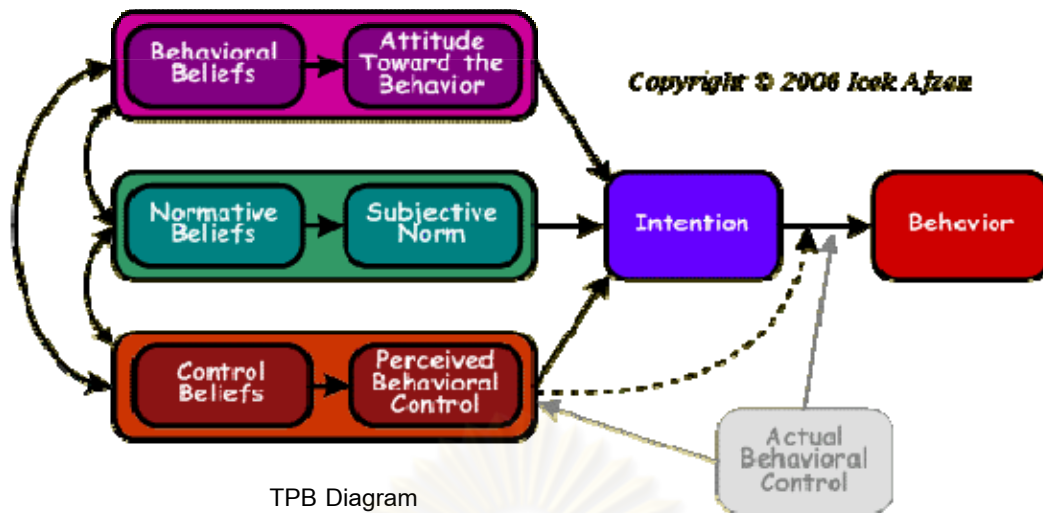
2.3.4 The Stages of Change Model

Prochaska and DiClimente (1983, 1984 and 1986) introduced the concept of behavior change involving six 'stages of change'. The concept of this model for understanding showed the process of how people change problematic and addictive behaviors. The six separate stages have been identified, i.e. Pre-contemplation, Contemplation, Determination or Preparation, Action, Maintenance and Relapse. People who are not considering change in their problem behavior are described as being in Pre-contemplation. The Contemplation stage requires the person's beginning to consider both the existence of a problem and the feasibility and costs of changing the problem behavior. If the participant has progression, he/she moves on to the Determination stage where the decision is made to change. Once he/she begins to modify the problem behavior, he/she enters the Action stage, which continues for 3-6 months. After successfully entering the action stage, the participant moves to Maintenance or sustainable stage. If these efforts fail, a Relapse occurs, and the participant begins another cycle. The ideal path is to progress directly from one stage to the next until the maintenance is achieved. Most people with serious problems are related to drug use. The process involves several relapses which represent failed action or maintenance. The participants who relapse go through the cycle again and move back into contemplation and the change process.

Prochaska and DiClimente (1984) described the stages of change as follows:

1. Pre-contemplation: Participants in this stage are relatively unconcerned about their drinking. There may be a few issues or problems from time to time, but for them the benefits far outweigh any costs or adverse consequences. They will usually ignore or discount any comments about their drinking and do not at this time see a need for a change.

2. Contemplation: Participants in this stage will usually feel two ways about their drinking behavior. On one hand it may be enjoyable, exciting, fun and a necessary part of their life, but on the other hand, the costs are beginning to accrue in relation to personal, psychological, legal, medical, social and familial problems. They are, therefore often ambivalent about their drinking behavior. Their discomfort may be general or acute depending on the severity of those problems.

3. Determination/Preparation: Participants at this stage are ripe for a change. They have become aware that costs of the behavior clearly exceed the benefits. They have realized that change is necessary and have made a decision that the time to change is at hand. They may be seeking help or looking at the options. Equally, some people at this stage decide not to do anything about their behavior.

4. Action: Participants in this stage have made a resolution to change and have decided on a course of action. They are committed to the process of change and are actively engaged in strategies to achieve it. They will stop their drinking or cut down to a determined level and dealing with the issues or problems that need to be overcome to achieve that goal.

5. Maintenance: In this stage participants have successfully made the break and have sustained the change for sufficient duration to feel that they no longer have a problem. This process may take time and it may be that the stage is only entered after some 6 to 12 months of sustainable change. It is considered that some participants could be in this stage for up to five years or whenever they become emotionally and physically detached from the old behavior. At that point they will be unlikely to return to drinking.

6. Relapse: Relapse is a process where participants either return to drinking after abstinence, or have increased their drinking again after cutting down. It can occur at both action and maintenance stages. Very few participants will change addictive behaviors without some level of relapse. Relapse is a normal part of the process and most participants will spiral through these stages a number of times before achieving a permanent change. Following the relapse, participants will not go back to the Pre-contemplation stage but will re-enter the process at a more advanced stage. Each of the six separate stages requires certain tasks to be accomplished and certain processes to be used in order to achieve the desired change.

Later on Volk et al. (1997) defined the stages of change as follow:

　　　　1. Pre-contemplation defined as the risky or high-risk drinkers are not considering change in the near future, and may not be aware of the actual or potential health consequences of continued drinking at this level.

　　　　2. Contemplation defined as the drinkers may be aware of alcohol-related consequences but are ambivalent about changing.

　　　　3. Preparation defined as the drinkers have already decided to change and plan to take action.

　　　　4. Action defined as the drinkers have begun to cut down or stop drinking, but change has not become a permanent feature.

　　　　5. Maintenance defined as the drinkers have achieved moderate drinking or abstinence on a relatively permanent basis.

　　　　6. Relapse or lapse defined as the drinkers have changed their behavior and may have resumed their drinking or returned to old patterns of behavior or may have returned to one of the above stages

2.3.5 The Stages of Change and Associated Brief Intervention Elements

Volk et al. (1997) identified how the stage of change was associated with Brief Intervention. The first stage, pre-contemplation in brief intervention should emphasize feedback to the participant on screening results and providing information that will raise awareness. As for the contemplation, it should emphasize the benefit of change (at least reduce drinking). After that, provide advice and options of change (preparation). The action stage is to review advice and provide encouragement. If the participant can reach the stage of action, try to maintain it by giving regular encouragement. However, if the participant relapses, try to start with the feedback stage again.

Stage	Brief Intervention Elements to be emphasized
Pre-contemplation	Feedback the results of screening, and providing information and raising awareness
Contemplation	Emphasize the benefits of changing, provide information on low-risk drinking, discuss the risks of delaying, and discuss how to choose a goal
Preparation	Discuss change options and determine a goal. Provide advice and encouragement
Action	Review advice and give encouragement
Maintenance	Give encouragement and review goals
Relapse or lapse	Review the brief intervention elements of the stage to which they have relapsed

This study is based on two theories, firstly the protection motivation theory (Rogers, 1975; Rogers, Deckner, and Mewborn, 1978). It suggested this conceptual system, motivation for change would effectively increase the interventions which enhance these two factors: perceived risk and self-efficacy. The elements of the FRAMES approach identified fit this general description. Secondly, the TGCBI process were underlying Bandura's social cognitive theory (SCT) that human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other.

2.4 INSTRUMENTS

The instruments review consists of two parts, firstly screening instrument i.e. Alcohol Use Disorders Identification Test (AUDIT), CAGE' and brief Michigan Alcoholism Screening Test (brief MAST). Secondly, the assessment drinking behaviour that is Alcohol Time-Line Follow-Back (TLFB)

2.4.1. Alcohol Use Disorders Identification Test (AUDIT) instrument

The AUDIT has been developed from a six-country (Saunders et al., 1983; Saunders and Aasland, 1987) World Health Organization collaborative project as a screening instrument for hazardous and harmful alcohol consumption (Volk et al., 1997).

The AUDIT was developed as a simple method of screening for excessive drinking and to assist in brief assessment. It can help identify excessive drinking as the cause of the presenting illness. It provides a framework for intervention to help risky drinkers reduce or cease alcohol consumption and thereby avoid the harmful consequences of their drinking. The AUDIT also helps to identify alcohol dependence and some specific consequences of harmful drinking. The most importance for screening is the fact that people who are not dependent on alcohol may stop or reduce their alcohol consumption with appropriate assistance and effort. The manual is particularly designed for health care practitioners and a range of health settings, but with suitable instructions it can be self-administered or used by non-health professionals. Screening for alcohol consumption among patients in primary care carries many potential benefits. It provides an opportunity to educate patients about low-risk consumption levels and the risks of excessive alcohol use. Information about the amount and frequency of alcohol consumption may inform the diagnosis of the patient's presenting condition, and it may alert clinicians to the need to advise patients whose alcohol consumption might adversely affect their use of medications and other aspects of their treatment. Screening also offers the opportunity for practitioners to take preventative measures that have proven effective in reducing alcohol-related risks.

2.4.1.1 Domains and Item Content of the AUDIT

The AUDIT consists of 10 questions and scored to provide levels of hazardous and harmful alcohol use for men and women. It covers three domains of alcohol consumption, drinking behavior, and alcohol-related problems. It was designed to identify hazardous drinkers whose level of drinking places them at risk for developing problems, harmful drinkers who are experiencing physical, social or psychological problems, and to identify people who are potentially alcohol dependents. (Saunders et al., 1993)

Question Number	Domains	Item Content
1	Risky or Hazardous Alcohol Use	Frequency of drinking
2		Typical quantity
3		Frequency of heavy drinking
4	Dependence Symptoms	Impaired control over drinking
5		Increased salience of drinking
6		Morning drinking
7	High-Risk or Harmful Alcohol Use	Guilt after drinking
8		Blackouts
9		Alcohol-related injuries
10		Other people's concern

2.4.1.2 The AUDIT consists of four levels

The first level, Risk Zone I, applies to the majority of participants in most countries. AUDIT scores below 8 generally indicate low-risk drinking. Although no intervention is required, for many individuals alcohol education is appropriate for several reasons: it contributes to the general awareness of alcohol risks in the community; it may serve as a preventive measure; it could be effective for participants who have minimized the extent of their drinking on the AUDIT questions; and it might remind participants with past problems about the risks of returning to hazardous drinking.

The second level, Risk Zone II, is likely to be encountered among a significant proportion of participants in many countries. It consists of alcohol use in excess of drinking guidelines. Although drinking guidelines vary from country to country, epidemiological data suggest that the risks of alcohol-related problems increase significantly when consumption exceeds 20 g of pure alcohol per day, which is the equivalent of approximately two standard drinks in many countries. An AUDIT score between 8 and 15 generally indicates hazardous drinking, but this zone may also include participants experiencing harm and dependence.

The third level, Risk Zone III, refers to a pattern of alcohol consumption that is already causing harm to the drinkers, who may also have symptoms of dependence. Participants in this zone may be managed by a combination of simple advice, brief counseling, and continued monitoring. AUDIT scores of 16 and 19 often suggest harmful drinking or dependence, for which a more thorough approach to clinical management is recommended.

The fourth and highest risk level, Risk Zone IV, is suggested by AUDIT scores in excess of 20. These participants should be referred to a specialist for diagnostic evaluation and possible treatment for alcohol dependence. Health workers should note, however, that dependence varies along a continuum of severity and might be clinically significant even at lower AUDIT scores. In the following sections, the clinical management of participants scoring in each of these zones is described in more detail.

2.4.1.3 Quality of AUDIT

2.4.1.3.1 Reliability and validity

The AUDIT was published, and the developers recommended additional validation research. In response to this request, a large number of studies have been conducted to evaluate its validity and reliability in different clinical and community samples throughout the world.

Several studies have reported on the reliability of the AUDIT. (Fleming et al., 1991; Hays et al., 1995; Sinclair et al., 1992) The results indicated high internal consistency, suggesting that the AUDIT is measuring a single construct in a reliable fashion. The AUDIT's sensitivity is 0.92 and specificity is 0.94 (Saunders et al., 1993).

A test-retest reliability study (Rigmaiden, 1995) indicated high reliability (r=.86) in a sample consisting of non-hazardous drinkers, cocaine abusers, and alcoholics. Another methodological study was conducted in part to investigate the effect of question ordering and wording changes on prevalence estimates and internal consistency reliability (Ivis, 2000). Changes in question ordering and wording did not affect the AUDIT scores, suggesting that within limits, researchers can exercise some flexibility in modifying the order and wording of the AUDIT items.

2.4.1.3.2 Cut-off point AUDIT

The recommended cut-off of 8, most studies have found very favorable sensitivity and usually lower, but still acceptable, specifically, for current International Classification of Diseases (ICD-10) alcohol use disorders, (Allen, 1997; Cherpitel, 1995; Conigrave, 1995) as well as the risk of future harm (Volk et al., 1997). Nevertheless, improvements in detection have been achieved in some cases by lowering or raising the cut-off score by one or two points, depending on the population and the purpose of the screening program (Conigrave, 1995; Volk et al., 1997).

2.4.1.4 Setting

A variety of subpopulations have been studied, including primary care participants (Volk et al., 1997; Rigmaiden, 1995; Piccinelli, 1997) emergency room cases (Conigrave, 1995), drug users (Skipsey et al., 1997), university students (Fleming et al., 1991), elderly hospital participants (Powell and McInness, 1994), and persons of low socio-economic status (Isaacson et al., 1994). The AUDIT has been found to provide good discrimination in a variety of settings where these populations are encountered.

2.4.2 The CAGE questionnaire

The CAGE, the name which is an acronym of its four questions, is a widely used method of screening for alcoholism.

Two "yes" responses indicate that the respondent should be investigated further. The questionnaire asks the following questions:

1.   Have you ever felt you needed to cut down on your drinking?

2.   Have people annoyed you by criticizing your drinking?

3.   Have you ever felt guilty about drinking?

4.   Have you ever felt you needed a drink first thing in the morning (Eye-opener) to steady your nerves or to get rid of a hangover? (Ewing, 1984: 1905-1907)

The CAGE questionnaire, among other methods, has been extensively validated for use in identifying alcoholism. (Kitchens, 1994: 1782-1787). CAGE is considered a validated screening technique, with one study determining that CAGE test scores >=2 had a sensitivity of 93% and a specificity of 76% for the identification of problem drinkers. (Bernadt, 1982: 325-328).

It is not valid for diagnosis of other substance use disorders, although somewhat modified versions of the CAGE are frequently implemented for such a purpose.

2.4.3 The Michigan Alcohol Screening Test (MAST) is a screening tool for alcoholism widely used by courts to determine appropriate sentencing for people convicted of alcohol-related offenses, driving under the influence being the most common.

Fiellin (2000: 1977-1989) conducted a systematic review of instruments to screen the level of alcohol consumption, it found that the AUDIT is the best screening instrument for the full range of alcohol problems in primary care, as compared to other questionnaires such as the CAGE and the Michigan Alcohol Screening Test (MAST).

2.4.4 Alcohol Time-Line Follow-Back (TLFB)

The timeline follow-back instrument (TLFB) is a valid and reliable method of quantifying alcohol use patterns. (Sobell and Sobell, 2000: 477-479).

The time-line follow-back (TLFB) procedure (Sobell and Sobell, 1979: 157-160) has been used for years to reliably and validly assess daily alcohol use through self-report over extended periods of time.

Sobell et al. (1979: 157-160) first developed the TLFB to assess drinking behavior in a more detailed and accurate manner than is done with the popular quantity/frequency (Q/F) Index. Originally designed to be administered to clinical populations of alcoholics, the TLFB gathers information on drinking behavior during a pre-selected time period that can cover anywhere from the previous 30 days up to the previous 12 months. TLFB has been shown to have good psychometric characteristics with a variety of drinker groups, and can generate variables that provide a wide range of information about an individual's drinking e.g., pattern, variability, and magnitude of drinking.

2.4.4.1 Quality of Alcohol Time-Line Follow-Back (TLFB)

The timeline follow-back instrument (TLFB) (Sobell and Sobell, 2000: 477-479) is a valid and reliable method of quantifying alcohol use patterns. The use of this instrument has been expanded to assess other behaviors, such as drug use, sexual behavior, and panic attacks. The time-line follow-back (TLFB) procedure (Sobell and Sobell, 1979) has been used for years to reliably and validly assess daily alcohol use through self-report over extended periods of time.

2.4.4.2 Method of Time-line follow-back (TLFB)

The TLFB (Sobell and Sobell, 2003) is a drinking assessment method that obtains estimates of daily drinking and has been evaluated with clinical and nonclinical populations. Using a calendar, people provide retrospective estimates of their daily drinking over a specified time period that can vary up to 12 months from the interview date at before and after treatment. Several memory aids can be used to enhance recall (e.g., calendar, key dates serve as anchors for reporting drinking, standard drink conversion).

A calendar is used to structure the interview, and personal (birthdays, parties) as well as common (holidays, major news events) landmarks are used as memory aides to assist a respondent's recall strategy. A variety of information on drinking patterns can be computed using this calendar approach, including percentage of days drinking at various levels (light, moderate, heavy drinking), mean number of drinks per day, maximum number of drinks on a single day, percentage of abstaining days, and temporal patterns of drinking.

The method is recommended for use when relatively precise estimates of drinking are necessary, especially when a complete picture of drinking days (i.e., high- and low-risk days) is needed (evaluating drinking pre-post treatment).

2.4.4.3 Setting

Clinically, the TLFB can be used to provide feedback about one's drinking in an effort to increase a participant's motivation to change. Although Timeline summary data have been found to be generally reliable, as with all drinking assessment methods, exact day-by-day precision cannot be assumed or necessarily expected. Overall, the Alcohol TLFB method provides a relatively accurate portrayal of drinking, and has both clinical and research utility.

This study use AUDIT to screen the level of alcohol consumption that is selected only moderated drinker. Moreover, TLFB were used a drinking assessment method that obtain of daily drinking. It was measured alcohol use pattern before and after implement intervention in both communities.

2.5 LITERATURE REVIEWS

Brief intervention is widely considered as a cost-effective means of helping people to reduce hazardous and harmful drinking and generally to moderate a person's alcohol consumption to sensible levels and to eliminate harmful drinking practices (such as binge drinking), rather than to reach complete abstinence from drinking. Many studies indicate that "brief intervention" is effective in reducing alcohol consumption among such drinkers in health care services.

This literature review has identified five items related to this study as follows:

2.5.1 Pattern of alcohol consumption

2.5.2 Screening instruments

2.5.3 Intervention to reduce alcohol consumption

2.5.4 Setting to implement the intervention

2.5.5 Factors related to alcohol consumption

2.5.1 Pattern of alcohol consumption

The patterns of alcohol consumption are very important to review because they give useful information i.e. type of drinking, role of drinking, prevalence of drinking. This literature shows the differences in drinking patterns between subjects cultures and contexts as follows:

Research that supports the need to look at patterns of alcohol consumption in the general population was conducted by Sharkey et al. (1996: 279) among a general hospital (GH) population in the north to study the pattern of alcohol use among those attending a GH and to explore the perception of safe drinking. It was found that a significant identifiable proportion of alcohol misuse goes undetected. These individuals attend throughout the hospital and a simple self-completion questionnaire would considerably aid their detection.

Moderate binge drinking: it is possible to change behavior if you plan it in advance (Murgraff et al., 1996: 577) Recent theories of enactment suggest that behavior change is increased by planning how, where, and when to execute a behavioral response. Drawing on these theories, a brief planning intervention was designed and its effectiveness compared to an information-based health promotion program. (control). All participants were given information about the safe limits per drinking occasion and the adverse consequences of binge drinking, and were asked to drink within the safe limits in order to avoid these consequences. In addition, participants in the planning intervention group received an option menu of possible responses for refusing a drink, asked to choose one strategy and specify a time and place in which the chosen strategy would be implemented. The planning intervention group did not differ from the control group on reported likelihood of future binge drinking, nor on levels of past drinking, age and gender at a 2-week follow-up, members of the planning intervention group reported lower drinking frequency than controls. The implications of prior planning for interventions aimed at reducing alcohol related harm are discussed.

Moreover, Mukamal et al. (2003: 109) studied the role of drinking patterns and type of alcohol consumed in coronary heart disease in Men. They found that alcohol consumption at least three to four days per week was inversely associated with the risk of myocardial infarction. Neither the type of beverage nor the proportion consumed with meals substantially altered this association. Men who increased their alcohol consumption by a moderate amount during follow-up had a decreased risk of myocardial infarction.

In Thailand, a study by Assanangkornchai, Pinkaew, and Apakupakul (2003: 287) looked at the prevalence of hazardous-harmful drinking in a southern Thai community. This study aimed to identify the prevalence and characteristics of hazardous - harmful drinkers in a Thai community population using a cross-sectional survey in two urban and five rural areas in Southern Thailand. Face-to-face interviews were conducted with 1005 subjects, aged greater than or equal to 35, at the community centres to collect data on demographic characteristics and smoking and drinking patterns. The Alcohol Use Identification Test (AUDIT) was used to classify the subjects into three groups: hazardous - harmful drinkers (AUDIT greater than or equal to 8), non-problem drinkers (AUDIT = 1 - 7) and non-drinkers (AUDIT = 0).

Blood samples were drawn from 200 randomly selected subjects to determine the gamma glutamyltransferease (GGT) level. The analysis was performed on 898 respondents, 325 males and 573 females. Age-adjusted prevalence of hazardous - harmful drinkers was 10% (27% in males and 1% in females). Adjusted for other variables, men were seven times (95% CI = 4.2 - 11.5) more likely to be non-problem drinkers and 42 times (95% CI = 18.1 - 99.0) more likely to be hazardous - harmful drinkers than women. Median intensity of drinking was 43 g and 25 g per drinking day in the hazardous - harmful and non-problem drinkers, respectively. Of all the subjects, 48%, 25% and 15% of the hazardous - harmful, non-problem and non-drinkers had abnormal GGT. Hazardous - harmful drinking is a prevalent problem in male general population in Thailand.

A study on the prevalence of adult binge drinking was set up by Miller et. al. to compare the results from two national surveys. (Miller et al., 2004: 197). The results showed that estimates of binge drinking from the NSDUH were consistently higher than those from the BRFSS, probably due to differences in survey methodology. Continued efforts to improve binge drinking surveillance are important for preventing this public health problem.

The literature on patterns of drinking gives important information about alcohol consumption, type of alcohol, risk factors, prevalence and situational contexts which act as base information to developed the intervention model in this study.

2.5.2 Screening instruments

This is the first stage to use screening instruments to classify drinking levels e.g. AUDIT, CAGE, MAST. It is important to review the results of screening instruments.

A study was undertaken by Mackenzie (1996: 591) that compared Alcohol Use Disorders Identification Test (AUDIT), CAGE' and brief Michigan Alcoholism Screening Test (brief MAST) as a way of identifying hazardous or harmful alcohol use in medical admissions. Two hundred and forty new medical inpatients received the Alcohol Use Disorders Identification Test (AUDIT), CAGE' and brief Michigan Alcoholism Screening Test (brief MAST) questionnaires. Sensitivities when identifying weekly drinkers of > 14 units (women) or >21 units (men) were 93, 79 and 35%, respectively (p < 0.001). Sensitivities to >21 units (women) or >28 units

(men) were 100%, 94% and 47%. Donald concluded that routine screening of medical admissions with the AUDIT (cut-off score 8) is recommended.

Skipsey et al. (1997: 157) looked at the utility of the AUDIT for identification of hazardous or harmful drinking in drug-dependent patients. They evaluated the psychometric properties of the alcohol use disorders identification test (AUDIT), a ten-item screening test for identification of hazardous drinkers, in a sample of 82 patients with DSM-III-R drug dependence. AUDIT showed good internal consistency ($\alpha = 0.94$) and a unitary factor structure. Receiver operating characteristics analysis showed the AUDIT to be comparable to the Michigan alcoholism screening test (MAST) in identifying individuals with a current alcohol use disorder and superior to the MAST for those who are hazardous drinkers. In this patient sample, AUDIT performed well at the recommended cut-off score of ≥ 8. We recommend use of the AUDIT for identification of hazardous and harmful drinking among individuals with a drug use disorder.

Allen et al. (1997: 613) conducted a review of research on the Alcohol Use Disorders Identification Test (AUDIT). Research on the core version of the Alcohol Use Disorders Identification Test (AUDIT) showed that the AUDIT has also been associated with more distal indicators of problematic drinking. Indices of internal consistency, including Cronbach's alpha and item-total correlations, are generally in the 0.80's.

In addition to screening for problem drinking: Bradley et. al.. (1998: 379) undertook a comparison of CAGE and AUDIT to compare self-administered versions of three questionnaires for detecting heavy and problem drinking: the CAGE, the Alcohol Use Disorders Identification Test (AUDIT), and an augmented version of the CAGE. For identification of patients with heavy drinking or active alcohol abuse or dependence, the self-administered AUDIT was superior to the CAGE in this population.

Bush et al. (1998: 1971), conducted a study on the AUDIT alcohol consumption questions AUDIT-C: an effective brief screening test for problem drinking. The objective was to evaluate the 3 alcohol consumption questions from the Alcohol Use Disorders Identification Test (AUDIT-C) as a brief screening test for heavy drinking and/or active alcohol abuse or dependence. It reported that for

detecting heavy drinking, AUDIT-C had a higher AUROC than the full AUDIT (0.891 vs 0.881; p = .03). Although the full AUDIT performed better than AUDIT-C for detecting active alcohol abuse or dependence (0.811 vs 0.786; p < .001), the 2 questionnaires performed similarly for detecting heavy drinking and/or active abuse or dependence (0.880 vs 0.881). Three questions about alcohol consumption (AUDIT-C) appear to be a practical, valid primary care screening test for heavy drinking and/or active alcohol abuse or dependence.

Bradley et al. (1998: 1842) conduct the AUDIT alcohol consumption questions: reliability, validity, and responsiveness to change in older male primary care patients. To determine the reliability, validity, and responsiveness to change of AUDIT (Alcohol Use Disorders Identification Test) questions 1 to 3 about alcohol consumption in a primary care setting. AUDIT questions 1 to 3 demonstrate moderate to good validity, but excellent reliability and responsiveness to change. Although they often underestimate heavy alcohol consumption according to interview, they performed adequately to be used as a proxy measure of consumption in a clinical trial of heavy drinkers in this population.

Aertgeerts et al. (2000: 53) undertook a study on the value of CAGE, CUGE, and AUDIT in screening for alcohol abuse and dependence among college freshmen. This study attempted to (1) determine the prevalence of alcohol problems in college freshmen, (2) assess the performance of both the CAGE and the Alcohol Use Disorders Identification Test (AUDIT) questionnaires in this population, and (3) assess the possibility of improving the CAGE and/or AUDIT. The area under the receiver operating characteristic curve of the CAGE and the AUDIT was 0.76 and 0.85, respectively. The cutoff score of 1 for the CAGE was associated with a sensitivity of 42%, a specificity of 87%, a positive predictive value of 36%, and a negative predictive value of 90%. A score of 6 or more for the AUDIT gave a sensitivity of 80%, a specificity of 78%, a positive predictive value of 37%, and a negative predictive value of 77%.

The study of Aertgeerts and Buntinx (2001: 492) on the screening tests for alcohol abuse are discussed in this letter to the editor, with a focus on the AUDIT-C, the CAGE and the Five-shot questionnaires. It is noted that the optimal test should be brief and acceptable to both physicians and patients. Research with the AUDIT-C revealed identification of 86 percent of patients with alcohol abuse or dependence,

with a specificity of 72 percent. The Five-shot questionnaire combined two questions from AUDIT and three from CAGE. A cut-off score of equal to or more than 2.5 gives a sensitivity of 96 percent and a specificity of 76 percent, using a reference standard of a daily alcohol intake of more than 40 grams. The AUDIT-C and the Five-shot questionnaires were validated by the authors of the letter in a large general practice with DSM criteria used as a reference standard.

The research made by Degenhardt et al. (2001: 143) conducted the validity of an Australian modification of the AUDIT questionnaire. The Alcohol Use Disorders Identification Test (AUDIT) has been used widely and is reported to be superior to conventional questionnaires in detection of current hazardous and harmful alcohol use. We assessed the validity of an Australian modification of the AUDIT (the AusAUDIT), which has been employed widely in Australian and New Zealand early intervention programmes. We conclude that AusAUDIT is effective in detecting problematic drinking, but positive cases should be confirmed by clinical assessment. The findings illustrate the need for validation of questionnaire modifications, and the difficulty in increasing test sensitivity without reducing specificity.

The Alcohol Use Disorders Identification Test (AUDIT): A Review of Recent Research (Reinert and Allen, 2002: 272) The Alcohol Use Disorders Identification Test (AUDIT) has been studied extensively to establish its value in this regard. Test-retest reliability and internal consistency are also quite favorable. For males, the AUDIT-C, a shortened version of the AUDIT, appears approximately equal in validity to the full scale. Recent research continues to support use of the AUDIT as a means of screening for alcohol use disorders in health care settings in the United States.

According to the study of Selin (2003:1428), on test-retest reliability of the Alcohol use Disorder Identification Test in a general population sample. This article examines the test-retest reliability of one of these instruments-the Alcohol Use Disorder Identification Test (AUDIT)-in a general population sample. The item level, the correlations ranged between 0.6 and 0.8. The overall reliability of total AUDIT scores was 0.84. When stratified by gender, age, and consumer status, the total score reliability approximated 0.80 for all the categories except low alcohol consumers (0.51). Agreement using the recommended cutoff score of 8+ was also examined. The reliability observed in the whole sample was 0.691, which was interpreted as a

substantial agreement. By this cutoff, 91% were correctly classified at retest compared with the first test. AUDIT 8+ showed higher reliability for males, young people, and moderate consumers and low reliability among low consumers. In terms of reliability, the most optimal cutoff for women turned out to be 6 or more. According to these results, the test-retest reliability of AUDIT is high.

Two brief alcohol-screening tests from the Alcohol Use Disorders Identification Test (AUDIT): Validation in a female Veterans Affairs patient population. (Bradley et al., 2003: 821) Primary care physicians need a brief alcohol questionnaire that identifies hazardous drinking and alcohol use disorders. The Alcohol Use Disorders identification Test (AUDIT) questions 1 through 3 (AUDIT-C), and AUDIT question 3 alone are effective alcohol-screening tests in male Veterans Affairs (VA) patients, but have not been validated in women. Standard and sex-specific AUDIT-Cs were sensitive (0.81 and 0.84, respectively) and specific (0.86 and 0.85, respectively). Their areas under the receiver operating characteristic curves were equivalent (0.91, and 0.92, respectively) and slightly higher than for the standard 10-item AUDIT (0.87). A single, sex-specific question about binge drinking (modified AUDIT question 3) had a sensitivity of 0.69 and specificity of 0.94, whereas the standard AUDIT question 3 was specific (0.96) but relatively insensitive (0.45). The standard and six-specific AUDIT-Cs are effective screening tests for past-year hazardous drinking and/or active alcohol abuse or dependence in female patients in a Veterans Affairs (VA) study.

The TWEAK is weak for alcohol screening among female Veterans Affairs outpatients. (Bush et al., 2003: 1971) This study compared the performance of the TWEAK (tolerance, worried, eye-opener, amnesia, cut-down), the Alcohol Use Disorders Identification Test (AUDIT), and the AUDIT Consumption (AUDIT-C) as self-administered screening tests for hazardous drinking and/or active alcohol abuse or dependence among female Veterans Affairs (VA) outpatients. The TWEAK has low sensitivity as an alcohol-screening questionnaire among female VA outpatients and should be evaluated further before being used in other female primary care populations. The three-item AUDIT-C was the optimal brief alcohol-screening questionnaire in this study.

In addition to the CUGE: a screening instrument for alcohol abuse and dependence in students (Bruel et al, 2004: 439) the prevalence of alcohol abuse on college campuses ranges from 7 to 17%. Frequent heavy drinkers place themselves and others at risk for a variety of adverse consequences and frequently remain undetected. Brief individual interventions result in a significant reduction on the number of drinks. Therefore, detection of students at risk is useful and desirable. The CUGE has been elsewhere described as a promising screening device for problem drinking in students. In order to determine the diagnostic value of this new questionnaire, we set up a validation study in a new and independent population of freshmen. All students received a questionnaire, containing the CUGE, being the test of interest, and the CIDI as the reference test. The CUGE combines a very high sensitivity of 91% with a reasonable specificity of 76.3% in this validation group. The CUGE is an excellent screening device in this population of students. In addition, it is a short questionnaire with only yes or no questions. This makes the CUGE easily applicable as a part of broad routine questionnaires.

Adewuya (2005: 575) studied the validation of the Alcohol Use Disorders Identification Test (AUDIT) as a screening tool for alcohol-related problems among Nigerian university students. To investigate the screening properties of the alcohol use disorders identification test (AUDIT) in the detection of alcohol-related problems among Nigerian university students. The AUDIT at cut-off of 5 and above could clearly identify participants with alcohol-related problems with sensitivity of 0.935 and specificity of 0.915. The AUDIT is a valid instrument for screening for alcohol-related problems in Nigerian university students.

Effects of item sequence on the performance of the AUDIT in general practices. (Bischof et al., 2005: 373) This study compares two versions of the Alcohol Use Disorders Identification Test (AUDIT) with varied item sequence randomly applied to patients derived from a sample of general practitioners (GP) patients. They received two different versions of the AUDIT, one group receiving the original version starting with three items addressing frequency and quantity of alcohol use (AUDIT1), and a second group receiving a version in which these items were put at the end of the questionnaire (AUDIT). Logistic regression analysis revealed that AUDIT 1 subjects had higher scores in the consumption items of the AUDIT, whereas AUDIT 2 subjects scored higher on items focussing on symptoms of alcohol

dependence or abuse. The sequence upon which items of the AUDIT are presented influences the report of drinking patterns and symptoms of alcohol use disorders in GP patients.

Screening for hazardous or harmful drinking using one or two quantity-frequency questions. (Canagasaby and Vinson, 2005: 208) To address the accuracy of quantity-frequency (QF) questions in screening for hazardous or harmful drinking. In clinical settings, one way to put these findings into practice is to screen first with a single question, such as the SASQ, a single question about typical quantity, or a question about the frequency of heavy drinking such as the third item of the alcohol use disorders test (AUDIT).

Diguiseppi (2006: 438) study about telephone screening for hazardous drinking among injured patients seen in acute care clinics: feasibility study. We evaluated the effectiveness of telephoning injured patients after discharge, compared with contacting them in the clinic during the acute care visit, for screening for hazardous drinking and eliciting willingness to participate in a lifestyle intervention trial. Telephone screening is a feasible and efficient method for screening moderately injured adult patients for hazardous drinking, but characteristics of the clinical site (including personnel) influence its effectiveness. Trauma and acute care clinics are likely to be fruitful sites for identification of patients with hazardous drinking, whether for enrolment into brief intervention trials or treatment programmes.

Moreover, McCambridge and Day (2007: 241) showed the randomized controlled trial of the effects of completing the Alcohol Use Disorders Identification Test questionnaire on self-reported hazardous drinking. This study focuses on the direct effects of screening on drinking behavior have not previously been evaluated experimentally. We tested whether screening reduces self-reported hazardous drinking in comparison with a non-screened control group. Design Two-arm randomized controlled trial (RCT), with both groups blinded to the true nature of the study. Setting and participants a total of 421 university students aged 18–24 years, recruited in five London student unions. Interventions both groups completed a brief pen-and-paper general health and socio-demographic questionnaire, which for the experimental group also included the 10-item Alcohol Use Disorders Identification Test (AUDIT) screening questionnaire. Measurements the primary outcome was the between-group difference in AUDIT score at 2–3 month follow-up. Eight secondary

outcomes comprised other aspects of hazardous drinking, including dedicated measures of alcohol consumption, problems and dependence. A statistically significant effect size of 0.23 (0.01–0.45) was detected on the designated primary outcome. The marginal nature of the statistical significance of this effect was apparent in additional analyses with covariates. Statistically significant differences were also obtained in three of eight secondary outcomes, and the observed effect sizes were not dissimilar to the known effects of brief interventions

2.5.3 Intervention to reduce alcohol consumption

The interventions to reduce alcohol consumption review were very important to because they give useful information i.e. type of intervention, short and long-term effective of intervention. It showed the details as follows:

According to brief interventions for alcohol problems: a review (Bien et al., 1993: 315) found that relatively brief interventions have consistently been found to be effective in reducing alcohol consumption or achieving treatment referral of problem drinkers. To date, the literature includes at least a dozen randomized trials of brief referral or retention procedures, and 32 controlled studies of brief interventions targeting drinking behavior, enrolling over 6000 problem drinkers in both health care and treatment settings across 14 nations. These studies indicate that brief interventions are more effective than no counseling, and often as effective as more extensive treatment. The outcome literature is reviewed, and common motivational elements of effective brief interventions are described. There is encouraging evidence that the course of harmful alcohol use can be effectively altered by well-designed intervention strategies which are feasible within relatively brief-contact contexts such as primary health care settings and employee assistance programs. Implications for future research and practice are considered.

Kahan et al., 1995: 851 reviewed the results of RCTs on how brief physician interventions with problem drinkers (those who drink at a hazardous level, have developed resulting social or physical problems, and do not exhibit clinical features of serious alcohol dependence) in a health care facility affects self-reported alcohol consumption, serum measures (i.e., GGT), and other measures such as health care utilization and work productivity (sick days, hospital days, absenteeism), and/or other morbidity proxies. Trials involving alcohol treatment clinics or interventions

solely by non-physicians were excluded. Eleven studies met inclusion criteria. The four with the highest validity scores were all in primary care settings and showed decreases in weekly alcohol consumption (5–20 standard drinks/week) and more achievement moderate drinking levels (7–19%) for men in active intervention vs. control. The results for women were mixed, with one study reporting decreases and the other two not however, adequate power was a concern in one study. Most of the 11 studies did not include patients lost to follow-up in their analyses. One study of the six measuring utilization/productivity/morbidity outcomes reported statistically significant reductions in hospital days and absenteeism in the intervention group compared with controls; however, this result may have been due to better medical care in the intervention group; no drinking outcomes were reported in this study. Of the eleven studies reviewed, six were excluded from our review due to non-primary care setting, a solely comorbid population focus, or poor quality.

WHO Brief Intervention Study Group (1996: 948) study about a cross-national trial of brief interventions with heavy drinkers. WHO Brief Intervention Study Group. The relative effects of simple advice and brief counseling were evaluated with heavy drinkers identified in primary care and other health settings in eight countries. Male patients exposed to the interventions reported approximately 17% lower average daily alcohol consumption than those in the control group. Reductions in the intensity of drinking were approximately 10%. For women, significant reductions were observed in both the control and the intervention groups. Five minutes of simple advice were as effective as 20 minutes of brief counseling. Brief interventions are consistently robust across health care settings and socio-cultural groups and can make a significant contribution to the secondary prevention of alcohol-related problems if they are widely used in primary care.

Wilk et al. (1997: 274) conducted a meta-analysis of RCTs testing brief (less than one hour) alcohol interventions in heavy drinkers (or those with alcohol abuse or dependence). Twelve studies met inclusion criteria and were included in the final review. All except were also reviewed by Kahan. Five of the 6 highest-quality trials were conducted in the primary care setting and had a summary odds ratio for reduced or moderated drinking among heavy drinkers receiving brief intervention of 1.91 (95% C.I., 1.61–2.27). In these trials, 43.8% of the intervention group achieved alcohol moderation compared to 27.9% of controls. Significant differences in the

benefits of brief alcohol intervention were not seen by gender subgroups, number of intervention sessions, or setting (outpatient vs. inpatient), probably because of the small number of trials. Three of the 12 studies in this review were excluded from our review because of a non-primary care setting or exclusive focus on morbid patients.

Poikolainen (1999: 503) conducted a meta-analysis of 7 randomized controlled trials to examine the effectiveness of very brief (5–20 minutes) versus extended brief (up to several visits) physician interventions on average alcohol intake or serum GGT changes in problem drinkers (excluding alcoholics) from primary care populations. In addition to examining intervention intensity, this analysis sought to distinguish itself from earlier meta-analyses by including only studies with random allocation to treatment condition, by not pooling diverse drinking outcomes, and by not pooling results from primary care and hospital-based interventions. The studies in this analysis were primarily a subset of the studies examined by Wilk with the addition of one US study published in the interim. Studies were allowed to contribute more than one intervention arm or to contribute men and women separately. Thus, 7 studies contributed 14 different comparison datasets, and only 2 studies contributed half of the comparison groups (4 and 3 respectively). Outcome levels were calculated by subtracting the control group's results from the intervention group's at follow-up, regardless of baseline levels. Outcomes were analyzed by intervention intensity (brief vs. extended brief) for women and men separately. Three groups of comparisons (for very brief interventions in men & women and extended brief interventions in women) were statistically homogeneous, but only extended brief interventions in women showed a statistically significant decrease in alcohol intake (-51 grams/week or ½ drink/day); of note, this result was based on data from two studies. Across studies, results tended to favor the intervention group. One of the 7 studies reported non-statistically significant greater consumption in the intervention groups compared with controls; this study did not have random assignment of patients (rather, appointment weeks were randomized in blocks). The remainder reported statistically non significant or significant reductions in average alcohol intake in intervention patients compared with controls at 6–12 months follow-up.

Wutzke et. al. (2001: 863) looked at the cost effectiveness of brief interventions for reducing alcohol consumption. The direct costs and health effects of a primary-care based brief intervention for hazardous alcohol consumption were examined. The total cost of the intervention was calculated from costs associated with: marketing the intervention programme; providing training and support in the use of the intervention materials; physician time required for providing brief advice for "at-risk" drinkers. The effect of the intervention on health outcomes was expressed in terms of number of life years saved by preventing alcohol-related deaths. This was derived by combining estimates of the impact of the programme if it were implemented nationally with available evidence on the health effects of excess alcohol consumption. Results are based on international trial evidence showing the physical resources required by the intervention and its effectiveness combined with Australian price data. The costs associated with screening and brief advice using the current intervention programme range from Aus$19.14 to Aus$21.50. The marginal costs per additional life year saved were below Aus$1873. The robustness of the model used is supported by an extensive sensitivity analysis. In comparison with existing health promotion strategies the costs and effects of the current intervention are highly encouraging.

Moyer et al. (2002: 279) completed a meta-analysis of 54 studies that compared brief (4 or fewer sessions) interventions for alcohol use disorders with control conditions or more extensive treatment. The reviewers distinguished between 2 categories of brief interventions: 1) brief interventions designed for those not seeking treatment who are identified by "opportunitistic" screening in settings they are visiting for other reasons (such interventions are typically shorter, less structured, and delivered by a non specialist to less motivated patients with less severe alcohol-related problems); and 2) brief interventions for individuals who are help-seeking, persuaded, or mandated to seek alcohol treatment (such interventions are usually longer, more structured and theory-driven, and usually delivered by a specialist). Moyer and colleagues identified 34 studies that fit into the first category of brief intervention potentially relevant to our review. Of these, 11 met inclusion criteria for our review (including one study that summarized 8 studies cited separately in Moyer), 9 were omitted because of poor quality or non-comparability to our study population or outcome assessment, and 7 were omitted as outside the primary care setting. There

was no consideration of quality in the study inclusion or analyses, although effect sizes were calculated with correction for small sample size bias. Effect sizes were examined for the subset of studies with adequate power (0.80 probability) to detect a medium effect to eliminate bias due to unpublished negative small studies (the "file drawer" problem). Outcomes were assessed 2 ways: 1) using outcomes related to alcohol consumption (quantity-based or time-based); 2) aggregating all drinking-related outcomes for any given study. For studies with multiple brief intervention groups, one comparison (selecting the briefest) was allowed. Among studies with follow up of >6–12 months, the average effect size for the composite of all drinking-related outcomes was .241 (95% C.I., .184, .299); the effect size for alcohol consumption was .263 (95% C.I., .203, .323), but the results for this outcome were statistically heterogeneous. Examining differences in whether studies included or excluded more alcohol-dependent patients did not explain the heterogeneity in consumption outcomes at >6–12 months, although it did explain the heterogeneity in the same outcome at <3 months follow-up. Aggregate effect size calculations among adequately powered studies (25/34) were similar for both alcohol outcomes to those calculated for the entire 34 studies. Three studies for women and eight studies for men provided effect size information by gender with no significant variation attributable to gender. Little is known about intervention effects beyond one year, since very few (5/34) studies had follow-up greater than a year.

The studies have reported the longer-term effects of brief interventions in primary health care. Fleming et al. (2002: 36) reported a 48 month efficacy and benefit-cost analysis of Project TrEAT (Trial for Early Alcohol Treatment), a randomized controlled trial of brief physician advice for the treatment of problem drinking. Subjects in the treatment group exhibited significant reductions in 7-day alcohol use, number of binge drinking episodes, and frequency of excessive drinking as compared with the control group. The effect occurred within 6 months of the intervention and was maintained over the 48-month follow-up period. The treatment sample also experienced fewer days of hospitalization and fewer emergency department visits.

The study long term follow-up by Wutzke et al. (2002: 665) reported the 10 year follow-up of brief and early interventions for hazardous and harmful alcohol consumption. The effectiveness of three forms of intervention, ranging from 5 to 60 minutes in duration, was compared with a no treatment control condition. Whereas there was an intervention effect at nine months follow-up, no such effect was found at 10 years follow-up, in median consumption, mean reduction in consumption from baseline to follow-up, mortality and ICD 10 diagnoses of alcohol dependence or harmful alcohol use. Between baseline and the nine month follow-up, the intervention groups reduced their median alcohol consumption from 324 to 208 grams per week, a reduction of 116 grams or 36%, compared with the control group which reduced its median alcohol consumption from 309 to 263 grams per week, a reduction of 46 grams, or 15%. At ten year follow-up, the reduction for the intervention group was from 324 to 174 grams per week, 150 grams, or 46% and the control group from 309 to 158, 151 grams, or 49%. To enhance the effectiveness of brief interventions over the long term, health-care providers might need to provide ongoing monitoring of patients.

Kypri et al. (2004: 1410), the one who study web-based screening and brief intervention for hazardous drinking: a double-blind randomized controlled trial. The aim was to determine the efficacy of a novel web-based screening and brief intervention (e-SBI) to reduce hazardous drinking. The e-SBI reduced hazardous drinking among university students, to an extent similar to that found for practitioner-delivered brief interventions in the general population. e-SBI offers promise as a strategy to reduce alcohol-related harm in a way that is non-intrusive, appealing to the target group, and capable of being incorporated into primary care. Research is required to replicate the findings, to determine the duration of intervention effects, and to investigate the mechanisms by which the intervention operates.

Bernstein et al. (2007: 79) who conducted an evidence based alcohol screening, brief intervention and referral to treatment (SBIRT) curriculum for emergency department (ED) providers improves skills and utilization. The Emergency Departments (EDs) offer an opportunity to improve the care of patients with at-risk and dependent drinking by teaching staff to screen, perform brief intervention and refer to treatment (SBIRT). ED providers respond favorably to SBIRT. Changes in utilization were substantial at three months post-exposure to a standardized curriculum, but less apparent after 12 months. Booster sessions, trained assistants and infrastructure supports may be needed to sustain changes over the longer term.

The most recent of these (Bertholet et al., 2005: 986) concluded that brief intervention is effective in reducing consumption among both men and women at six and twelve months following intervention. This review was confined to studies carried out in more naturalistic conditions of primary health care, excluding those studies that used patient lists, registers or specially-arranged screening sessions, and is therefore more relevant to real-world conditions of general practice than other reviews.

Brief Alcohol Interventions: Do Counsellors and Patients Communication Characteristics Predict Change? (Gaume et al., 2008: 62). To identify communication characteristics of patients and counsellors during brief alcohol intervention (BAI) which predict changes in alcohol consumption 12 months later. Patient communication characteristics (ability to change) during BAI significantly predicted the weekly drinking quantity in the multiple linear regression model. There were significant differences for some of the counsellor skills in bivariate analyses but not in the multiple regression model adjusting for patients' talk characteristics. Changes in heavy drinking showed no significant association with patient or counsellor skills in the multiple linear regression model. Findings indicate that the more the patient expresses ability to change during the intervention, the more weekly alcohol use decreases. The role of the counsellor during the interaction, and influence on the outcomes was not clearly established. Implications for BAI and related research are discussed.

The study about screening and brief interventions for hazardous and harmful alcohol use in primary care: a cluster randomised controlled trial protocol. (Kaner et al., 2009: 301) found that there have been many randomized controlled trials of screening and brief alcohol intervention in primary care. Most trials have reported positive effects of brief intervention, in terms of reduced alcohol consumption in excessive drinkers. Despite this considerable evidence-base, key questions remain unanswered including: the applicability of the evidence to routine practice; the most efficient strategy for screening patients; and the required intensity of brief intervention in primary care. This pragmatic factorial trial, with cluster randomization of practices, will evaluate the effectiveness and cost-effectiveness of different models of screening to identify hazardous and harmful drinkers in primary care and different intensities of brief intervention to reduce excessive drinking in primary care patients. GPs and nurses from 24 practices across the North East (n=12), London and South East (n=12) of England will be recruited. Practices will be randomly allocated to one of three intervention conditions: a leaflet-only control group (n=8); brief structured advice (n=8); and brief lifestyle counselling (n=8). To test the relative effectiveness of different screening methods all practices will also be randomised to either a universal or targeted screening approach and to use either a modified single item (M-SASQ) or FAST screening tool. Screening randomisation will incorporate stratification by geographical area and intervention condition. During the intervention stage of the trial, practices in each of the three arms will recruit at least 31 hazardous or harmful drinkers who will receive a short baseline assessment followed by brief intervention. Thus there will be a minimum of 744 patients recruited into the trial.

Vito Agosti (1995: 1067) study about the Efficacy of Treatments in Reducing Alcohol Consumption: A Meta-Analysis. This study was used to assess the relative efficacy of various treatments in reducing alcohol consumption over the short-term, 6 months, and 12 months. All the treatments were administered in well-controlled studies. In the short-term and 1-year follow-up studies, patients in the experimental group drank much less than the control group. However, between group consumption differences were negligible in the 6-month studies. When the studies were pooled, regardless of the follow-up assessment periods, the experimental group drank significantly less than the control group. These results suggest that, in general,

patients who received experimental treatments consumed much less alcohol than patients in the control groups.

A randomized controlled trial in community-based primary care practices. (Fleming et al., 1997: 1039) Project TrEAT was designed to test the efficacy of brief physician advice in reducing alcohol use and health care utilization in problem drinkers. The intervention consisted of two 10- to 15-minute counseling visits delivered by physicians using a scripted workbook that included advice, education, and contracting information. Alcohol use measures, emergency department visits, and hospital days. There were no significant differences between groups at baseline on alcohol use, age, socioeconomic status, smoking status, rates of depression or anxiety, frequency of conduct disorders, lifetime drug use, or health care utilization. At the time of the 12-month follow-up, there were significant reductions in 7-day alcohol use (mean number of drinks in previous 7 days decreased from 19.1 at baseline to 11.5 at 12 months for the experimental group vs 18.9 at baseline to 15.5 at 12 months for controls; t=4.33; p<.001), episodes of binge drinking (mean number of binge drinking episodes during previous 30 days decreased from 5.7 at baseline to 3.1 at 12 months for the experimental group vs 5.3 at baseline to 4.2 at 12 months for controls; t=2.81; p<.001), and frequency of excessive drinking (percentage drinking excessively in previous 7 days decreased from 47.5% at baseline to 17.8% at 12 months for the experimental group vs 48.1% at baseline to 32.5% at 12 months for controls; t=4.53; p<.001). The chi-square test of independence revealed a significant relationship between group status and length of hospitalization over the study period for men (p <.01). This study provides the first direct evidence that physician intervention with problem drinkers decreases alcohol use and health resource utilization in the usual health care system.

Brief Alcohol Intervention in the Emergency Department: Moderators of Effectiveness. (Walton et al., 2008: 62) This research found that regression models using the generalized estimating equations approach examined interaction effects between intervention condition (advice/no advice) and hypothesized moderator variables (stage of change, self-efficacy, acute alcohol use, attribution of injury to alcohol) on alcohol outcomes over time. Overall, participants who reported higher levels of self-efficacy had lower weekly consumption and consequences, whereas those with higher readiness to change had greater weekly consumption and

consequences. Furthermore, individuals who attributed their injury to alcohol and received advice had significantly lower levels of average weekly alcohol consumption and less frequent heavy drinking from baseline to 12-month follow-up compared with those who attributed their injury to alcohol but did not receive advice. This study provides novel data regarding attribution for alcohol-related injury as an important moderator of change and suggests that highlighting the alcohol/injury connection in brief, ED-based alcohol interventions can augment their effectiveness.

Alcohol interventions for trauma patients treated in emergency departments and hospitals: a cost benefit analysis. (Gentilello et al., 2005: 541-550) The objective was to determine if brief alcohol interventions in trauma centers reduce health care costs. An estimated 27% of all injured adult patients are candidates for a brief alcohol intervention. The net cost savings of the intervention was 89 US dollars per patient screened, or 330 US dollars for each patient offered an intervention. The benefit in reduced health expenditures resulted in savings of 3.81 US dollars for every 1.00 US dollar spent on screening and intervention. This finding was robust to various assumptions regarding probability of accepting an intervention, cost of screening and intervention, and risk of injury recidivism. Monte Carlo simulations found that offering a brief intervention would save health care costs in 91.5% of simulated runs. If interventions were routinely offered to eligible injured adult patients nationwide, the potential net savings could approach 1.82 billion US dollars annually.

Effectiveness of brief alcohol interventions in primary care populations by Kaner et al., (2007) aimed to assess the effectiveness of brief intervention, delivered in general practice or based primary care, to reduce alcohol consumption. The results found that the meta-analysis included 21 RCTs (7,286 participants), showing that participants receiving brief intervention reduced their alcohol consumption compared to the control group (mean difference: -41 grams/week, 95% C.I.: -57 to -25), although there was substantial heterogeneity between trials ($I2 = 52\%$). Sub-group analysis (8 studies, 2307 participants) confirmed the benefit of brief intervention in men (mean difference: -57 grams/week, 95% C.I.: -89 to -25, $I2 = 56\%$), but not in women (mean difference: -10 grams/week, 95% C.I.: -48 to 29, $I2 = 45\%$). Meta-regression showed a non-significant trend of an increased reduction in alcohol consumption of 1.1, 95%C.I.: -0.05 to 2.2 grams/week, p=0.06, for each extra minute of treatment exposure, but no relationship between the reduction in alcohol

consumption and the efficacy score of the trial. Extended intervention when compared with brief intervention was associated with a non-significantly greater reduction in alcohol consumption (mean difference = -28, 95%C.I.: -62 to 6 grams/week, I2 = 0%). The conclusions were brief interventions consistently produced reductions in alcohol consumption. When data were available by gender, the effect was clear in men at one year of follow up, but unproven in women. Longer duration of counselling probably has little additional effect. The lack of differences in outcomes between efficacy and effectiveness trials suggests that the current literature had clear relevance to routine primary care. Future trials should focus on women and on delineating the most effective components of interventions.

Kaner et al., (1999: 699-703) study about a RCT of three training and support strategies to encourage implementation of screening and brief alcohol intervention by general practitioners. It aimed to evaluate the effectiveness and cost-effectiveness of different training and support strategies in promoting implementation of screening and brief alcohol intervention (SBI) by general practitioners (GPs). Seventy-three (57%) GPs implemented the programme and screened 11,007 patients for risk drinking. Trained and supported GPs were significantly more likely to implement the programme (71%) than controls (44%) or trained GPs (56%); they also screened, and intervened with, significantly more patients. Costs per patient screened were: trained and supported GPs, 1.05 Pounds; trained GPs, 1.08 Pounds; and controls, 1.47 Pounds. Costs per patient intervened with were: trained and supported GPs, 5.43 Pounds; trained GPs, 6.02 Pounds; and controls, 8.19 Pounds. Practice-based training plus support telephone calls was the most effective and cost-effective strategy to encourage implementation of SBI by GPs.

Drummond (1997: 375) suggested assessment of the Alcohol interventions: do the best things come in small packages? Several extensive reviews have highlighted the effectiveness s of brief alcohol interventions. The same reviews were pessimistic about the role of more intensive, specialist treatments. It is argued here that the research evidence should be interpreted with caution. There are problems of generalizability of the research, and studies focusing on brief interventions in the primary health careful are largely not comparable with clinical trials conducted in the specialist setting. The efficacy of brief interventions as a routine mass intervention approach has been exaggerated. Even after extensive research, little is known of the

effective ingredients and the most effective methods of delivery. Reviews of brief interventions have been overly selective, and meta-analysis in this area is problematic. It is argued that such reviews lead to overgeneralization and turn attention away from promising specialist treatment approaches. More research is needed into identifying the target group most likely to benefit from brief interventions, cost effectiveness, and into shared care and stepped care approaches, before embarking on a major shift in treatment policy towards brief interventions.

In addiction to the Brief Intervention for Female Heavy Drinkers in Routine General Practice: A 3-Year Randomized, Controlled Study (Aalto et al., 2000: 1680) This study evaluated the use of a brief motivational interview (MI) to reduce alcohol-related consequences and use among adolescents treated in an emergency room (ER) following an alcohol-related event. Patients aged 18 to 19 years (N = 94) were randomly assigned to receive either MI or standard care (SC). Assessment and intervention were conducted in the ER during or after the patient's treatment. Follow-up assessments showed that patients who received the MI had a significantly lower incidence of drinking and driving, traffic violations, alcohol-related injuries, and alcohol-related problems than patients who received SC. Both conditions showed reduced alcohol consumption. The harm-reduction focus of the MI was evident in that MI reduced negative outcomes related to drinking, beyond what was produced by the precipitating event plus SC alone.

There is another research that supports that Brief Intervention for Heavy-Drinking College Students: 4-Year Follow-Up and Natural History (Baer et al, 2001: 1310) found that the long-term response to an individual preventive intervention for high risk college drinkers relative to the natural history of college drinking. Brief individual preventive interventions for high-risk college drinkers can achieve longterm benefits even in the context of maturational trends.

In 2003, the role of general practitioners' working style and brief alcohol intervention activity (Aalto et al.: 1447) To examine correlates of general practitioners' (GP) activity delivery of brief alcohol interventions to patients with particular reference to their 'working style'. The respondents had mainly positive attitudes to brief interventions for excessive drinkers.

McCambridge (2004: 146) who studied the encouraging GP alcohol intervention: pilot study of change-orientated reflective listening (corl). To test the feasibility of delivery and potential value of a brief motivational enhancement intervention targeting GPs in relation to alcohol as a public health issue, and to compare data obtained with similar attempts to influence GP intervention with drug users. Twenty-one GPs who were not involved in the treatment of drug dependence received a telephone-administered 'change-orientated reflective listening' (CORL) intervention, based on Motivational Interviewing, with an informational adjunct. Assessments were made at baseline and at 2–3 months of activity and willingness to deliver specified alcohol-related interventions, plus overall therapeutic commitment and motivation. Qualitative data was obtained. There was no change over time in the sample as a whole, with very modest evidence of benefit among individual practitioners. Comparisons with cannabis and drug misuse intervention targets suggest that it may be more difficult to alter views on intervening with drinkers.

According to a study in long-term effect of brief intervention in at-risk alcohol drinkers: a 9-year follow-up study (Odd Nilssen, 2004:548) In 1986, 338 men and women attending a general population screening study were identified as at-risk alcohol drinkers and randomly assigned into three groups. Two groups received slightly different, brief interventions; a third group served as control. After 1 year there was a 50% reduction in alcohol intake in the intervention groups and a 20% increase in the control group. Controls then received advice to reduce their drinking. This study evaluates outcomes 9 years after these interventions. In a survey in the same city in 1995 (over 27,000 participants), 247 subjects (73.1%) from the 1986 study, were re-assessed. Serum gammaglutamyltransferase (GGT) was examined and compared with values in 1986. A 'pseudo-control' group was established to compare 'treated' and 'untreated'. After 9 years, the original study groups displayed significant mean reduction in GGT. The reductions achieved in the three groups did not significantly differ from each other. However, the reductions were significantly greater than that in the 'pseudo-control' group. The impact of brief intervention appears to be long lasting. At 9 years follow-up, the at-risk drinkers displayed GGT values close to that of the background population.

Seale et al. (2005: 1471) studied the results of effects of screening and brief intervention training on resident and faculty alcohol intervention behaviors: a pre- post-intervention assessment Many hazardous and harmful drinkers do not receive clinician advice to reduce their drinking. Previous studies suggest under-detection and clinician reluctance to intervene despite awareness of problem drinking (PD). The Healthy Habits Project previously reported chart review data documenting increased screening and intervention with hazardous and harmful drinkers after training clinicians and implementing routine screening. This report describes the impact of the Healthy Habits training program on clinicians' rates of identification of PD, level of certainty in identifying PD and the proportion of patients given advice to reduce alcohol use, based on self-report data using clinician exit questionnaires. This program resulted in greater clinician certainty in diagnosing PD and increases in the number of patients with PD who received advice to reduce drinking.

The research that support effectiveness of Motivational Interviewing Delivered by Youth Workers in Reducing Drinking, Cigarette And Cannabis Smoking Among Young People: Quasi-Experimental Pilot Study. (Gray, McCambridge and Strang, 2005: 535) To test whether a single session of Motivational Interviewing (MI) focussing on drinking alcohol, and cigarette and cannabis smoking, would successfully lead to reductions in use or problems. Methods: Naturalistic quasi-experimental study, in 162 young people (mean age 17 years) who were daily cigarette smokers, weekly drinkers or weekly cannabis smokers, comparing 59 receiving MI with 103 non-intervention assessment-only controls. MI was delivered in a single session by youth workers or by the first author. Assessment was made of changes in self-reported cigarette, alcohol, cannabis use and related indicators of risk and problems between recruitment and after 3 months by self-completion questionnaire. Evidence of effectiveness for the delivery of MI by youth workers in routine conditions has been identified. However, the extent of benefit is much more modest than previously identified in efficacy studies.

Moreover, Shourie (2006: 643) studied the effectiveness of a tailored intervention for excessive alcohol consumption prior to elective surgery. It aimed to assess the effectiveness of a tailored pre-operative intervention for excessive alcohol consumption in reducing post-operative complications and alcohol consumption thereafter. The study did not demonstrate any beneficial effect of the pre-operative

intervention on post-operative complications. The relatively short time to surgery, intervention by a non-member of the surgical team, challenges to recruitment and reduced consumption in the control group may have limited the ability of the study to detect a significant effect of the intervention.

The study made by Vasilaki et al. (2006: 328) study about the efficacy of motivational interviewing as a brief intervention for excessive drinking: a meta-analytic review. (1) To examine whether or not motivational interviewing (MI) is more efficacious than no intervention in reducing alcohol consumption; (2) to examine whether or not MI is as efficacious as other interventions. A literature search followed by a meta-analytic review of randomized control trials of MI interventions. Aggregated between-group effect sizes and confidence intervals were calculated for each study. The results were the literature search revealed 22 relevant studies, of which nine compared brief MI with no treatment, and met methodological criteria for inclusion. In these, the aggregate effect size was 0.18 (95% C.I. 0.07, 0.29), but was greater 0.60 (95% C.I. 0.36, 0.83) when, in a post-hoc analysis, the follow-up period was three months or less. Its efficacy also increased when dependent drinkers were excluded. There were nine studies meeting methodological criteria for inclusion which compared brief MI with another treatment (one of a diverse set of interventions), yielding an aggregate effect size of 0.43(95% C.I. 0.17, 0.70). The literature review pointed to several factors which may influence MI's long-term efficacy effectiveness of MI. For conclusions the Brief MI is effective. Future studies should focus on possible predictors of efficacy such as gender, age, employment status, marital status, mental health, initial expectations, readiness to change, and whether the population is drawn from treatment-seeking or non-treatment-seeking populations. Also, the components of MI should be compared to determine which are most responsible for maintaining long-term changes.

In addition to reducing friday alcohol consumption among moderate, Women Drinkers: Evaluation Of A Brief Evidence-Based Intervention. (Murgraff, Abraham, and Mcdermott, 2006: 37) This evaluation was a brief research-based intervention designed to promote drinking within recommended limits on Fridays and Saturdays among moderate drinkers. The two-page, leaflet-like intervention included persuasive communication targeting motivational and volitional antecedents of behavior as specified by an extended theory of planned behavior (TPB) and

implementation intention theory. Participants were randomly allocated to a control group (TPB questionnaire only) or to a group receiving the TPB questionnaire plus leaflet-like intervention. Cognitions and drinking behavior were measured immediately before the intervention and at 8-weeks follow-up. The pre-intervention questionnaire was distributed to 573 participants of whom 347 (61%) responded at follow-up. Significantly greater reduction in risky drinking on Fridays was observed among women (but not men) in the intervention group at 8-weeks follow-up. No other post-intervention differences were found.

Aalto. et al. (2007: 430) study in simple advice for injured hazardous drinkers: an implementation study. It aimed to evaluate the implementation of a screening and intervention procedure for hazardous drinkers in the routine praxis of an emergency service, without increasing the ED (emergency department) staff. Four stages of the implementation process were undertaken: exploration and adoption, program installation, and initial implementation. Two hospitals participated, with a coordinator, four trainers and all the emergency nursing staff. Eligible patients were males over age 15 presenting at the weekend with a traffic injury. Screening was performed with five questions (the three items of alcohol use disorders identification test (AUDIT-C) plus two questions about drinking within 6 h before the crash). Hazardous drinkers and drivers who had driven while intoxicated were offered simple advice. The program implementation was evaluated by reviewing the patients' forms and by interviews and surveys of the nursing staff. The study lasted for 27 weeks. Knowledge and compliance with the program were good. However, only 25% of the eligible patients were identified. Simple advice was accomplished by 94.7% of those in need of it. Although the majority of nurses felt at ease performing the intervention, 75% considered the program as a work overload and only 21% reckoned that it was feasible for the emergency service. The emergency setting poses important barriers to the implementation of brief interventions.

Anders Beich (2007: 593), who studied the screening and brief intervention targeting risky drinkers in Danish general practice—a pragmatic controlled trial. Recommendations for routine alcohol screening and brief counseling intervention in primary health care rest on results from intervention efficacy studies. By conducting a pragmatic controlled trial (PCT), we aimed at evaluating the effectiveness of the WHO recommendations for screening and brief intervention

(SBI) in general practice. Outcome measures focused on patients' acceptance of screening and intervention and their self-reported alcohol consumption. The results of brief interventions in everyday general practice performed on the basis of systematic questionnaire screening may fall short of theoretical expectations. When applied to non-selected groups in everyday general practice SBI may have little effect and engender diverse outcome. Women may be more susceptible to defensive reactions than men.

In 2007, Collins and Carey (2007: 498) tested a theory of planned behavior as a model of heavy episodic drinking among college students. This study provided a simultaneous confirmatory test of the theory of planned behavior (TPB) in predicting heavy episodic drinking (HED) among college students. Self-efficacy and attitudes but not subjective norms significantly predicted baseline intention, and intention and past HED predicted future HED. Contrary to hypotheses, however, a structural model excluding past HED provided a better fit than a model including it.

Saltz et al. (2009: 21) suggested that assessment of the evaluating a comprehensive campus-community prevention intervention to reduce alcohol-related problems in a college population. This article evaluates Western Washington University's Neighborhoods Engaging with Students project-a comprehensive strategy to decrease disruptive off-campus parties by increasing student integration into and accountability to the neighborhoods in which they live. The results suggest that alcohol control measures can be effective in reducing problematic drinking in college settings.

According to a study conduct Severity of Baseline Alcohol Use as a Moderator of Brief Interventions in the Emergency Department. (Frederic et al., 2009: 486) This study examines whether the severity of baseline alcohol consumption/consequences moderates the effect of an alcohol brief intervention (BI) in the emergency department (ED). Injured patients (N = 494) were recruited from an ED, randomly assigned to receive brief advice or not and completed a 12-month follow-up interview. A significant interaction was found between severity of baseline alcohol consumption (i.e. average weekly, binge drinking) and receipt of a BI on alcohol consumption at 12 months. The form of this interaction indicates that the BI group tended to report lower alcohol consumption at follow-up than the untreated group especially in those who had reported high baseline consumption. Severity of

alcohol consequences at baseline did not significantly impact the effect of the BI on 12-month outcomes. ED patients with higher alcohol consumption benefit from BI. In some cases, the BI's effects may be enhanced for patients who are heavier drinkers, perhaps due to a greater opportunity to develop a discrepancy between current behavior and future goals.

Osilla et al (2008: 14) assessed a brief intervention for at-risk drinking in an employee assistance program. This study aims to examine the preliminary efficacy of a brief intervention (BI) for at-risk drinking in an employee assistance program. Results suggested that participants in the BI + SAU group had significant reductions in peak blood alcohol concentration, peak quantity, and alcohol-related consequences compared with the SAU group. Men in the BI SAU group had greater reductions in alcohol-related problems compared with men in the SAU group. Groups did not differ by number of total EAP sessions attended or rates of presenting problem resolution. The results provide preliminary evidence to support the integration of alcohol screening and BI as a low-cost method of intervening with clients with at-risk drinking in the context of co-occurring presenting problems. Moreover, we had no expectations based on our previous BI research that the intervention would be associated with increased drinking relative to the control group and were interested only in evaluating the extent to which the intervention was associated with decreased drinking relative to the control group.

2.5.4 Setting to implement the intervention

The setting to implement the intervention reviews, it shows the effect of intervention in different setting i.e. emergency department (ED) and clinician.

Monti (1999: 989) studied Brief Intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department. This study evaluated the use of a brief motivational interview (MI) to reduce alcohol-related consequences and use among adolescents treated in an emergency room (ER) following an alcohol-related event. The harm-reduction focus of the MI was evident in that MI reduced negative outcomes related to drinking, beyond what was produced by the precipitating event plus SC alone.

Holder et. al. (2000; 2341) conducted a study on the effect of community-based interventions on high-risk drinking and alcohol-related injuries. they aimed to determine the effect of community-based environmental interventions in reducing the rate of high-risk drinking and alcohol-related motor vehicle injuries and assaults. A coordinated, comprehensive, community-based intervention can reduce high-risk alcohol consumption and alcohol-related injuries resulting from motor vehicle crashes and assaults.

According to D'Onofrio et al. (2002: 627) who studied the results of the systemic review of preventive care in emergency department (ED) that up to 31 percent of all participants who were treated in an ED and as many as 50 percent of severely injured trauma participants (i.e., participants who require hospital admission, usually to an intensive care unit) were tested positive when screened for alcohol problems. And the Academic Emergency Median (2002) reported that younger people in particular, are more likely to seek treatment in an ED.   These participants tend to be uncertain to use the ED as their primary source of medical care. The overview of findings from the 2002 National Survey on Drug Use and Health showed that young adults also have the highest prevalence of binge or hazardous drinking in the United States, putting them at particular risk for alcohol-related injuries, often in conjunction with driving. In particular, innovative methods for screening and intervention are being developed for use in the ED, including the use of computer-based approaches. These intervention are intended to help physicians use the participants' waiting time for health promotion and to target participants at risk for various health problems (Babor, 1992).

The research of screening and referral for brief intervention of alcohol-misusing patients in an emergency department: a pragmatic randomized controlled trial that conducted by Crawford MJ. et al. (2004: 364). They undertook a single-blind pragmatic randomized controlled trial. Participants received either an information leaflet or an information leaflet plus an appointment with an alcohol health worker. The results of this study showed opportunistic identification and referral for alcohol misuse in an emergency department is feasible, associated with lower levels of alcohol consumption over the following 6 months, and reduces re-attendance at the department. Short-term reductions in alcohol consumption associated with referral for

brief intervention for alcohol misuse benefit participants and reduce demand for accident and emergency department services (Anderson and Scott, 1992: 891).

In 2008, Andrew et al. study the opportunistic screening and clinician-delivered brief intervention for high-risk alcohol use among emergency department attendees: a randomized controlled trial aim to evaluate the feasibility and efficacy of routine opportunistic screening and brief intervention (BI) by ED staff to reduce high-risk alcohol consumption. This study found that neither BI nor MI was better than SC in reducing high-risk alcohol consumption. Uptake of opportunistic screening by ED staff was poor, as was patient compliance with off-site counseling.

The most recent of these (Bertholet et al., 2005) concluded that brief intervention is effective in reducing consumption among both men and women at six and twelve months following intervention. This review was confined to studies carried out in more naturalistic conditions of primary health care, excluding those studies that used patient lists, registers or specially-arranged screening sessions, and is therefore more relevant to real-world conditions of general practice than other reviews.

2.5.5 Factors related alcohol consumption

This study reviews the factors related alcohol consumption because they give some information be concern when implement the intervention. This literature that shows the detail as follows:

In 2003, National Highway Traffic Safety Administration (NHTSA) reported that 1.4 million driving-while-impaired (DWI) (Volk et al., 1997: 197) arrests were made, making this the number one crime related to alcohol and other drug (AOD) use other than drug possession.

Treatment gender differences in the efficacy of Brief Interventions with a stepped care approach in general practice patients with Alcohol-Related Disorders. (Reinhardt, 2008: 334) To analyze gender differences in the efficacy of stepped care brief interventions for general practice patients with alcohol problems. Among the patients in stepped care who, by the first assessment point, had reduced drinking to within safe-drinking limits, there was a tendency for females to have achieved this more often than males (40% vs. 24%; P = 0.089). In a heterogeneous sample, the intervention was only effective for women. Women tended to profit more from the

first, less intensive intervention than men. When analysis was limited to those reporting "at risk" average daily consumption and "alcohol abuse" the gender differences in efficacy appeared to be less, but the study was not sufficiently powered to affirm that.

Monti, (2008: 51) study about personalized feedback on alcohol problems in young adults is more effective as part of a motivational interview. This overall study found that the number of days drinking or heavy drinking in the past month, and average number of drinks per week reduced over time. Motivational interviewing reduced all measures of alcohol consumption more than personalised feedback alone. Personalized feedback is more effective at reducing alcohol consumption in young adults when delivered in the context of motivational interviewing.

There is another research that support prevalence and the factors associated with Binge Drinking, Alcohol Abuse, And Alcohol Dependence: A Population-Based Study Of Chinese Adults In Hong Kong. (Kim et al., 2008: 360) To examine the patterns of drinking, the relationship between binge drinking, alcohol abuse, and dependence, and the socio demographic factors associated with problem drinking among Hong Kong Chinese. Although binge drinking has been well tolerated in Chinese culture, it is strongly associated with alcohol abuse and dependence in both genders in Hong Kong. Findings suggest that prevalence of problematic alcohol consumption warrants greater promotion of alcohol harms awareness. Higher rates of heavy drinking in younger aged individuals may reflect changing lifestyle behaviors and herald higher future levels of alcohol-related health and social problems.

Thomsen and Fulton (2007: 27) study the adolescents' attention to responsibility messages in magazine alcohol advertisements: an eye-tracking approach. To investigate whether adolescent readers attend to responsibility or moderation messages (e.g., "drink responsibly") included in magazine advertisements for alcoholic beverages and to assess the association between attention and the ability to accurately recall the content of these messages. Overall, the responsibility or moderation messages were the least frequently viewed textual or visual areas of the advertisements. Participants spent an average of only .35 seconds, or 7% of the total viewing time, fixating on each responsibility message. Beverage bottles, product logos, and cartoon illustrations were the most frequently viewed elements of the advertisements. Among those participants who fixated at least once on an

advertisement's warning message, only a relatively small percentage were able to recall its general concept or restate it verbatim in the masked recall test. Voluntary responsibility or moderation messages failed to capture the attention of teenagers who participated in this study and need to be typographically modified to be more effective.

In 2010, Williams and Stickley study about empathy and nurse education. This study reviews the nursing and counselling literature related to empathy. We begin with an exploration of different perspectives of empathy; from its behavioural and measurable characteristics to its less tangible, intuitive qualities. By drawing upon both policy and research, it is clear that patients want empathic and emotionally competent nurses. Nurse educators therefore have a responsibility to provide an education that engenders empathic understanding. We explore the implications of these findings for nurse education, identifying key areas for consideration in the preparation of emotionally skilled, empathic student nurses.

Heather et al. (2010: 136) conducted initial preference for drinking goal in the treatment of alcohol problems: II. Treatment outcomes. Aim to compare treatment outcomes between clients preferring abstinence and those preferring non-abstinence at the screening stage of a randomized controlled trial of treatment for alcohol problems (the United Kingdom Alcohol Treatment Trial) and to interpret any differential outcome in light of baseline differences between goal preference groups outlined in an accompanying paper. The results of this study the clients initially stating a preference for abstinence showed a better outcome than those stating a preference for non-abstinence. This superior outcome was clearer at 3 months' follow-up but still evident at 12 months' follow-up. The better outcome consisted almost entirely in a greater frequency of abstinent days, with only a modest benefit in drinking intensity for goal abstainers that disappeared when baseline covariates of goal preference were controlled for. Type of successful outcome (abstinence/non-problem drinking) was related to initial goal preference, with clients preferring abstinence more likely to obtain an abstinent outcome and those preferring non-abstinence a non-problem drinking outcome. The client's personal drinking goals should be discussed in assessment at treatment entry and as a basis for negotiation. Clinicians should be prepared to identify and support goal change as an unexceptional part of the treatment process that need not jeopardize good outcome.

6. CONCEPTUAL FRAMEWORK

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) is a treatment consisting 3 components i.e. FRAMES components, Drinkers voluntarily set up their goal and drinking reduction design suitable for them and their community and applied data resourced of this model derived from key informants in their community combined with FRAMES components.

This study based on two theories, firstly the protection motivation theory (Rogers, 1975; Rogers, Deckner, and Mewborn, 1978). It suggested this conceptual system, motivation for change would be effectively increased the interventions which enhance these two factors: perceived risk and self-efficacy. The elements of the FRAMES approach identified fit this general description. Secondly, the TGCBI process were underlying Bandura's social cognitive theory (SCT) that human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other.

Before

Moderate drinkers in Intervention Community	Assessments →	**Outcomes**: Alcohol consumption

Outcomes: Alcohol consumption
1. Change frequency of drinking
2. Change frequency of heavy drinking
3. Change average daily intake
4. Change intensity of drinking

← Assessments

Moderate drinkers in Control Community

Process of TGCBI

BRIEF INTERVENTION

FEEDBACK → Perceived risk

Motivational interviewing

RESPONSIBILITY → High Perceived risk

Commitment to change

ADVICE

Matching → Setting goals for change

MENU OF OPTIONS

Participant Action   Access to alternative

EMPATHY

SELF-EFFICACY → Maintenance

Sustain

After

Moderate drinkers in Intervention Community

Evaluation →

Outcomes: Alcohol consumption
1. Change frequency of drinking
2. Change frequency of heavy drinking
3. Change average daily intake
4. Change intensity of drinking

← Evaluation

Moderate drinkers in Control Community

CHAPTER III

RESEARCH METHODOLOGY

This research uses a quasi-experimental design and is part of the methodology designed for the TGCBI for reducing alcohol consumption among moderate drinkers in an intervention group. This chapter consists of 14 parts as follows:

3.1 POPULATION

This study chose high risk prevalence drinking as its subject because this is a logical place to direct scarce prevention resources and from a practical point of view, it is feasible to conduct the study within limited resources for screening. This research used a quasi-experimental design to compare two sub-districts of high risk prevalence drinking in Lop Buri Province, Thailand.

The target population refers to the subjects who met the inclusion criteria from Phatthana Nikhom district (Nong-Na sub-district) as the intervention group for TGCBI implementation and the subjects from Chai Badan district (Bua-Choom sub-district) as the control group without TGCBI implementation.

3.2 ELIGIBILITY CRITERIA

This study determines inclusion/exclusion criteria as follows:

3.2.1.1 The inclusion criteria are as follows:

3.2.1.1.1 Participants aged 19-65 years

3.2.1.1.2 Participants were screened as moderate drinkers (8-19 Scores)

3.2.1.1.3 No history of diagnostic, treatment and dependence on alcohol

3.2.1.1.4 Ability to understand the purpose of the study and complete study interview materials

3.2.4.1.5 Voluntarily gave consent to participate in the study

3.2.1.2 The exclusion criteria are:

3.2.1.2.1 People aged less than 19, and/or over 65 years

3.2.1.2.2 No history of drinking

3.2.1.2.3 Discernible deficit of cognitive function, signs of psychosis or other significant psychopathology

3.2.1.2.4 Screening out people with serious medical conditions was done on basic safety grounds, because if there was abrupt cessation of drinking there may be unexpected physical harm.

3.2.1.2.5 Currently dependent on alcohol

3.2.1.2.6 No current pregnancy

3.2.1.2.7 Unable or unwilling to give informed consent

3.3 SAMPLING TECHNIQUE

This study recruited sample size by using a similar study of Kypri et al. (2004), "Web-based screening and brief intervention for hazardous drinking: a double-blind randomized controlled trial" which had an effect size equal 0.44.

$$\delta = (\mu_{e} - \mu_{c})/ \sigma$$

$$\Delta = \delta/(\delta^2 + 1/pq)^{1/2}$$

$$\Delta = 0.44/((0.44)^2 + 1/0.5)^{1/2}$$

$\Delta = 0.40$ (effect size from calculation) $\longrightarrow$ n= 45

$\Delta = 0.44$ (effect size from paper) $\longrightarrow$ n= 35

Therefore $\quad$ n= (45+35)/2

$\qquad$ n= 40

$\qquad$ n= v+2

$\qquad$ n= 40+2

$\qquad$ n= 42

For a two-tailed test, at 5% significance level, with 80% power, the required sample size (Kraemer and Thiemann, 1987) is 42 for each group.

In anticipation of 10% loss for follow-up, the sample size was increased to 46.2. All data were analyzed at a single point at the end of the trial. The final study samples were 46 participants per group. Therefore, the sample size of this study was 46 cases for each group.

3.4 METHODOLOGY

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) recruited the participants who obtained positive screening by Alcohol Use Disorder Identification Test (AUDIT) score 8-19. They were classified as moderate alcohol consumption and motivated cases due to their voluntary commitment to reduce alcohol consumption. All participants aged 19-65 years who matched the criteria were asked to consent to an alcohol screening. The screening used WHO AUDIT consisting of 10 questions and scores to provide levels of hazardous and harmful alcohol drinking among participants. It covers three domains; alcohol consumption, drinking behavior, and alcohol-related problems (Saunders et al., 1993). The participants who met the inclusion criteria and positive screening by AUDIT, were focused on hazardous and harmful drinkers (the score of AUDIT between 8-19).

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI)

The main components of The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) consist of

T= Tailored: This model is designed to address the specific needs and problems of individual drinkers in community and to offer them suitable ways for reducing alcohol consumption.

G= Goal Oriented: Moderate drinkers voluntarily set their own specific goals and choose a change strategy from a menu of alternatives, rather than being given only a single option.

C= Community: The model was modified by the research team to reflect the environment and the community context. The cultural context in this community is as follows:

-In the community: Participants and other people who live within the community are well known to each other and good relationships exist in the neighborhood.

-Believe: It is a cohesive community with belief in religion and trust in monks, doctors and health personnel. There is also respect for leadership in the community,

-Raise Awareness: There is a high awareness of the real situation in the community such as who does not drink alcohol or who has been affected by illness or disease or who has come to harm from alcohol consumption.

-Ideal person: Participants are ready to reduce alcohol consumption within the groups' treatment.

-Take leadership, Monks, Doctors and Health personnel from the community work together closely with facilitators planning how to achieve their goals to reduce alcohol consumption.

-Participants are honest about their commitment.

BI= Brief Intervention: Based on FRAMES (Babor et al., 1992) i.e. **F**eedback to the individual in personal risk, impairment, and current status; **R**esponsibility placed on the individual for personal change; **A**dvice to change; **M**enu of alternative treatment or self-help options and strategies offered to the individual; **E**mpathic nature engendered by the clinician; and **S**elf-efficacy reinforcing the individual's sense of hope and optimism for success.

TGCBI aims to encourage drinkers to set their own goal and to reduce drinking appropriate to them and their community context. TGCBI was conducted individually in 4 sessions, each session taking around 15-60 minutes.

We used TGCBI which is simple, precise and brief. The facilitators implemented TGCBI which they tailored for each participant. The participant received information on their current alcohol consumption status. The individually tailored process provided the participants with information, an assessment of the problem, an opportunity to discuss his or her drinking and a chance to find the best way to reduce alcohol consumption for them.

The TGCBI implemented the principle of Brief Intervention based on FRAMES elements. A careful adaptation to the community context was necessary at the initial stage in order to achieve this change. Facilitators gathered as much information as possible about participants before the first session. The intervention itself is structured and focused on alcohol consumption. Its primary goals are to raise awareness of problems and then to recommend a specific change or to encourage reduced consumption.

Firstly, Feedback, moderate drinkers were first asked to evaluate their drinking level before the facilitators provided individual's feedback about their risks associated with continued drinking, based on their current drinking patterns, problem indicators, and health status. After participants had received data about their drinking levels, the facilitators tried to increase awareness of risks associated with hazardous and harmful alcohol consumption, enhance the participants' motivation to change their drinking behavior. The above was undertaken in an empathic style to try to increase the participant's acceptance of risk perception.

Secondly, Responsibility, the facilitators would probe the drinkers to revitalise their feelings of responsibility for society. The facilitators encouraged them to take responsibility for selecting and working on behavioral change in a way most comfortable for them. In this step, the facilitators encouraged patients to develop, implement and commit to plans to stop or reduce alcohol consumption.

Thirdly-Advice to change, give clear advice about the importance of changing current drinking patterns and a recommended level of consumption. The process in providing knowledge and appropriate understanding regarding alcohol consumption is undertaken with the cooperation of reliable abstinent drinkers who may share experiences, people in the community i.e. monks, doctors, health personnel, community leaders and facilitators together with documentary and self help materials i.e. booklets, brochures and videos. All of these enable moderate drinkers to be more knowledgeable and understanding resulting in a control and subsequent reduction in alcohol consumption. Participants most likely to benefit from TGCBI may be those hazardous and harmful drinkers who are assessing their alcohol use and reducing their consumption.

Matching: The individual might consider setting a specific limit on alcohol consumption, learning to recognize the antecedents of drinking, and developing skills to avoid drinking in high-risk situations, pacing one's drinking and learning to cope with everyday problems that lead to drinking.

Goal setting: Drinkers will set their exact drinking volume and the date they wish to reduce/stop drinking in a written agreement.

Fourthly –Menu of option, a free discussion is entered into between moderate drinkers and facilitator's who offer advice in finding the most suitable pattern of reducing alcohol consumption. Ask the patient to suggest some strategies for achieving these goals. The participants were usually offered a menu of options or strategies for accomplishing the target goal. This approach emphasises the individual's choice to reduce drinking patterns and allows them to choose the approach best suited to their own situation.

The fifth stage is Empathy-from the beginning until the completion of the interventions the drinkers were ensured that the facilitators would give them understanding and empathic reflection about their problems whilst they were reducing their alcohol consumption. TGCBI supported a specific and strong relationship between facilitators' empathy and drinking outcomes.

The sixth stage is Self Efficacy-the facilitators gave drinkers moral support that they could positively change their drinking behavior by themselves. The participants become more confident that they can change their drinking behavior (drinking reduction/abstinence).

The last stage is Follow-up-the follow-up visits will provide an opportunity to monitor progress and to encourage the client's motivation and ability to make positive changes. The facilitators reviewed the participants' goal of drinking reduction/abstinence, assessing any new problems which may be necessary for setting clear solutions and new options or new goals.

Process of TGCBI

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) is a treatment consisting of 3 components i.e. FRAMES components, Drinkers voluntarily set up their goal and drinking reduction design suitable for them and their community along with applied data from this model derived from key informants in their community combined with FRAMES components. The TGCBI consists of six steps as follows:

1. Identification the level of participants consumption by AUDIT score to classify drinkers into three levels i.e. 1) non drinkers/little drinking behavior (0-7 score) 2) moderate drinking behavior (8-19 score)   3) heavy drinking behavior (20-40 score)

2. Provide knowledge of alcohol consumption and process of TGCBI to moderate drinkers voluntarily admitted to TGCBI

3. Feedback (feedback to individual drinker of alcohol consumption and screening information), **R**esponsibility-emphasize drinkers' responsibility for their drinking behavior or abstaining from drinking

4. Advice Clear and precise advice in drinking reduction/abstinence can decrease future risk and impairment. It will help drinkers to realize other personal risk which will make them consider changing their drinking behavior

5. Goal setting Drinkers will set their exact drinking volume and the date they wish to reduce/stop drinking in a written agreement

Menu of options-Drinkers should be given the opportunity to select the pattern most suitable for their drinking reduction/abstinence, whichever alternative, be it the same or different, is dependent on each person

6. Follow-up To review the drinkers' goal of drinking reduction/abstinence, assessing any new problems which may be necessary for setting clear solutions and a new goal

Empathy-Communicate warmly and amicably with reflection and understanding

Self efficacy-Encourage the drinkers to be more confident that they can change their drinking behavior (drinking reduction/abstinence)

3.5 PROCEDURE

The subjects were 19-65 years old living in the community during the six months before the intervention implementation. They were informed of the project. They were given the opportunity to assess themselves for moderate drinkers with the Alcohol Use Disorder Identification Test (AUDIT) screening instrument. The AUDIT's sensitivity is 0.92 and specificity is 0.94 (Saunders et al., 1993). This study has established validity and test-retest reliability in a community context (.85). WHO recommend AUDIT with cutoff values of eight (Babor et al., 2001). If the participants agreed to participate, trained staff would administer an interview using the structured interview questionnaire. The participants would be eligible for inclusion in the study if they met the criteria for moderate alcohol consumption as defined by the AUDIT measure (score of 8 to 19). Subjects who obtained a score of less than 8 and more than 20 were excluded. They were recruited according to the inclusion and exclusion criteria.

The processes are as follows:

1. Sites for this study were chosen based on the prevalence of drinking found from two previous studies. Firstly, the study of alcohol consumption in Lop Buri Province during 1992-1996 conducted by the Institute of health research, Chulalongkorn University (Adit Laixuthai, Abha Sirivongs na Ayudhya, and Vichai Poshyachinda, 2001) which aimed to study alcohol consumption behavior in Lop Buri Province. Secondly, the National Household Survey for Substance and Alcohol Use (NHSSA) is a periodic survey of the Thai population aged 12-65 years in 2007 conducted by Administrative Committee of Substance Abuse Research Network (ACSAN). This study classified the risk prevalence districts by the rate of drinking per population during the last 30 days to three groups i.e. low, medium and high. This study selected sub-districts within the high risk prevalence drinking because this is a logical place to direct scarce prevention resources and from a practical point of view, it is feasible to conduct the study within limited resources for screening.

2. Selected two districts within high prevalence and the same demographic and pattern of drinking. i.e. Chai Badan District (control group) and compared with those of Phatthana Nikhom District (intervention group) and mapping.

3. Data development and record:

3.1 Using Alcohol Use Disorder Identification Test (AUDIT) for alcohol screening, AUDIT cut-off value of eight (Babor et al., 2001)

3.2 Validate screening instrument for hazardous and harmful drinking or moderate drinking embedded in a health questionnaire in the community context

4. Interview

Phase I: Collect demographic and behavior data from members in each household of target area.

Phase II: Collect data of all hazardous and harmful groups and moderate alcohol drinking in control and intervention groups:

5. Use AUDIT score for screening behavior. The score 0 to 7 as little drinkers, score 8 to 19 as moderate drinkers and score ≥20 as heavy drinkers

6. Select moderate drinker groups by screening AUDIT (8 to 19 scores) in each group and implementing the TGCBI in trial community

7. Implement TGCBI

8. Follow up after implementing TGCBI at 1, 3 and 6 months

9. Data Analysis

10. Conclusion

3.6 RESEARCH DESIGN

A quasi-experimental study was conducted among moderate drinkers in two communities with high drinking prevalence in Lop Buri Province. They were classified by prevalence drinking into three groups, i.e. high, medium and low risk. This study selected two high risk districts: Phatthana Nikhom (intervention community) and Chai Badan district (control community). Only one sub district was selected from Phatthana Nikhom and Chai Badan districts to test the intervention model. Therefore, Nong-Na sub-district in Phatthana Nikhom was used as the intervention and Bua-Choom sub-district in Chai Badan as the control. Tailored Goal Oriented Community Brief Intervention Model (TGCBI) was applied in one community; the other served as the control. Both communities were interviewed using the same questionnaires as baseline after implementing the TGCBI intervention for 1, 3 and 6 months.

The TGCBI model consists of the following 3 conceptual components: (1) the researcher (the intervenor) and the participant interact closely, in accord with the WHO brief intervention guidelines; (2) the participant voluntarily specifies goals for drinking reduction, and endeavors to achieve these goals alone and with support and advice from family and other community members; (3) the researcher works closely with key informants, e.g., monks, physicians, and former drinkers, in developing an intervention plan appropriate for the community.

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│    LOP BURI     │
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LOP BURI

**Intervention Community
Phatthana Nikhom
Nong-Na**

**Control Community
Chai Badan
Bua-Choom**

Identify the level of participant consumption by AUDIT score and questionnaire

Non drinking or Little drinking behavior AUDIT (0-7 Score)

Moderate drinking behavior AUDIT (8-19 Score)

Heavy drinking or dependence behavior AUDIT (20-40 Score)

Non drinking or Little drinking behavior AUDIT (0-7 Score)

Moderate drinking behavior AUDIT (8-19 Score)

Heavy drinking or dependence behavior AUDIT (20-40 Score)

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) integrated resource from key informants in their community, the drinker setting their gold of drinking and FRAMES components

Follow-up
1, 3 and 6 months

Reduction in alcohol consumption

Analysis

Summary

3.7 INSTRUMENTS

We used three instruments to measure the effect of Tailored Goal Oriented Community Brief Intervention Model (TGCBI) to reduced alcohol consumption among moderate drinkers in two communities.

3.7.1 Questionnaire: Test content validity, the questionnaire was developed by the researcher and based on a thorough literature review. The proposed structure of the interview and description of the items are as follows:

3.7.1.1Demographic characteristics i.e. age, sex, marital status, religion, education, occupation, monthly income etc.

3.7.1.2 Drinking indices i.e. alcohol consumption in lifetime, one year and one month prior to interview questionnaire

3.7.1.3 Patterns of drinking i.e. drinking place, drinking companions, drinking time and drinking occasion.

3.7.2 Alcohol Use Disorder Identification Test (AUDIT) Test-retest reliability

3.7.3 Alcohol Time-Line Follow-Back (TLFB) (Sobell and Sobell, 2000): the timeline follow-back interview for moderate drinkers were examined by using one month stability estimates.

All instruments were administered before implementation of the intervention and after implementation of the intervention at 1, 3 and 6 month follow-up.

3.8 VALIDITY AND RELIABILITY

This study finds validity and reliability of instruments as follows;

3.8.1 Questionnaire: the researcher adopted content validity in two ways. Firstly, the study staff interviewed forty-five cases among drinkers who were not the target in this study. Secondly, experts in the field of alcohol study were identified to review the questionnaire. The researcher's revision of the instrument was done in response to the moderate drinker and guidance of the experts.

3.8.2 Alcohol Use Disorder Identification Test (AUDIT) is a standard questionnaire consisting of 10 questions giving scores to provide levels of hazardous and harmful alcohol use for men and women. It covers three domains; alcohol consumption, drinking behavior and alcohol-related problems. It is designed to identify hazardous drinkers whose level of drinking places them at risk for developing problems i.e. harmful drinkers experiencing physical, social or psychological problems, and potential alcohol dependents. The AUDIT has been developed from a six-country (Saunders et al., 1983; Saunders and Aasland, 1987) World Health Organization collaborative project, as a screening instrument for hazardous and harmful alcohol consumption (Volk et al., 1997).

Many results of several studies have indicated high internal consistency, suggesting that the AUDIT is measuring a single construction in a reliable fashion. (Fleming et al., 1991; Hays et al., 1995; Sinclair et al., 1992) The AUDIT sensitivity is 0.92 and specificity is 0.94 (Saunders et al., 1993). According to the reliability, Rigmaiden (1995) indicated test-retest reliability is 0.86 in a sample consisting of non-hazardous drinkers, cocaine abusers, and alcoholics. This study used AUDIT to screen the categories of alcohol consumption. In addition, it established validity and test-retest reliability in a community context which is equivalent to .852. Therefore, it is considered to have adequate reliability.

3.8.3 The timeline follow-back instrument (TLFB) (Sobell and Sobell, 2000) is a valid and reliable method of quantifying alcohol use patterns. The time-line follow-back (TLFB) procedure (Sobell and Sobell, 1979) has been used for years to assess the reliability and validity of daily alcohol use through self-reporting over extended periods of time.

Moreover, the validity of the manual of Tailored Goal Oriented Community Brief Intervention Model (TGCBI) was assessed by experts. The researcher's revision of the instrument was done under the guidance of the experts.

3.9 SETTINGS

This study selected moderate drinkers in two communities in Lop Buri province: Pattana Nikhom as the intervention community and Chai Badan as the control community.

3.10 DATA ANALYSIS

The data were used to provide descriptive statistics to summarize the contents of the questionnaire (i.e. demographic characteristics, patterns of alcohol consumption, etc.), Chi-square and t-test for independent samples were then used to test for significant differences in demographic and other variables between the intervention and control group. Repeated measures general linear model was used to quantify the overall change effect (for both groups) and the test of difference in rates of change for the groups. Linear regression was used to compare the interaction term pre- to post-intervention change in the intervention group compared to that in the control group.

3.11 OUTCOME MEASUREMENT

This study measured the effect of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) on reducing alcohol consumption among moderate drinkers.

We assessed four outcomes of alcohol consumption to examine the effect of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) as follows:

3.11.1 Changed frequency of drinking (drinking days in the past month)

3.11.2 Changed frequency of heavy drinking (heavy drinking days in the past month)

3.11.3 Changed average daily intake (grams of absolute ethanol/day)

3.11.4 Changed intensity of drinking (grams of absolute ethanol/drinking day)

In addition, the study conducted two secondary outcomes that are changed total consumption in a typical month and changed total AUDIT score.

Outcomes were measured using the same instruments at baseline and follow-up after implementing TGCBI 1, 3 and 6 months

3.12 FOLLOW-UP

Follow-up interviews were conducted 1, 3 and 6 months after TGCBI implementation.

3.13 MISSING DATA

A summary shows the dropouts/retention over time in each treatment group. The number of missing observations was compared between the intervention and control conditions.

3.14 ETHICAL CONSIDERATION

Ethical Consent from the Health Sciences Review Board Committee, Chulalongkorn University was obtained prior to the study. All of the participants and the subjects were informed about the objectives and the process of the study. In addition, they had given their written consent prior to the beginning of the study.

CHAPTER IV

RESULTS

This study which aims to assess the effect of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) on reducing alcohol consumption among moderate drinkers in two communities presents its results as follows:

4.1 RESULTS

The research demonstrates results in three areas:

4.1.1 Demographic characteristics

4.1.2 Alcohol consumption

4.1.3 Alcohol Use Disorder Identification Test (AUDIT)

4.1.1 Demographic characteristics

From the baseline data in Nong-Na sub district (intervention) 509 cases were collected, and a further 510 cases in Bua-Choom sub district (control). The average age was 37 to 38 years, and about 40% were males. Half in both communities were married; 53% and 55% respectively completed elementary school. About 80% and 90% were born in Lop Buri. About 44.2% and 32.4% respectively were employees. The demographic characteristics of both communities were nearly the same. Regarding the result from the AUDIT Query, there were 78 moderate drinkers (15.3%) and 74 moderate drinkers (14.5%) in intervention and control respectively. (Table1)

Table 1 Baseline of characteristics of sample intervention and control communities

Characteristics	Intervention group(n=509)	Control group(n=510)
Mean age ±*SD*., y	36.93±14.71	37.84±14.58
Sex: Men, n(%)	236(46.4)	227(44.5)
Marital status: Married, n(%)	268(52.7)	263(51.6)
Education: Primary school	270(53.0)	281(55.1)
Born in Lop Buri province, n(%)	472(92.7)	434(85.1)
Unskilled working class, n(%)	225(44.2)	165(32.4)
Mean income, ±*SD.*	6147.16±5042.7	5676.49±4848.7
Mean age first drink ±*SD*., y	19.89±7.0	22.16±7.1
Baseline AUDIT 8-19 scores, n(%)	78(15.3)	74(14.5)
Total consumption in a typical month, Mean ±SD, gm/day	272.563±319.6	431.846±461.3
Total heavy consumption in a typical month, Mean ±SD, gm/day	931.074±1014.7	1023.070±1158.7

Referring to the complete follow-up at 3 intervals (1, 3 and 6 months) of the group samples in both communities, among 78 moderate drinkers in Nong-Na, 8 cases could not be monitored because 2 entered monkhood, one was under methamphetamine treatment, and the rest were transferred to work in other provinces. Among 70 moderate drinkers, 57 cases voluntarily participated but only 47 cases completed the follow-up process. Regarding 74 moderate drinkers in Bua-Choom, 18 cases could not be monitored because one died, one entered monkhood and the rest were transferred to work in other provinces. Among 56 moderate drinkers, 50 cases completed the follow-up process. (Table2)

Table 2 Number of eligible baseline and follow-up by sex between intervention and control group

Gender	Intervention(n=78 cases)			Control (n=74 cases)		
	Baseline	Agreed	Follow-up 1,3 and 6 mo	Baseline	Agreed	Follow-up 1,3 and 6 mo
Male	69	48	40	65	50	44
Female	9	9	7	9	6	6
All	78	57	47	74	56	50
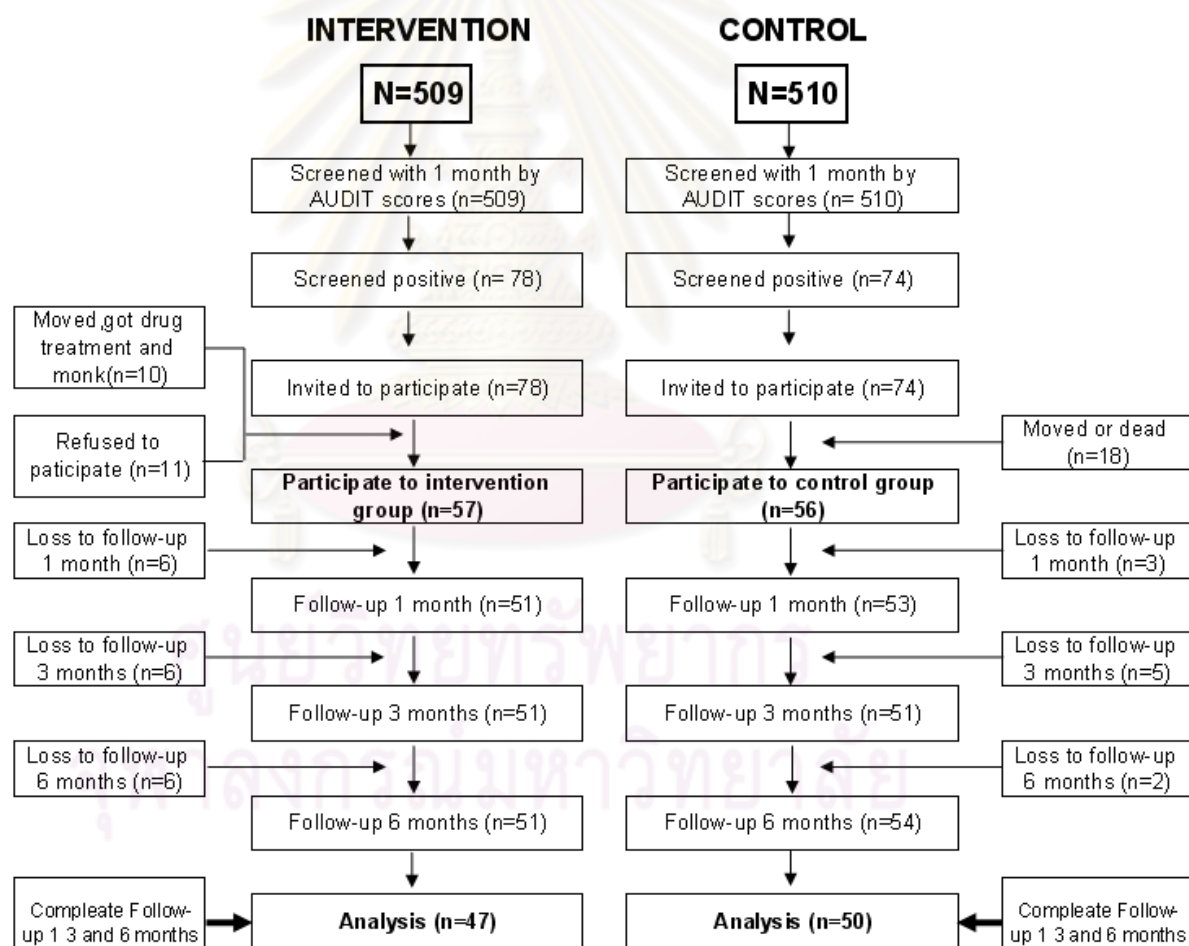
According to the baseline data, 78 and 74 moderate drinkers were selected by AUDIT score in intervention and control groups respectively. When comparing the community demographic characteristics between moderate drinkers by AUDIT score and those who completed all follow-ups, it was found that the majority were males; 60% were married, Their average age was about 39 to 43; 60%-68% completed elementary school. Over 80% were born in Lop Buri. As regards their drinking behavior, the average AUDIT score was 10 to 11. Regular drinking volume in moderate drinkers was 47.2 and 49.5 grams respectively, and that   of the moderate drinkers who completed all the follow-up's was 51.3 grams and 60.6 grams respectively; heavy drinking volume in moderate drinkers 35 to 36 grams and among the moderate drinkers who completed all follow-up's it was 40.8 and 42.4 grams. Therefore, baseline of moderate drinkers and those who completed all follow-ups in intervention and control groups still indicated similar demographic and drinking characteristics (Table 3).

Table 3 Data of demographic and drinking characteristics compared moderate drinkers from AUDIT with all moderate drinkers completing follow-up in both groups

Characteristics	Moderate drinkers from AUDIT		Moderate drinkers completing all follow-up	
	I (n=78)	C (n=74)	I (n=47)	C (n=50)
Mean age ±SD, year	39.6±12.9	39.2±11.2	43.2±13.1	40.7±10.3
Sex: Men, n(%)	69(88.5)	65(87.8)	40(85.1)	44(88.0)
Marital status: Married, n(%)	44(56.4)	46(62.2)	30(63.8)	33(66.0)
Education: Primary school, n (%)	46(59.0)	44(59.5)	29(67.7)	30(60.0)
Unskilled working class, n (%)	29(59.0)	16(21.6)	21(44.7)	11(22.0)
Monthly income, Mean ±SD	7005.64±4947.3	6140.70±3496.1	7168±5705.5	6298.8±3837.9
Age first drink, Mean ±SD, year	18.78±4.9	20.76±5.5	19.91±5.7	20.58±5.1
Frequency of drinking, Mean ±SD, number of drinking day in the past month	13.2±9.7	11.7±9.5	13.7±10.5	12.2±10.5
Frequency of heavy drinking, Mean ±SD, number of heavy drinking day in the past month	4.69±9.3	1.95±4.6	4.85±9.7	2.54±5.4
Average daily alcohol intake, Mean ±SD, gm/30 days	20.98±21.47	14.94±15.38	22.1±21.4	18.8±17.0
Intensity of drinking, Mean ±SD, gm/drinking day	47.2±32.7	49.5±43.6	51.3±34.5	60.6±46.5
Intensity of heavy drinking, Mean ±SD, gm/heavy drinking day	36.2±54.3	35.0±54.2	40.8±59.7	42.4±59.6
Baseline AUDIT scores, Mean ±SD, total scores	10.9±3.3	10.1±3.1	11.6±3.7	10.8±3.6

Moderate drinkers who completed all follow-ups in Nong-Na (intervention) accounted for 47 cases, and 50 cases in Bua-Choom (control). There were no significant differences between intervention and control groups with regard to age, sex, marital status, main occupation, baseline AUDIT scores, total consumption in a typical month, total heavy consumption in a typical month, frequency of drinking, frequency of heavy drinking, intensity of drinking and intensity of heavy drinking (Table 4)

Table 4 Baseline characteristics of moderate drinkers completing follow-up in intervention and control group by chi-square test and t-test (two-sided).

Characteristics	I (n=47)	C (n=50)	Test statistic	P-value (two-sided)
Baseline age (>40 vs. younger, n, %)	26 (55.3)	24 (48.0)	$\chi^2(1)=0.52$	0.471
Females vs males, n(%)	7 (14.9)	6 (12.0)	$\chi^2(1)=0.18$	0.676
Married vs other, n(%)	30(63.8)	33(66.0)	$\chi^2(1)=0.50$	0.823
Main occupation 4 groups*	---	---	$\chi^2(3)=6.84$	0.077
Age at first drink (>18 vs. younger, n, %)	22 (46.8)	32 (64.0)	$\chi^2(1)=2.90$	0.089
Education (>primary vs. lower, n, %)	9 (19.1)	18 (36.0)	$\chi^2(1)=3.43$	0.064
Monthly income (>5000 baht vs. less, n, %)	21 (44.7)	20 (40.0)	$\chi^2(1)=0.22$	0.641
Frequency of drinking days (Mean $\pm SD$)	13.7±10.5	12.2±10.5	t=0.703	0.484
Frequency of heavy drinking, (Mean $\pm SD$)	4.9±9.7	2.5±5.4	t=1.468	0.145
Average daily alcohol intake, (Mean $\pm SD$)	22.1±21.4	18.8±17.0	t=0.831	0.408
Intensity of drinking, (Mean $\pm SD$)	51.3±34.5	60.6±46.5	t=1.112	0.269
Intensity of heavy drinking, (Mean $\pm SD$)	40.8±59.7	42.4±59.6	t=.773	0.893
Baseline AUDIT scores, (Mean $\pm SD$)	11.6±3.7	10.8±3.6	t=1.048	0.297

* Unemployed, factory worker, employee, other (mainly agriculture)

Table 5 Alcohol use outcomes at baseline and at 1, 3 and 6 month follow-up by intervention (n=47 cases) group

Outcome variables	Baseline	Follow-up 1 Month	Follow-up 3 Month	Follow-up 6 Month
Frequency of drinking, Mean ±SD	13.7±10.5	9.3±10.5	6.0±8.8	6.2±7.9
Frequency of heavy drinking, Mean ± SD	4.9±9.7	1.3±4.8	0.3±0.8	0.6±2.1
Average daily intake, Mean ± SD	22.1±21.4	10.5±17.5	5.4±7.3	5.9±8.0
Intensity of drinking, Mean ± SD	51.3±34.5	28.1±25.7	24.4±29.9	20.1±23.2
Total consumption in a typical month, Mean ± SD	661.6±642.0	314.7±524.9	161.9±220.1	178.4±240.9
Total AUDIT score, Mean ± SD	11.6±3.7	7.0±5.3	5.1±4.6	5.0±5.2

Table 6 Alcohol use outcomes at baseline and at 1, 3 and 6 month follow-up by control group (n=50 cases)

Outcome variables	Baseline	Follow-up 1 Month	Follow-up 3 Month	Follow-up 6 Month
Frequency of drinking, Mean ±SD	12.2±10.5	12.9±9.3	11.9±9.3	13.7±10.8
Frequency of heavy drinking, Mean ± SD	2.5±5.4	3.5±6.6	3.4±5.9	5.0±9.0
Average daily intake, Mean ± SD	18.8±17.0	23.8±22.8	19.5±16.4	27.7±40.4
Intensity of drinking, Mean ± SD	60.6±46.5	51.9±31.8	46.3±33.0	46.4±46.2
Total consumption in a typical month, Mean ± SD	564.1±511.0	713.2±685.0	585.6±491.4	830.6±1210.6
Total AUDIT score, Mean ± SD	10.8±3.6	11.8±6.3	11.6±7.0	12.7±8.2

As displayed in Table 5 and 6 a total of 47 and 50 moderate drinkers in intervention and control groups respectively completed each of the three follow-ups at 1, 3 and 6 months after the intervention. On average, there was progressive reduction in drinking frequency in the intervention group between the baseline and at the 1 and 3 month follow-up and a slight increase at the 6 month follow-up (but remaining three days fewer drinking days) that recorded at the 1 month follow-up. The control group reported a mean frequency of drinking after the follow-up at 1 and 3 months interval and before TGCBI implement that was constant – although by 6 month follow up it returned to baseline levels.

As regard the intervention group, there was no heavy drinking frequency reported at 3 month follow-up and about one heavy drinking day reported at 6-month follow-up. Overall of the baseline and after follow-up intervals, it has found slightly decreased. The control group reported average heavy frequency of drinking after the follow-up at 1, 3 and 6 month intervals and before TGCBI implement increased to 1.5 times when compare to baseline point.

The average daily intake showed before and after the follow-up at all intervals, the intervention group, the baseline and at the 1 and 3 month follow-up, a slight decrease; whereas after the follow-up at the 6-month interval had 1/3 decreased when compare to baseline data. The control group showed the average daily intake increased at all intervals.

The average intensity of drinking, the intervention group found that baseline and 1-month slightly decreased; whereas after the follow-up at 3-month interval, a half was decreased when compare with baseline point. Regarding to 6 month follow-up, it more than a half was decreased when compare to baseline level.

The total consumption in a typical month on average, intervention group reported that the 1-month follow-up a half was decreased when compare with baseline data, 3-month follow-up a half was decreased when compare with 1-month follow-up, and after the follow-up at 6-months was a bit increased from 3-month follow-up. In contrast, control group the total consumption in a typical month has increased at all follow-up intervals. Moreover, at 3-month and 6-month follow-ups were highly increased when compare with baseline level.

The before and overall after the follow ups, the average total AUDIT scores at baseline, 1-month and 3-month follow-ups was slightly decreased. At 6-month follow-up a half was decreased when compare with baseline data. The control community, total AUDIT scores on average at all intervals was increased.

4.1.2 Alcohol consumption

4.1.2.1 Frequency of drinking

Regarding frequency of drinking, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 7 and 8). This provides justification for using the linear regression model. As for the other dependent variables, parameter estimates for the time-intervention interaction (and other parameters) were the same in the GLM and the linear regression model. However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group. The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative). In the linear regression model, the interaction term compares the pre- to post-intervention change in the intervention group to that in the control group. From pre- to post-intervention, the modeled frequency of drinking decreased 7.15 days more in the intervention group than in the control group (p=0.002, table 8). The F-statistic for the regression model, F (3,384)=10.33, p<0.001

Table 7 Repeated measures ANOVA for drinking frequency: Wilks' lambda test of intervention effect (groups time interaction)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Frequency of drinking* intervention	Wilks' Lambda	.893	11.410(a)	1.0	95.0	.001	.107

a Exact statistic

Dependent Variable	Parameter	B	p-value	95%CI	Partial Eta Squared	
					Lower Bound	Upper Bound
Frequency of drinking pre-intervention	[Control]	-1.501	.484	-5.739	2.737	.005
	[Intervention]	0(a)	.	.	.	.
Frequency of drinking post-intervention	[Control]	5.649	.002	2.206	9.093	.100
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant.

Table 8 The overall frequency interaction of drinking among moderate drinkers completing follow-up in intervention and control communities by Linear Regression

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	12.180	8.824	.000	9.466	14.894
Dummy for intervention	1.501	.757	.450	-2.398	5.399
Dummy for time after the intervention	.647	.406	.685	-2.487	3.780
Group time interaction (intervention effect)	-7.150	-3.123	.002	-11.652	-2.648

a   Dependent Variable: Frequency of drinking

For detail of drinking frequency, the p-values for the time-intervention interaction were very similar in the repeated measure general linear model (GLM) and the linear regression model (tables 9 and 10). This provides justification for using the linear regression model. However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group. The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

From Graph 1-comparing frequency of drinking between baseline and after the follow-up at all intervals in the two communities, the intervention's graph clearly shows a continuous drop at every interval. In the meantime, the control's graph shows an increase, especially after the follow-up at 6 months the graph increases more than the baseline. In sum, the intervention's group frequency of drinking decreased more than that of the control group at every interval.

Table 9 The detail frequency of drinking among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Frequency of drinking * Intervention	Wilks' Lambda	.853	5.325(a)	3.0	93.0	.002	.147

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI		Partial Eta Squared
				Lower Bound	Upper Bound	
Frequency of drinking_baseline	[Control]	-1.501	.484	-5.739	2.737	.005
	[Intervention]	0(a)	.	.	.	.
Frequency of drinking_follow up at 1 month	[Control]	3.561	.079	-.422	7.543	.032
	[Intervention]	0(a)	.	.	.	.
Frequency of drinking_follow up at 3 months	[Control]	5.880	.002	2.236	9.524	.097
	[Intervention]	0(a)	.	.	.	.
Frequency of drinking_follow up at 6 months	[Control]	7.507	.000	3.656	11.359	.136
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant.

Graph 1 The estimated marginal mean of frequency of drinking among moderate drinkers completing follow-up in intervention and control communities by Repeated Measure General Linear Model (GLM)
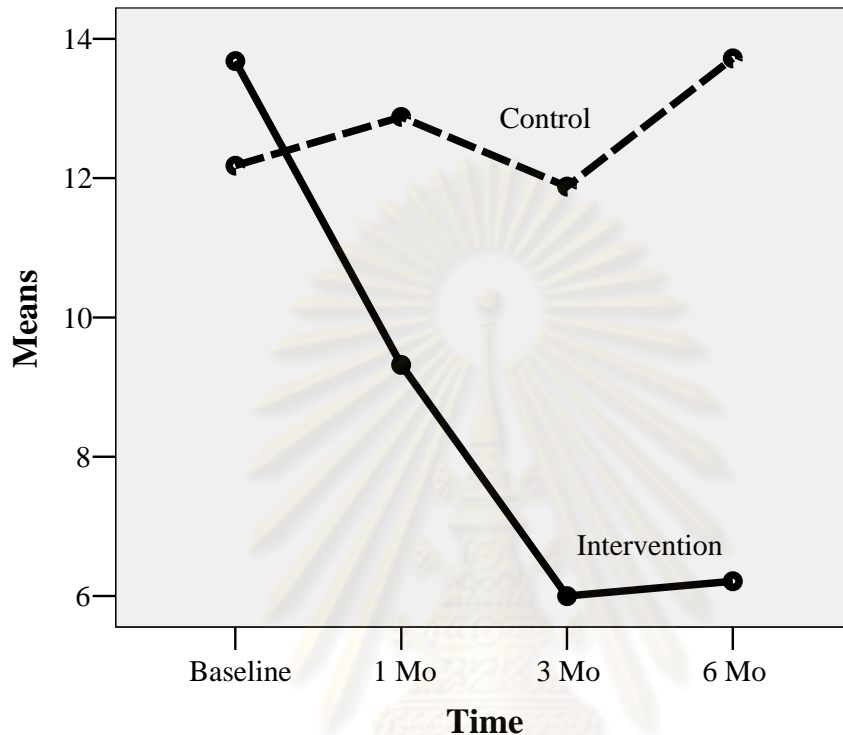
Linear regression results to frequency of drinking are shown in table 10. The intervention effect at 1 month compares the pre to 1 month post-intervention change in the intervention group to that in the control group. From pre-to 1 month post-intervention, frequency of drinking decreased by about 5 days in a month more in the intervention than the control group (p=.072). The intervention effect at 3 months compares the pre to 3 month post-intervention change in the intervention group to that in the control group. From pre-to 3 month post-intervention, frequency of drinking decreased by about 7 days in a month more in the intervention than the control group (p=.009). The intervention effect at 6 months compares the pre to 6 month post-intervention change in the intervention group to that in the control group. From pre-to 6 month post-intervention, frequency of drinking decreased by about 9 days in a month more in the intervention than the control group (p=.001). The F-statistic for the regression model, $F_{(7,380)}=5.045$, $p<0.001$

Table 10 The detail frequency interaction of drinking among moderate drinkers completing follow-up in intervention and control communities by Linear Regression

| Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	12.180	8.828	.000	9.467	14.893
Dummy for Intervention	1.501	.757	.449	-2.396	5.398
Dummy for 1-month follow-up	.700	.359	.720	-3.137	4.537
Dummy for 3-month follow-up	-.300	-.154	.878	-4.137	3.537
Dummy for 6-month follow-up	1.540	.789	.430	-2.297	5.377
Intervention effect at 1 month	-5.062	-1.806	.072	-10.573	.450
Intervention effect at 3 months	-7.381	-2.633	.009	-12.892	-1.869
Intervention effect at 6 months	-9.008	-3.214	.001	-14.520	-3.497

4.1.2.2 Frequency of heavy drinking

According to frequency of heavy drinking, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 11 and 12). This provides justification for using the linear regression model. As for the other dependent variables, parameter estimates for the time-intervention interaction (and other parameters) were the same in the GLM and the linear regression model. However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group. The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

In the linear regression model, the interaction term compares the pre- to post-intervention change in the intervention group to that in the control group.   From pre- to post-intervention, the modelled frequency of heavy drinking decreased 5.58 days more in the intervention group than in the control group (p=0.000, table 12). The F-statistic for the regression model is, F (3,384)=8.763, p<0.001.

Table 11 Repeated measures ANOVA for frequency of heavy drinking: Wilks' lambda test of intervention effect (groups time interaction)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Frequency of heavy drinking * intervention	Wilks' Lambda	.895	11.188(a)	1.0	95.0	.001	.105

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI	Partial Eta Squared	
					Lower Bound	Upper Bound
Frequency of heavy drinking pre-intervention	[Control]	-2.311	.145	-5.436	.814	.022
	[Intervention]	0(a)	.	.	.	.
Frequency of heavy drinking post-intervention	[Control]	3.271	.000	1.484	5.059	.122
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant

Table 12 The overall frequency of heavy drinking among moderate drinkers completing follow-up in intervention and control communities by Linear Regression

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	2.540	2.877	.004	.804	4.276
Dummy for intervention	2.311	1.822	.069	-.183	4.805
Dummy for time after the intervention	1.433	1.406	.161	-.571	3.438
Group time interaction (intervention effect)	-5.582	-3.811	.000	-8.462	-2.703

a   Dependent Variable: Frequency of heavy drinking

The detail of heavy drinking frequency shows that the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 13 and 14).   This provides justification for using the linear regression model.   However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention.   That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group.   The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

From Graph 2-comparing frequency of heavy drinking between baseline and after the follow-up at all intervals in the two communities, the intervention's graph clearly shows a continuous drop at every interval. In the meantime, the control's graph shows a continuous increase, especially after the follow-up at 6 months the graph increases more than the baseline. In sum, the intervention's group frequency of heavy drinking decreased more than that of the control group at every interval.

Table 13   The detail frequency interaction of heavy drinking among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Frequency of heavy drinking * Intervention	Wilks' Lambda	.862	4.949(a)	3.0	93.0	.003	.138

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI	Partial Eta Squared	
					Lower Bound	Upper Bound
Frequency of heavy drinking_baseline	[Control]	-2.311	.145	-5.436	.814	.022
	[Intervention]	0(a)	.	.	.	.
Frequency of heavy drinking_follow up at 1 month	[Control]	2.285	.056	-.059	4.628	.038
	[Intervention]	0(a)	.	.	.	.
Frequency of heavy drinking_follow up at 3 months	[Control]	3.103	.001	1.375	4.832	.118
	[Intervention]	0(a)	.	.	.	.
Frequency of heavy drinking_follow up at 6 months	[Control]	4.426	.001	1.741	7.110	.101
	[Intervention]	0(a)	.	.	.	.

a This parameter is set to zero because it is redundant

Graph 2 The estimated marginal mean of frequency of heavy drinking among moderate drinkers completing follow-up in intervention and control communities by Repeated Measure General Linear Model (GLM)
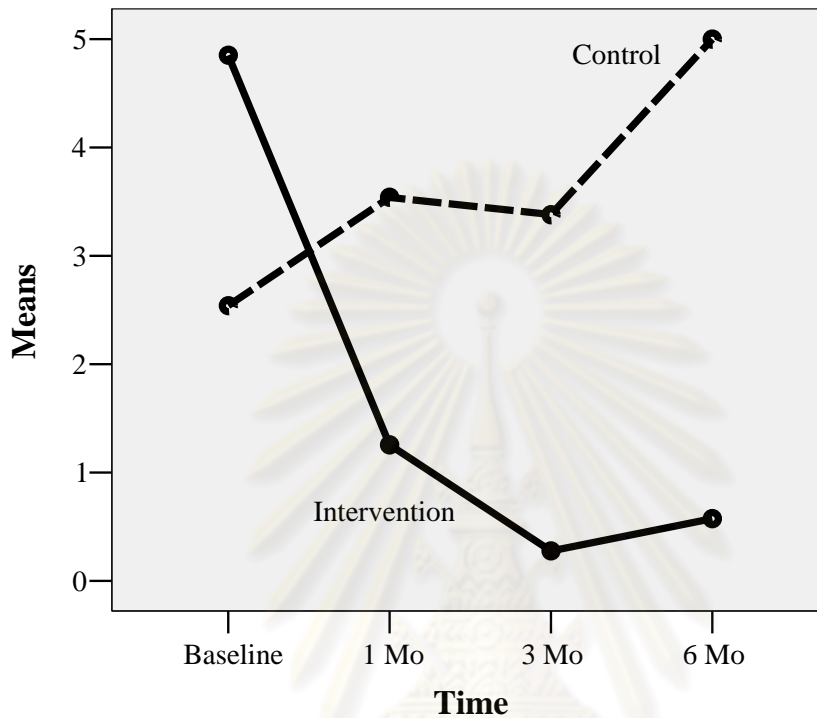

Linear regression results to frequency of heavy drinking are show in table 14. The intervention effect at 1 month compares the pre to 1 month post-intervention change in the intervention group to that in the control group. From pre-to 1 month post-intervention, frequency of heavy drinking decreased by about 4.59 days in a month more in the intervention than the control group (p=.011). The intervention effect at 3 months compares the pre to 3 month post-intervention change in the intervention group to that in the control group. From pre-to 3 month post-intervention, frequency of heavy drinking decreased by about 5.41 days in a month more in the intervention than the control group (p=.003). The intervention effect at 6 months compares the pre to 6 month post-intervention change in the intervention group to that in the control group. From pre-to 6 month post-intervention, frequency of drinking decreased by about 6.74 days in a month more in the intervention than the control group (p=.000). The F-statistic for the regression model is, F (7,380)=4.120, p<0.001.

Table 14 The detail frequency interaction of heavy drinking among moderate drinkers completing follow-up in intervention and control communities by Linear Regression.

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	2.540	2.872	.004	.801	4.279
Dummy for Intervention	2.311	1.819	.070	-.187	4.809
Dummy for 1-month follow-up	1.000	.799	.425	-1.459	3.459
Dummy for 3-month follow-up	.840	.672	.502	-1.619	3.299
Dummy for 6-month follow-up	2.460	1.967	.050	.001	4.919
Intervention effect at 1 month	-4.596	-2.557	.011	-8.129	-1.062
Intervention effect at 3 months	-5.414	-3.013	.003	-8.948	-1.881
Intervention effect at 6 months	-6.737	-3.749	.000	-10.270	-3.203

a   Dependent Variable: Frequency of heavy drinking

4.1.2.3 Average daily intake

For average daily intake, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 15 and 16).   This provides justification for using the linear regression model.   As for the other dependent variables, parameter estimates for the time-intervention interaction (and other parameters) were the same in the GLM and the linear regression model.   However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group.   The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative). In the linear regression model, the interaction term compares the pre- to post-intervention change in the intervention group to that in the control group.   From pre- to post-intervention, the modelled average daily intake decreased by 19.64 grams more in the intervention group than in the control group (p=0.000, table 16). The F-statistic for the regression model is, F (3,384)=15.55, p<0.001.

Table 15 The overall average daily intake (gm/30day) among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Average daily intake * intervention	Wilks' Lambda	.823	20.378(a)	1.0	95.0	.000	.177

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI		Partial Eta Squared
					Lower Bound	Upper Bound
Average daily intake pre-intervention	[Control]	-3.256	.408	-11.029	4.518	.007
	[Intervention]	0(a)	.	.	.	.
Average daily intake post-intervention	[Control]	16.383	.000	8.928	23.837	.167
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant.

Table 16 The overall average daily intake among moderate drinkers completing follow-up in intervention and control communities by Linear Regression

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	18.806	6.217	.000	12.859	24.753
Dummy for intervention	3.256	.749	.454	-5.288	11.800
Dummy for time after the intervention	4.856	1.390	.165	-2.012	11.724
Group time interaction (intervention effect)	-19.638	-3.914	.000	-29.504	-9.772

a   Dependent Variable: Average daily intake

For detail of average daily intake, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 17 and 18). This provides justification for using the linear regression model. However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group. The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

From Graph 3-comparing average daily intake between baseline and after the follow-up at all intervals in the two communities, the intervention's graph clearly shows a continuous drop at every interval. In the meantime, the control's graph shows an increase, especially after the follow-up at 6 months the graph increases more than the baseline. In sum, the intervention's group average daily intake decreased more than that of the control group at every interval.

Table 17 The detail average daily intake among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Average daily intake * intervention	Wilks' Lambda	.813	7.108(a)	3.000	93.000	.000	.187

a Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI		Partial Eta Squared
				Lower Bound	Upper Bound	
Average daily intake (gm/30day) baseline	[Control]	-3.256	.408	-11.029	4.518	.007
	[Intervention]	0(a)	.	.	.	.
Average daily intake (gm/30day) at 1 month	[Control]	13.287	.002	5.050	21.523	.097
	[Intervention]	0(a)	.	.	.	.
Average daily intake (gm/30day) at 3 months	[Control]	14.120	.000	8.948	19.292	.236
	[Intervention]	0(a)	.	.	.	.
Average daily intake (gm/30day) at 6 months	[Control]	21.741	.000	9.837	33.645	.122
	[Intervention]	0(a)	.	.	.	.

a This parameter is set to zero because it is redundant

Graph 3 The estimated marginal mean of average daily intake among moderate drinkers completing follow-up in intervention and control communities by Repeated Measure General Linear Model (GLM)
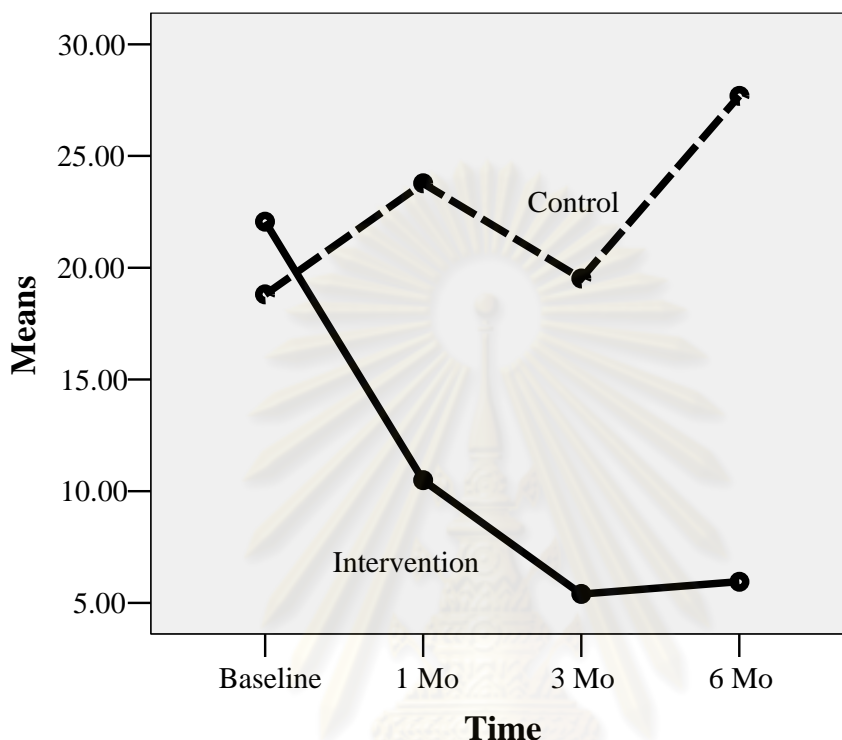
Linear regression results of average daily intake are shown in table 18. The intervention effect at 1 month compares the pre to 1 month post-intervention change in the intervention group to that in the control group. From pre-to 1 month post-intervention, average daily intake decreased by 16.54 grams in a month more in the intervention than in the control group (p=.007). The intervention effect at 3 months compares the pre to 3 month post-intervention change in the intervention group to that in the control group. From pre-to 3 month post-intervention, average daily intake decreased by 17.38 grams in a month more in the intervention than the control group (p=.005). The intervention effect at 6 months compares the pre to 6 months post-intervention change in the intervention group to that in the control group. From pre-to 6 months post-intervention, to average daily intake decreased by about 25 grams in a month more in the intervention than the control group (p=.000). The F-statistic for the regression model is, F (7,380)=7.440, p<0.001.

Table 18 The detail to average daily intake among moderate drinkers completing follow-up in intervention and control communities by Linear Regression

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	18.806	6.227	.000	12.868	24.744
Dummy For Intervention	3.256	.750	.453	-5.275	11.786
Dummy for 1-month follow-up	4.972	1.164	.245	-3.425	13.369
Dummy for 3-month follow-up	.712	.167	.868	-7.685	9.109
Dummy for 6-month follow-up	8.884	2.080	.038	.487	17.281
Intervention effect at 1 month	-16.542	-2.696	.007	-28.606	-4.479
Intervention effect at 3 months	-17.376	-2.832	.005	-29.439	-5.312
Intervention effect at 6 months	-24.997	-4.074	.000	-37.060	-12.933

a   Dependent Variable: Average daily intake

4.1.2.4 Intensity of drinking

The intensity of drinking, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 19 and 20).   This provides justification for using the linear regression model.   As for the other dependent variables, parameter estimates for the time-intervention interaction (and other parameters) were the same in the GLM and the linear regression model.   However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group.   The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

In the linear regression model, the interaction term compares the pre- to post-intervention change in the intervention group to that in the control group. From pre- to post-intervention, the modeled intensity of drinking decreased by 14.73 grams more in the intervention group than in the control group (p=0.073, table 20). The F-statistic for the regression model is, F (3,384)=19.667, p<0.001.

Table 19 The overall intensity of drinking (gm/drinking day) among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Intensity of drinking * intervention	Wilks' Lambda	.972	2.726(a)	1.0	95.0	.102	.028

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI	Partial Eta Squared	
					Lower Bound	Upper Bound
Intensity of drinking pre-intervention	[Control]	9.298	.269	-7.308	25.905	.013
	[Intervention]	0(a)	.	.	.	.
Intensity of drinking pre-intervention	[Control]	24.028	.000	13.404	34.651	.175
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant

Table 20 The overall intensity of drinking among moderate drinkers completing follow-up in intervention and control communities by Linear Regression.

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	60.624	12.287	.000	50.923	70.325
Dummy for intervention	-9.298	-1.312	.190	-23.235	4.639
Dummy for time after the intervention	-12.413	-2.179	.030	-23.615	-1.211
Group time interaction (intervention effect)	-14.729	-1.800	.073	-30.822	1.364

a   Dependent Variable: Intensity of drinking

For detail of intensity of drinking, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 21 and 22).   This provides justification for using the linear regression model.   However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention.   That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group.   The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

From Graph 4-comparing intensity of drinking between baseline and after the follow-up at all intervals in the two communities, the intervention's graph clearly shows a continuous drop at every interval. In the meantime, the control's graph shows an increase, especially after the follow-up at 6 month the graph is higher than the baseline. In sum, the intervention's group intensity of drinking decreased more than that of the control group at every interval

Table 21 The detail intensity of drinking among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Intensity of drinking * Intervention	Wilks' Lambda	.936	2.125(a)	3.000	93.000	.102	.064

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI		Partial Eta Squared
				Lower Bound	Upper Bound	
Intensity of drinking_baseline	[Control]	9.298	.269	-7.308	25.905	.013
	[Intervention]	0(a)	.	.	.	.
Intensity of drinking_follow up at 1 month	[Control]	23.820	.000	12.121	35.520	.147
	[Intervention]	0(a)	.	.	.	.
Intensity of drinking_follow up at 3 months	[Control]	21.960	.001	9.233	34.687	.110
	[Intervention]	0(a)	.	.	.	.
Intensity of drinking_follow up at 6 months	[Control]	26.303	.001	11.421	41.185	.115
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant

Graph 4 The estimated marginal mean of intensity of drinking among moderate drinkers completing follow-up in intervention and control communities by Repeated Measure General Linear Model (GLM)
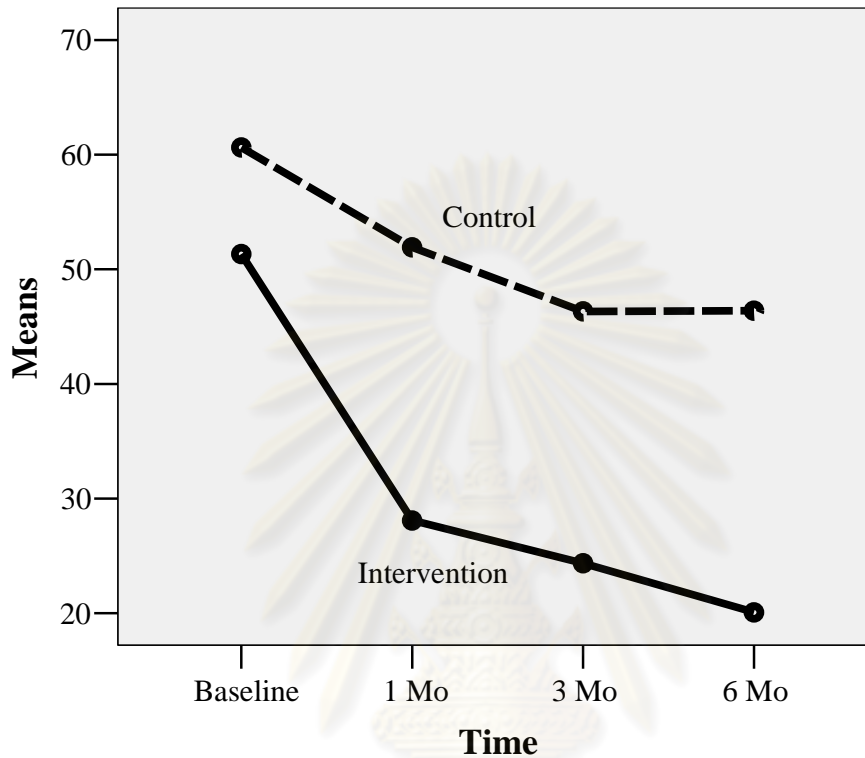
Linear regression results to intensity of drinking are shown in table 22. The intervention effect at 1 month compares the pre to 1 month post-intervention change in the intervention group to that in the control group. From pre-to 1 month post-intervention, intensity of drinking decreased by about 15 grams in a month more in the intervention than the control group. (p=.149) The intervention effect at 3 months compares the pre to 3 month post-intervention change in the intervention group to that in the control group. From pre-to 3 month post-intervention, intensity of drinking decreased by 12.66 grams in a month more in the intervention than the control group (p=.208). The intervention effect at 6 months compares the pre to 6 month post-intervention change in the intervention group to that in the control group. From pre-to 6 month post-intervention, intensity of drinking decreased by about 17 grams in a month more in the intervention than the control group (p=.091). The F-statistic for the regression model is, F (7,380)= 8.688, p<0.001.

Table 22 The detail intensity of drinking among moderate drinkers completing follow-up in intervention and control communities by Linear Regression.

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	60.624	12.256	.000	50.898	70.350
Dummy for Intervention	-9.298	-1.308	.191	-23.271	4.674
Dummy for 1-month follow-up	-8.706	-1.245	.214	-22.461	5.049
Dummy for 3-month follow-up	-14.296	-2.044	.042	-28.051	-.541
Dummy for 6-month follow-up	-14.236	-2.035	.043	-27.991	-.481
Intervention effect at 1 month	-14.522	-1.445	.149	-34.282	5.238
Intervention effect at 3 months	-12.661	-1.260	.208	-32.421	7.099
Intervention effect at 6 months	-17.004	-1.692	.091	-36.764	2.756

a   Dependent Variable: Intensity of drinking

4.1.2.5 Total consumption in a typical month

For total consumption in a typical month, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 23 and 24).   This provides justification for using the linear regression model.   As for the other dependent variables, parameter estimates for the time-intervention interaction (and other parameters) were the same in the GLM and the linear regression model.   However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group.

The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative). In the linear regression model, the interaction term compares the pre- to post-intervention change in the intervention group to that in the control group. From pre- to post-intervention, the modelled total consumption in a typical month decreased by 588.94 grams more in the intervention group than in the control group (p=0.000, table 24). The F-statistic for the regression model is, F (3,384)=15.547, p<0.001.

Table 23 The overall total consumption in a typical month among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Total consumption in a typical month * intervention	Wilks' Lambda	.823	20.365(a)	1.0	95.0	.000	.177

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI	Partial Eta Squared Lower Bound	Upper Bound
Total consumption in a typical month pre-intervention	[Control]	-97.458	.409	-330.643	135.726	.007
	[Intervention]	0(a)	.	.	.	.
Total consumption in a typical month post-intervention	[Control]	491.478	.000	267.821	715.136	.167
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant.

Table 24 The overall total consumption in a typical month among moderate drinkers completing follow-up in intervention and control communities by Linear Regression.

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	564.123	6.216	.000	385.694	742.553
Dummy for intervention	97.458	.748	.455	-158.875	353.792
Dummy for time after the intervention	145.687	1.390	.165	-60.346	351.720
Group time interaction (intervention effect)	-588.937	-3.912	.000	-884.925	-292.949

a   Dependent Variable: Total consumption in a typical month

For detail of total consumption in a typical month, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 25 and 26). This provides justification for using the linear regression model. However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group. The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

From Graph 5-comparing total consumption in a typical month between baseline and after the follow-up at all intervals in the two communities, the intervention's graph clearly shows a continuous drop at every interval. In the meantime, the control's graph shows an increase, especially after the follow-up at 6 months the graph increases more than the baseline. In sum, the intervention's group total consumption in a typical month decreased more than that of the control group at every interval.

Table 25 The detail total consumption in a typical month among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Total consumption in a typical month * Intervention	Wilks' Lambda	.814	7.106(a)	3.0	93.0	.000	.186

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI		Partial Eta Squared
				Lower Bound	Upper Bound	
Total consumption in a typical month_baseline	[Control]	-97.458	.409	-330.643	135.726	.007
	[Intervention]	0(a)	.	.	.	.
Total consumption in a typical month_follow up at 1 month	[Control]	398.538	.002	151.421	645.654	.097
	[Intervention]	0(a)	.	.	.	.
Total consumption in a typical month_follow up at 3 months	[Control]	423.687	.000	268.507	578.867	.236
	[Intervention]	0(a)	.	.	.	.
Total consumption in a typical month_follow up at 6 months	[Control]	652.211	.000	295.072	1009.349	.122
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant

Graph 5 The estimated marginal mean of total consumption in a typical month among moderate drinkers completing follow-up in intervention and control communities by Repeated Measure General Linear Model (GLM)
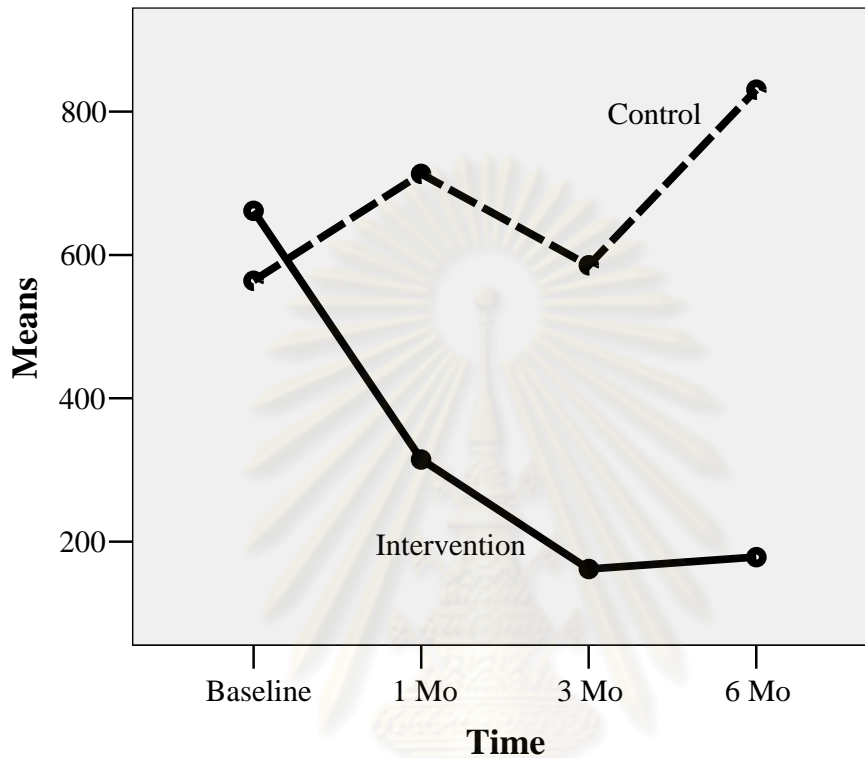
       Linear regression results to total consumption in a typical month are shown in table 26. The intervention effect at 1 month compares the pre to 1 month post-intervention change in the intervention group to that in the control group. From pre-to 1 month post-intervention, total consumption in a typical month decreased by about 496 grams in a month more in the intervention than the control group (p=.007). The intervention effect at 3 months compares the pre to 3 month post-intervention change in the intervention group to that in the control group. From pre-to 3 month post-intervention, total consumption in a typical month decreased by 521.15 grams in a month more in the intervention than the control group (p=.005). The intervention effect at 6 months compares the pre to 6 month post-intervention change in the intervention group to that in the control group. From pre-to 6 month post-intervention, total consumption in a typical month decreased by about 750 grams in a month more in the intervention than the control group (p=.000). The F-statistic for the regression model is, F (7,380)=7.438, p<0.001.

Table 26 The detail total consumption in a typical month among moderate drinkers completing follow-up in intervention and control communities by Linear Regression.

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	564.124	6.226	.000	385.982	742.265
Dummy for Intervention	97.458	.749	.454	-158.460	353.377
Dummy for 1-month follow-up	149.121	1.164	.245	-102.808	401.051
Dummy for 3-month follow-up	21.429	.167	.867	-230.500	273.359
Dummy for 6-month follow-up	266.511	2.080	.038	14.582	518.441
Intervention effect at 1 month	-495.996	-2.695	.007	-857.919	-134.073
Intervention effect at 3 months	-521.145	-2.831	.005	-883.068	-159.222
Intervention effect at 6 months	-749.669	-4.073	.000	-1111.592	-387.746

a   Dependent Variable: Total consumption in a typical month

4.1.3 Alcohol Use Disorder Identification Test (AUDIT)

4.1.3.1 Total AUDIT score

For total AUDIT score, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 27 and 28). This provides justification for using the linear regression model. As for the other dependent variables, parameter estimates for the time-intervention interaction (and other parameters) were the same in the GLM and the linear regression model. However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group. The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

In the linear regression model, the interaction term compares the pre- to post-intervention change in the intervention group to that in the control group. From pre- to post-intervention, the modeled total AUDIT score decreased by 7 points more in the intervention group than in the control group (p=0.000, table 28). The F-statistic for the regression model is, $F(3,384)=33.254$, $p<0.001$.

Table 27 The overall total AUDIT score among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Total AUDIT score * intervention	Wilks' Lambda	.657	49.618(a)	1.0	95.0	.000	.343

a   Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI	Partial Eta Squared	
					Lower Bound	Upper Bound
Total AUDIT score pre-intervention	[Control]	-.773	.297	-2.238	.691	.011
	[Intervention]	0(a)	.	.	.	.
Total AUDIT score post-intervention	[Control]	6.318	.000	3.994	8.642	.235
	[Intervention]	0(a)	.	.	.	.

a   This parameter is set to zero because it is redundant

Table 28 The overall total AUDIT score among moderate drinkers completing follow-up in intervention and control communities by Linear Regression.

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	10.780	13.322	.000	9.189	12.371
Dummy for intervention	.773	.665	.506	-1.513	3.059
Dummy for time after the intervention	1.240	1.327	.185	-.597	3.077
Group time interaction (intervention effect)	-7.091	-5.283	.000	-9.730	-4.452

a   Dependent Variable: Total AUDIT score

For detail of total AUDIT score, the p-values for the time-intervention interaction were very similar in the repeated-measures ANOVA (GLM) and the linear regression model (tables 29 and 30). This provides justification for using the linear regression model.   However, in the GLM, it is necessary to calculate the parameter estimate for post-intervention by subtracting that for pre-intervention. That is, the GLM does not give direct parameter estimates of p-values for pre- to post-intervention changes in the intervention group compared to the control group.   The linear regression model does give these estimates and p-values (even though the p-values are calculated under the assumption of independent observations, and therefore tend to be conservative).

From Graph 6-comparing total AUDIT score between baseline and after the follow-up at all intervals in the two communities, the intervention's graph clearly shows a continuous drop at every interval. In the meantime, the control's graph shows an increase, especially after the follow-up at 6 month the graph increases more than the baseline. In sum, the intervention's group total AUDIT score decreased more than that of the control group at every interval.

Table 29 The detail total AUDIT score among moderate drinkers completing follow-up in intervention and control communities by Repeated General Linear Model (GLM)

Effect		Value	F	Hypothesis df	Error df	p-value	Partial Eta Squared
Total AUDIT score * intervention	Wilks' Lambda	.652	16.555(a)	3.0	93.0	.000	.348

a Exact statistic

Dependent Variable	Parameter	B	p-value	95% CI		Partial Eta Squared
				Lower Bound	Upper Bound	
Total AUDIT score baseline	[Control]	-.773	.297	-2.238	.691	.011
	[Intervention]	0(a)	.	.	.	.
Total AUDIT score follow up at 1 month	[Control]	4.781	.000	2.422	7.140	.146
	[Intervention]	0(a)	.	.	.	.
Total AUDIT score follow up at 3 months	[Control]	6.492	.000	4.075	8.910	.230
	[Intervention]	0(a)	.	.	.	.
Total AUDIT score follow up at 6 months	[Control]	7.680	.000	4.901	10.459	.241
	[Intervention]	0(a)	.	.	.	.

a This parameter is set to zero because it is redundant

Graph 6 The estimated marginal mean of total AUDIT score among moderate drinkers completing follow-up in intervention and control communities by Repeated Measure General Linear Model (GLM)
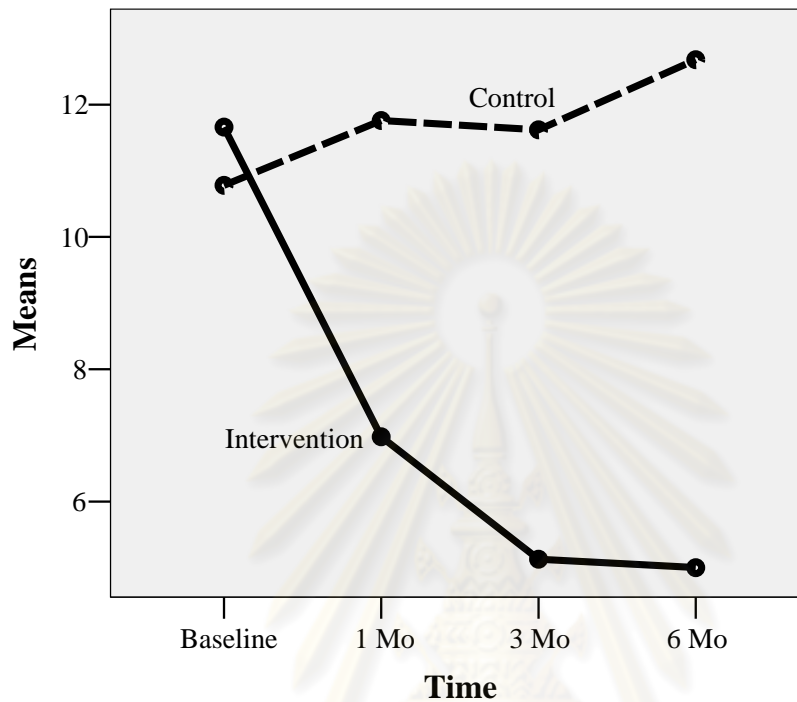
Linear regression results to total AUDIT score are show in table 30. The intervention effect at 1 month compares the pre to 1 month post-intervention change in the intervention group to that in the control group. From pre-to 1 month post-intervention, total AUDIT score decreased by about 5 days in a month more in the intervention than the control group (p=.001). The intervention effect at 3 months compares the pre to 3 month post-intervention change in the intervention group to that in the control group. From pre-to 3 month post-intervention, total AUDIT score decreased by about 7 points in a month more in the intervention than the control group (p=.000). The intervention effect at 6 months compares the pre to 6 month post-intervention change in the intervention group to that in the control group. From pre-to 6 month post-intervention, total AUDIT score decreased by 8.45 points in a month more in the intervention than the control group (p=.000). The F-statistic for the regression model is, F (7,380)=14.920, p<0.001.

Table 30 The detail total AUDIT score among moderate drinkers completing follow-up in intervention and control communities by Linear Regression.

Model	Unstandardized Coefficients B	t	p-value	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	10.780	13.331	.000	9.190	12.370
Dummy for Intervention	.773	.666	.506	-1.511	3.057
Dummy for 1-month follow-up	.980	.857	.392	-1.269	3.229
Dummy for 3-month follow-up	.840	.735	.463	-1.409	3.089
Dummy for 6-month follow-up	1.900	1.661	.097	-.349	4.149
Intervention effect at 1 month	-5.554	-3.381	.001	-8.785	-2.324
Intervention effect at 3 months	-7.266	-4.422	.000	-10.496	-4.035
Intervention effect at 6 months	-8.453	-5.145	.000	-11.683	-5.223

a   Dependent Variable: Total AUDIT score

When classifying the consumption behavior again by AUDIT score comparing before TGCBI and 1, 3 and 6 months of follow-up, it was found that in the intervention group before TGCBI there were 47 moderate drinkers; after the follow-up at 1-month interval; 11 of them abstained from drinking; 13 of them were little drinkers; the rest remained moderate drinkers. As regards after the follow-up at 3-month interval, among 47 moderate drinkers, 14 abstained from drinking; 18 were little drinkers, the rest remained moderate drinkers. Regarding after the follow-up at 6-month interval after 6-month interval, from 47 moderate drinkers at the baseline, 17 abstained from drinking; 15 were little drinkers; the rest remained moderate drinkers. It is evident that after the follow-up at all intervals, there was a continuous increase of drinking abstainers in moderate drinkers, and this group has finally become little drinkers. The most important of all, they were no longer classed as alcohol dependent (Graph 7).

Graph 7: Graph demonstrates number of moderate drinkers and consumption behavior in Nong-Na community (Intervention)
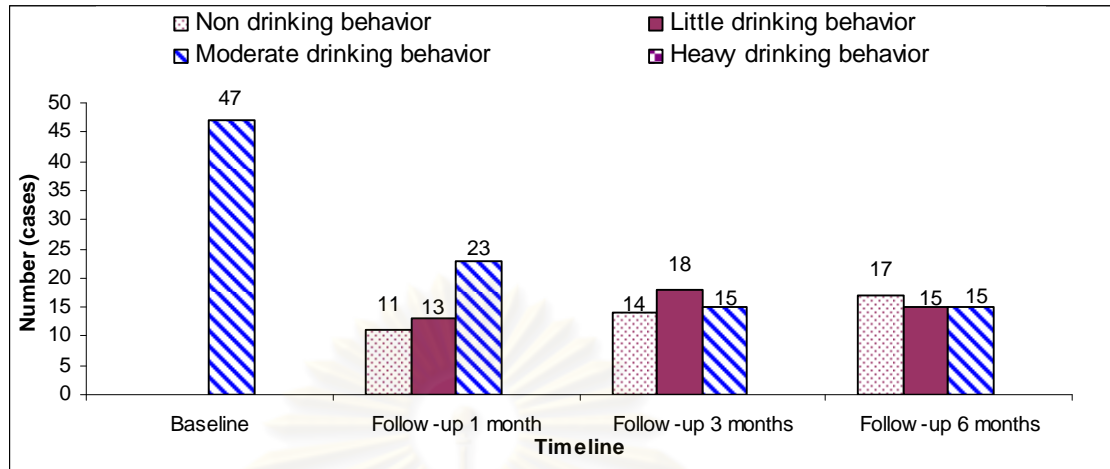
As far as consumption behavior in Bua-Choom (control) is concerned, before TGCBI there were 50 moderate drinkers. After the follow-up at 1-month interval, 4 moderate drinkers abstained from drinking; 4 were little drinkers; 36 remained moderate drinkers, and of great significance 6 of them became alcohol dependent. Regarding after the follow-up at 3-month interval, among 50 moderate drinkers, 7 abstained from drinking; 4 were little drinkers; 4 were alcohol dependent; the rest remained moderate drinkers. After the follow-up at 6-month interval, among 50 moderate drinkers, 10 abstained from drinking; 3 were little drinkers; 29 were moderate drinkers. Noticeably, 8 moderate drinkers became alcohol dependent. It stipulated that all intervals, most of the moderate drinkers still drank at a moderate level. Only a small number abstained from drinking or drank a little. Evidently, some of moderate drinkers had become alcohol dependent. (Graph 8)

Graph 8: Graph demonstrates number of moderate drinkers and consumption behavior in Bua-Choom community (Control)
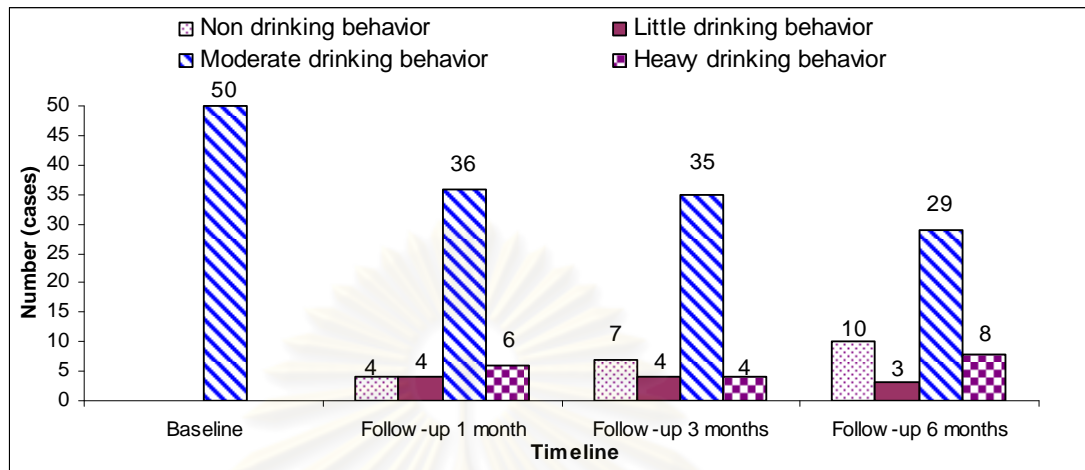
CHAPTER V

SUMMARY AND RECOMMENDATION

This research aimed to study the effect of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) on reducing alcohol consumption among moderate drinkers. This chapter consists of five parts as follows:

5.1 DISCUSSIONS

The findings on the four outcomes of alcohol consumption in these moderate drinkers has answered that TGCBI has proved effective in the community. The four outcomes herewith stated are;

1. change frequency of drinking (drinking day/month)

2. change frequency of heavy drinking (heavy drinking day/month)

3. change average daily intake (gm/day)

4. change intensity of drinking (gm/drinking day)

The results obtained overall and the detailed results of all four outcomes are as follows:

The overall results found that in pre-intervention to post-intervention, the frequency of drinking decreased by 7.15 days more in the intervention group than in the control group p=0.002. With regard to frequency of heavy drinking there was a decrease of 5.58 days more in the intervention group than in the control group p=0.000. When looking at average daily intake there was a decrease of 19.64 grams more in the intervention group than in the control group p=0.000. In addition intensity of drinking decreased 14.73 grams more in the intervention group than in the control group p=0.073.

The results also show that the pre-intervention to 1 month post-intervention, frequency of drinking decreased by about 5 days in a month more in the intervention group than in the control group (p=.072), pre-intervention to 3 month post-

intervention, decreased by about 7 days in a month more in the intervention group than the control group (p=.009) and pre-intervention to 6 month post-intervention decreased by about 9 days in a month more in the intervention than in the control group (p=.001).

Turning now to look at frequency of heavy drinking from pre-intervention to 1 month post-intervention, there was a decrease of about 4.59 days in a month more in the intervention group than in the control group (p=.011). The pre-intervention to 3 month post-intervention showed a decrease of about 5.41 days in a month more in the intervention group than in the control group (p=.003). The pre-intervention to 6 month post-intervention results showed a decrease of about 6.74 days in a month more in the intervention group than in the control group (p=.000). With regard to the average daily intake from pre-intervention to 1 month post-intervention there was a decrease of 16.54 grams in a month more in the intervention group than in the control group (p=.007) and the pre-intervention to 3 month post-intervention results showed a decrease of 17.38 grams in a month more in the intervention group than in the control group (p=.005). In the pre-intervention to 6 month post-intervention results there was a decrease of about 25 grams in a month more in the intervention group than in the control group (p=.000). Moreover, the intensity of drinking from pre-intervention to 1 month post-intervention showed a decrease of about 15 grams in a month more in the intervention group than in the control group (p=.149). The pre-intervention to 3 month post-intervention showed a decrease of 12.66 grams in a month more in the intervention group than in the control group (p=.208) and the pre-intervention to 6 month post-intervention revealed a decrease of about 17 grams more in a month in the intervention group than in the control group (p=.091).

This study answers the hypothesis that TGCBI can reduce alcohol consumption (change frequency of drinking, change frequency of binge drinking, change average daily intake and change intensity of drinking) among moderate drinkers. The results clearly show that the intervention group had more positive outcomes on each of the four measures when compared with the control group. It is evident from the above findings that the outcomes are significant and it proves that TGCBI was effective in the trial community. The effectiveness of TGCBI possibly derives from the following five factors:

1.   Participants: Participants were classified as moderate drinkers and they were also well-motivated. This motivation is evidenced by their voluntary commitment to reduce alcohol consumption. (Participants in the control community did not receive TGCBI.)

Facilitators: The facilitators were well trained on the skills needed and closely followed the instructions in the TGCBI manual to be empathic, give warm reflection and encourage participants during treatment. The facilitators discussed any problems together with the client through an ongoing review of the treatment plan looking at his or her expectations for next session.

The above factors which are important in inducing change are vital to reducing alcohol intake as Gaume et al (2008: 62) indicate in their study which showed that the more the patient expresses ability to change during the intervention, the more weekly alcohol use decreases.

2. Model design

A new model to evaluate alcohol consumption with moderate drinkers in the community, administered as "TGCBI". The TGCBI model consists of the following 3 conceptual components: (1) the facilitators and the participants interact closely, in accord with the WHO brief intervention guidelines (FRAMES guidelines). The FRAMES guidelines (Babor et al., 1992) consist of **F**eedback, **R**esponsibility, **A**dvice, **M**enu of Option, **E**mpathy and **S**elf-Efficacy; (2) the participant voluntarily specifies goals for drinking reduction, and endeavors to achieve these goals alone and with support and advice from family and other community members; (3) the facilitators work closely with key informants, e.g., monks, physicians, and former drinkers, in developing an intervention plan appropriate for the community. In this stage, key informants can be a resource to complete the FRAMES. The following section gives more detail on the components outlined above.

2.1 The main components of The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) consist of

T= Tailored: This model is designed to address the specific needs and problems of individual drinkers in the community and to offer them suitable ways for reducing alcohol consumption.

G= Goal Oriented: Moderate drinkers voluntarily set their own specific goals and choose a change strategy from a menu of alternatives, rather than being given only a single option.

C= Community: The model was modified by the research team to reflect the environment and the community context. The cultural context in this community is as follows:

-In the community: Participants and other people who live within the community are well known to each other and good relationships exist in the neighborhood.

-Believe: It is a cohesive community with belief in religion and trust in monks, doctors and health personnel. There is also respect for leadership in the community,

-Raise Awareness: There is a high awareness of the real situation in the community such as who does not drink alcohol or who has been affected by illness or disease or who has come to harm from alcohol consumption.

-Ideal person: Participants are ready to reduce alcohol consumption within the groups' treatment.

-Take leadership, Monks, Doctors and Health personnel from the community work together closely with facilitators planning how to achieve their goals to reduce alcohol consumption.

-Participants are honest about their commitment.

BI= Brief Intervention: Based on FRAMES (Babor et al., 1992) i.e. **F**eedback to the individual in personal risk, impairment, and current status; **R**esponsibility placed on the individual for personal change; **A**dvice to change; **M**enu of alternative treatment or self-help options and strategies offered to the individual; **E**mpathic nature engendered by the clinician; and **S**elf-efficacy reinforcing the individual's sense of hope and optimism for success.

The point of discussion is to note that in model design, the effective of brief interventions as a routine mass intervention approach has been exaggerated. Even after extensive research, little is known of the effective ingredients and the most effective methods of delivery. Reviews of brief interventions have been

overly selective, and meta-analysis in this area is problematic. It is argued that such reviews lead to overgeneralization and turn attention away from promising specialist treatment or personal health in community approaches. (Drummond, 1997:375)

      3. TGCBI process:

We used TGCBI which is simple, precise and brief. The facilitators implemented TGCBI which they tailored for each participant. The participant received information on their current alcohol consumption status. The individually tailored process provided the participants with information, an assessment of the problem, an opportunity to discuss his or her drinking and a chance to find the best way to reduce alcohol consumption for them.

The TGCBI implemented the principle of Brief Intervention based on FRAMES elements. A careful adaptation to the community context was necessary at the initial stage in order to achieve this change. Facilitators gathered as much information as possible about participants before the first session. The intervention itself is structured and focused on alcohol consumption. Its primary goals are to raise awareness of problems and then to recommend a specific change or to encourage reduced consumption.

Firstly, Feedback, moderate drinkers were first asked to evaluate their drinking level before the facilitators provided individual's feedback about their risks associated with continued drinking, based on their current drinking patterns, problem indicators, and health status. After participants had received data about their drinking levels, the facilitators tried to increase awareness of risks associated with hazardous and harmful alcohol consumption, enhance the participants' motivation to change their drinking behavior. The above was undertaken in an empathic style to try to increase the participant's acceptance of risk perception. This stage is base on Social Cognitive Theory (Bandura, 1977), human functioning is explained in terms of a model of triadic reciprocity in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other. A study by Monti, (2008:51) indicated that personalized feedback is more effective at reducing alcohol consumption in young adults when delivered in the context of motivational interviewing.

Secondly, Responsibility, the facilitators would probe the drinkers to revitalise their feelings of responsibility for society. The facilitators encouraged them to take responsibility for selecting and working on behavioral change in a way most comfortable for them. In this step, the facilitators encouraged patients to develop, implement and commit to plans to stop or reduce alcohol consumption. A high level of perceived risk engenders a search for possible actions that one could take to reduce risk. Person feedback and clear advice to change are aimed at increasing the person's perception of risk. The perception of self-efficacy may be further enhanced by an emphasis on personal responsibility, and by offering a menu from which a person can choose acceptable and useful strategies. (Roger, 1975). This element is confirmed by Thomsen and Fulton (2007: 27) who point that, as in this study, the voluntary nature in which people participate needs to be reinforced in terms of personal responsibility and self-efficacy in order for the intervention to be most effective.

Thirdly-Advice to change, give clear advice about the importance of changing current drinking patterns and a recommended level of consumption. The process in providing knowledge and appropriate understanding regarding alcohol consumption is undertaken with the cooperation of reliable abstinent drinkers who may share experiences, people in the community i.e. monks, doctors, health personnel, community leaders and facilitators together with documentary and self help materials i.e. booklets, brochures and videos. All of these enable moderate drinkers to be more knowledgeable and understanding resulting in a control and subsequent reduction in alcohol consumption. Participants most likely to benefit from TGCBI may be those moderated drinkers who are assessing their alcohol use and reducing their consumption. Social Cognitive Theory (Bandura, 1977) could be used to help a participant reduce alcohol consumption in so far as a drinker may be more willing to learn from an abstinent drinker who may share experiences that resonate with a participant's unique personal history. The information provided by monks, doctors, health personnel, community leaders, facilitators and self help materials, when combined with a supportive environment, would help them to reduce alcohol consumption. In addition it has been suggested that symbolism has a remarkable capacity and that to use symbols, which touch virtually every aspect of people's lives, provides them with a powerful means of altering and adapting to their environment. Through symbols people process and transform transient experience into internal

models that serve as guides for future action. Moreover, Social Cognitive Theory of vicarious capability addressed about psychological theories have traditionally assumed that learning can occur only by performing responses and experiencing their effects. Learning through action has thus been given major, if not exclusive, priority. In comparison Walton et al. (2008: 62) support that the individuals who attributed their injury to alcohol and received advice had significantly lower levels of average weekly alcohol consumption and less frequent heavy drinking from baseline to 12-month follow-up compared with those who attributed their injury to alcohol but did not receive advice. According to matching: The individual might consider setting a specific limit on alcohol consumption, learning to recognize the antecedents of drinking, and developing skills to avoid drinking in high-risk situations, pacing one's drinking and learning to cope with everyday problems that lead to drinking. This stage in Social Cognitive Theory (Bandura, 1977) describes learning in terms of the interrelationship between behavior, environmental factors, and personal factors. It also provides the theoretical framework for interactive learning used to develop both Constructivism and Cooperative Learning. Because SCT is based on understanding an individual's reality construct, it is especially useful when applied to interventions aimed at personality development, behavior pathology, and health promotion.

Goal setting: Drinkers will set their exact drinking volume and the date they wish to reduce/stop drinking in a written agreement. The forethought capability of Social Cognitive Theory suggested that people anticipate the likely consequences of their prospective actions, they set goals for themselves, and they otherwise plan courses of action for cognized futures, for many of which established ways are not only ineffective but may also be detrimental. This factor has been confirmed in many studies, such as the one conducted by Murgraff et al. (1996: 37) who found that behavior change is increased by planning how, where, and when to execute a behavioral response, in which a brief planning intervention was designed and its effectiveness was compared to an information-based health promotion program. A recent study conducted by Heather et al. (2010: 136) which found that client's personal drinking goals should be discussed in assessment at treatment entry and as a basis for negotiation. Clinicians should be prepared to identify and support goal change as an unexceptional part of the treatment process that need not jeopardize positive outcomes.

Fourthly –Menu of option, a free discussion is entered into between moderate drinkers and facilitator's who offer advice in finding the most suitable pattern of reducing alcohol consumption. Ask the patient to suggest some strategies for achieving these goals. The participants were usually offered a menu of options or strategies for accomplishing the target goal. This approach emphasises the individual's choice to reduce drinking patterns and allows them to choose the approach best suited to their own situation. For this stage social learning theory suggests that behavior is influenced by actual consequences of behavior, as well as observations and self-reflection about potential consequences (Bandura, 1977). Through reminding people about potential consequences and possible strategies to reduce risk, assessment may help them not only to adopt new behaviors, but also to remember behaviors that they observe in others. In addition to this, self-reflective capability enables people to analyze their experiences and to think about their own thought processes. Moreover, self determination theory (Deci, 1975) suggests that people are more likely to make changes that are perceived as having been freely chosen when they believe they are competent to make change, and when those changes are supported by others. Similarly, several studies looking at moderating binge drinking have reported that behavior change is increased by planning how, where, and when to execute a behavioral response. A brief planning intervention was designed and its effectiveness compared to an information-based health promotion program. (Murgraff et al., 1996: 37-41)

The fifth stage is Empathy-from the beginning until the completion of the interventions the drinkers were ensured that the facilitators would give them understanding and empathic reflection about their problems whilst they were reducing their alcohol consumption. TGCBI supported a specific and strong relationship between facilitators' empathy and drinking outcomes. In this stage Rogers (1959) hypothesized that accurate empathy, congruence, and positive regard are critical therapeutic conditions that create an atmosphere of safety and acceptance in which clients are free to explore and change. This factor is confirmed in a study by Williams and Stickley (2010) where they point out that the patients want empathic and emotionally competent nurses. The educators therefore have a responsibility to provide an education that engenders empathic understanding.

The sixth stage is Self Efficacy-the facilitators gave drinkers moral support that they could positively change their drinking behavior by themselves. The participants become more confident that they can change their drinking behavior (drinking reduction/abstinence). This stage is based on self efficacy which is based on a belief in one's ability to perform a specific task or accomplish a specific change (Bandura, 1982a). Moreover, the Protection Motivation Theory (Rogers, 1975) suggested self-efficacy is the belief in one's ability to execute the recommended courses of action successfully. In this stage of self efficacy similar to the Walton et al. (2008: 62) study the participants who reported higher levels of self-efficacy had lower weekly consumption and consequences, whereas those with higher readiness to change had greater weekly consumption and consequences.

The last stage is Follow-up-the follow-up visits will provide an opportunity to monitor progress and to encourage the client's motivation and ability to make positive changes. The facilitators reviewed the participants' goal of drinking reduction/abstinence, assessing any new problems which may be necessary for setting clear solutions and new options or new goals. This stage is based on self-regulation (Bandura, 1977). There are six ways in which self-regulation is achieved: 1) self-monitoring is a person's systematic observation of their own behavior; 2) goal-setting is the identification of incremental and long-term changes that can be obtained; 3) feedback is information about the quality of performance and how it might be improved; 4) self-reward is a person's provision of tangible rewards for themselves; 5) self-instruction occurs when people talk to themselves before and during the performance of complex behavior, and 6) enlistment of social support is achieved when a person finds people who encourage their efforts to exert self-control. Wutzke et al. (2002: 665) noted that the intervention effect at nine months follow-up, no such effect was found at 10 years follow-up, in median consumption, mean reduction in consumption from baseline to follow-up. Similarly, a project about Brief Interventions for alcohol problems: a review by Bien et al., (1993:315), found there is encouraging evidence that the course of harmful alcohol use can be effectively altered by well-designed intervention strategies which are feasible within relatively brief-contact contexts such as primary health care settings and employee assistance programs.

4. Community context-This model encourages prevention at an early stage in the community to protect drinkers from becoming alcohol dependent. This project helped to demonstrate the potential of using TGCBI strategies to reduce alcohol consumption in community settings. Moreover, the booster sessions were conducted by the same facilitator as the baseline, and consisted of a review of the baseline session and discussion of what had occurred since that session. Progress toward goals was discussed, and according to the interest of the participant, new goals were set. The booster conditions are required to help sustain the most beneficial intervention. This finding is confirmed by a study conducted by Bernstein et al. (2007: 79) who point that booster sessions, trained assistants and infrastructure support may be needed to sustain changes over the longer term. Moreover Wutzke et al. (2002: 665) suggested that to enhance the effectiveness of brief interventions over the long term, health-care providers might need to provide ongoing monitoring of patients. A similar set of randomized control trials in community-based primary care practices (Fleming et al., 1997: 1039) also reported that at the time of the 12-month follow-up, there were significant reductions in 7-day alcohol use.

Comparing the results from this study with those detailed in systematic reviews has confirmed the efficacy of brief intervention in reducing risky levels of alcohol consumption in non-dependent individuals (Bien et al., 1993: 315; Kahan et al., 1995: 851; Wilk et al., 1997: 274; Poikolainen, 1999: 503; Moyer et al., 2002: 279). Other studies of treatment interventions for hazardous and harmful drinkers in primary care settings demonstrate that brief interventions may effectively decrease alcohol consumption, improve liver function (among patients with previously elevated liver enzyme levels), and decrease the use of certain health services (Bien et al., 1993:315; Fleming et al., 1997: 1039; Wilk et al., 1997: 274). Brief Intervention strategies have further been shown to be effective in clinical settings (Bien et al., 1993:315-336, Saunders et al., 1993: 349; WHO Brief Intervention Study Group, 1996: 948; Fleming et al., 1997: 1039). Others studies have shown Brief Intervention to be effective in a range of clinical and non-clinical settings among non-dependent drinkers (Bien et al., 1993: 315; Bertholet et al., 2005: 986). A recent systematic review (Bertholet et al., 2005: 986-995) on the efficacy of brief alcohol intervention concluded that intervention could reduce alcohol consumption. Another study on brief interventions found that they were an important and effective way to reduce alcohol

related harm, especially in primary care settings (Kaner et al., 2007: 1186, 2009: 301). This treatment strategy has been shown to be as effective for heavy drinkers as more intensive interventions, more cost-effective due to the length of treatment and can be used in a wide variety of primary care settings to reach a large number of patients. Significant reductions of up to 30% in alcohol consumption have been achieved in a variety of health care settings, including hospital and general practice (Bertholet et al., 2005: 986; Kaner et al., 2007: 1186; Kaner et al., 2009: 301). Brief interventions in primary care are also cost-effective (Wutzke et al., 2002: 665).

5.2 LIMITATION

5.2.1 This study recruited only moderate drinkers and voluntary drinkers to reduce alcohol consumption.

5.2.2 The present study was a quasi-experimental study, not a randomized trial. The intervention and control groups were nested in different communities, and the reported results could thus have been subject to larger type 1 error than the data analysis suggests.

5.2.3 TGCBI could be applied as a concept to situations with a similar demographic and with similar resources in the community. Generalization can only be made with studies using a volunteer base and across similar groups of people.

5.2.4 This study could not be undertaken in laboratory conditions to confirm the result.

5.2.5 This research did not measure the stages of change model.

5.3 RECOMMENDATIONS

Our study suggests that TGCBI implementation has been successful in many respects, and that it is a suitable tool for public health personnel in hospitals and health centers to identify alcohol use disorder, to undertake consultations, to provide accurate knowledge and understanding about alcohol consumption and to reduce alcohol dependence in the community. Insomuch as TGCBI is a simple and short process, it is postulated that close and continuous monitoring of consumption behavior coupled with any obstacles related to drinking should be in practice. In addition, more cooperation from pertinent sectors in providing information and

positive attitudes should be enhanced to substantiate the achievement in the communities where TGCBI has been implemented. Moreover, we should enhance the motivation process in TGCBI because it is clear that motivation encourages clients to make a strong commitment to reduce alcohol consumption and to follow through on their commitment.

Likewise, TGCBI should be implemented in communities with similar demographic characteristics to avoid consumption increases in moderate drinkers and prevent them from becoming alcohol dependent. As earlier mentioned, all sectors concerned can use the database to set their work plans or strategies for administration, prevention and solution more objectively and effectively.

5.4 FURTHER RESEARCH

1. Implementation of Tailored Goal Oriented Community Brief Intervention Model (TGCBI) in other communities with similar demographic characteristics to avoid any consumption increase among moderate drinkers.

2. There should be a study to measure the effectiveness of TGCBI implementation in the community.

3. The factors associated with the success of TGCBI implementation among moderate drinkers should be examined.

4. A research study using qualitative interviews to explain the effect of TGCBI among moderate drinkers in two-comparable groups should be undertaken.

5. The use of a randomized control trial design should be considered in this study to improve generalization.

6. New randomized control trials using blind assessment of outcome and intention to treat analyses should be encouraged.

7. A study should be designed that integrates intervention and laboratory conditions to prove the TGCBI effect on reducing alcohol consumption.

8. A further study in the community is required to evaluate the use of other different types of brief intervention procedures to compare them with TGCBI.

9. Future research should include booster training sessions in TGCBI.

10. Future studies should focus on possible predictors of efficacy such as gender, age, employment status, marital status, mental health, initial expectations and a readiness to change. Moreover, the decision of whether the population should be drawn from treatment-seeking or from non-treatment-seeking populations should be considered.

11. The components of TGCBI should be explored to determine which components account most for maintaining long-term changes.

5.5 SUMMARY

5.5.1 Objective

To study the effect of the Tailored Goal Oriented Community Brief Intervention Model (TGCBI) on reducing alcohol consumption among moderate drinkers.

5.5.2 Methodology

The subjects were between 19 and 65 years old and had been living in the community during the six months before TGCBI implementation. They were informed of the project. They were given the opportunity to assess themselves for moderate drinking with the Alcohol Use Disorders Identification Test (AUDIT) instrument. If the participants agreed to participate, trained staff would administer an interview using the structured interview questionnaire. The participants would be eligible for inclusion in the study if they met the criteria for moderate alcohol consumption as defined by the AUDIT measure (score of 8 to 19). The subjects who obtained a score of less than 8 and more than 20 were excluded. They were recruited according to the inclusion and exclusion criteria.

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) was a treatment composed of three parts. Firstly, the TGCBI based on FRAMES (Babor et al., 1992; WHO, 2006) consisting of **F**eedback to the individual in personal risk, impairment, and current status; **R**esponsibility placed on the individual for personal change; **A**dvice to change; **M**enu of alternative treatment or self-help options and strategies offered to the individual; **E**mpathic nature engendered by the clinician; and **S**elf-efficacy reinforcing the individual's sense of hope and optimism for success. Secondly, drinkers must voluntarily set their goal and drinking reduction design

suitable for them and their community. Lastly, key informants such as monks, health personnel, community leaders, family and friends can be a source to complete the FRAMES. TGCBI aims to encourage drinkers to set their goals and to reduce drinking appropriate to them and their community context. TGCBI was conducted individually in 4 sessions, each session taking around 15-60 minutes.

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) recruited those participants who obtained positive screening in the Alcohol Use Disorder Identification Test (AUDIT) score 8-19. They were labeled as having moderate alcohol consumption and as being motivated cases due to their voluntary commitment to reduce alcohol consumption. All participants aged 19-65 years who matched the criteria were asked to consent to an alcohol screening. The screening uses WHO AUDIT consisting of 10 questions and scores to provide levels of hazardous and harmful alcohol drinking among participants. It covers three domains of alcohol consumption, drinking behavior, and alcohol-related problems (Saunders et al., 1993). The participants who met the inclusion criteria and positive screening by AUDIT, were those focused on hazardous and harmful drinkers (with an AUDIT score between 8 and 19).

5.5.3 Process of TGCBI

The Tailored Goal Oriented Community Brief Intervention Model (TGCBI) is a treatment consisting of 3 components i.e. FRAMES components; drinkers voluntarily set up their goal and drinking reduction design suitable for them and their community; and applied data resourced from key informants in their community combined with FRAMES components. The TGCBI consists of six steps as follows:

5.5.3.1 Identification **of** the level of participants consumption by AUDIT score to classify drinkers into three levels i.e. 1) non drinkers/low drinking behavior (0-7 score) 2) moderate drinking behavior (8-19 score)   3) heavy drinking behavior (20-40 score)

5.5.3.2 Provide knowledge of alcohol consumption and process of TGCBI to moderate drinkers voluntarily admitted to TGCBI

5.5.3.3 Problem Assessment **F**eedback-to individual drinker appropriately, **R**esponsibility-emphasize drinkers' responsibility for their drinking behavior or abstaining from drinking

5.5.3.4 Advice Clear and precise advice on drinking reduction/abstinence can decrease future risk and impairment. It will help drinkers to realize other personal risk which will make them consider changing their drinking behavior

5.5.3.5 Goal setting Drinkers will set their exact drinking volume and the date they wish to reduce/stop drinking in a written agreement, **M**enu of options-Drinkers should be given the opportunity to select the pattern most suitable for their drinking reduction/abstinence, whichever alternative, be it the same or different, is dependent on each person

5.5.4.5 Follow-up To review the drinkers' goal of drinking reduction/abstinence, assessing any new problems which may be necessary for setting clear solutions and a new goals, **E**mpathy-Communicate warmly and amicably with reflection and understanding, **S**elf efficacy-Encourage the drinkers to be more confident that they can change their drinking behavior (drinking reduction/abstinence)

5.5.4 Instruments

We used three instruments to measure the effect of Tailored Goal Oriented Community Brief Intervention Model (TGCBI) to reduce alcohol consumption among moderate drinkers in two communities.

5.4.4.1 Questionnaire: Test content validity, the questionnaire was developed by the researcher and based on a review of the literature. The proposed structure of the interview and description of the items are as follows:

5.4.4.1.1 Demographic characteristics i.e. age, sex, marital status, religion, education, occupation, income etc.

5.4.4.1.2 Patterns of consumption i.e. alcohol consumption in lifetime, one year and one month prior to interview questionnaire

5.4.4.1.3 Drinking status i.e. drinking place, drinking companion, drinking time and drinking occasion

5.4.4.2 Alcohol Use Disorder Identification Test (AUDIT)

5.4.4.3 Alcohol Time-Line Follow-Back (TLFB) (Sobell and Sobell, 2000): Test-retest reliability of the timeline follow-back interview for moderate drinkers was examined by using one month stability estimates.

All instruments were administered at pre-intervention, post-intervention 1, 3 and 6 month follow-up.

5.5.5 Results

This study initiated Tailored Goal Oriented Community Brief Intervention Model (TGCBI) to be used in the community instead of in the hospitals. The TGCBI emphasizes that alcohol drinkers should set up their own goal and pattern of alcohol reduction appropriate to an individual and community context. The follow-up of the change of consumption behavior and AUDIT score after 1,3 and 6 months of TGCBI in the two communities stipulated that Nong-Na, with TGCBI had a decrease in consumption behavior and AUDIT score when compared within its community and with Bua-Choom, a control community.

In conclusion, the TGCBI implementation in Nong-Na (intervention community) was effective in terms of frequency of drinking, frequency of heavy drinking and average intake as there was a significant change of alcohol consumption when compared to those of Bua-Choom (control community). Nevertheless, we cannot claim the total success of this project because there was only a small reduction in Nong-Na; that is there was no significance in comparison which Bua-Choom. For the full efficiency of TGCBI further implementation, booster sessions, campaigns and medias campaigns are recommended.

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APPENDIX
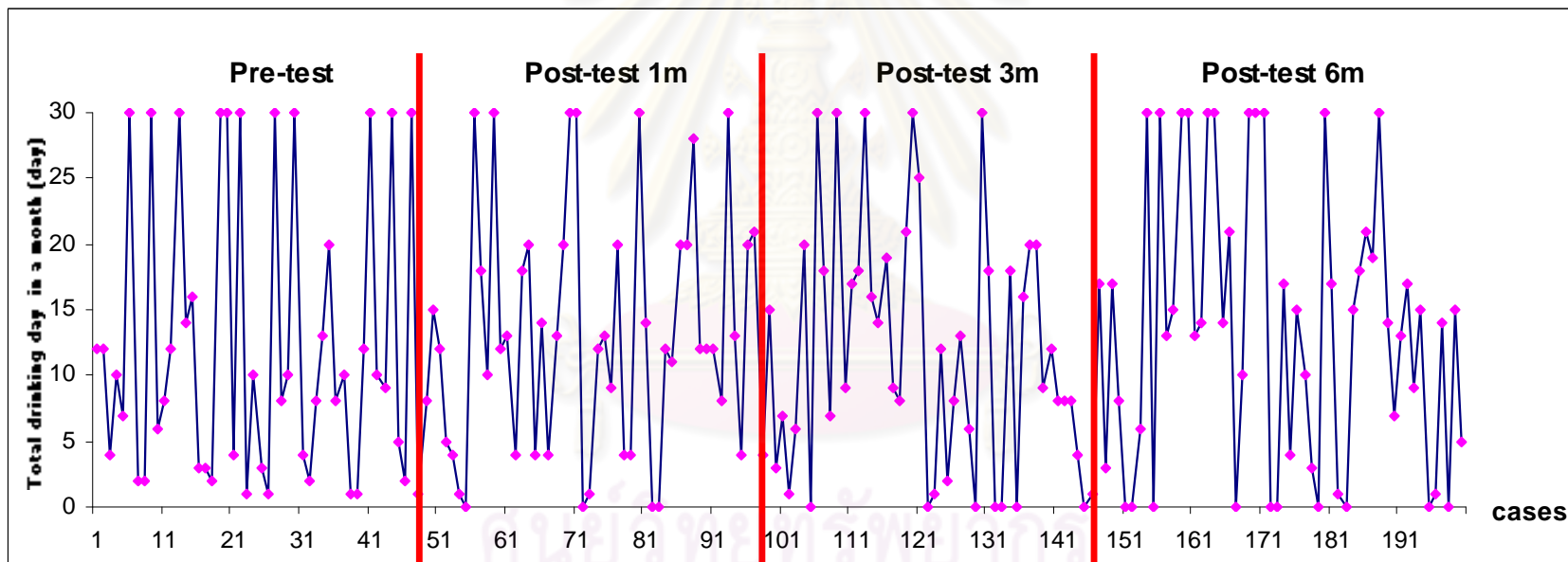
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Frequency of drinking (Phatthana Nikhom)
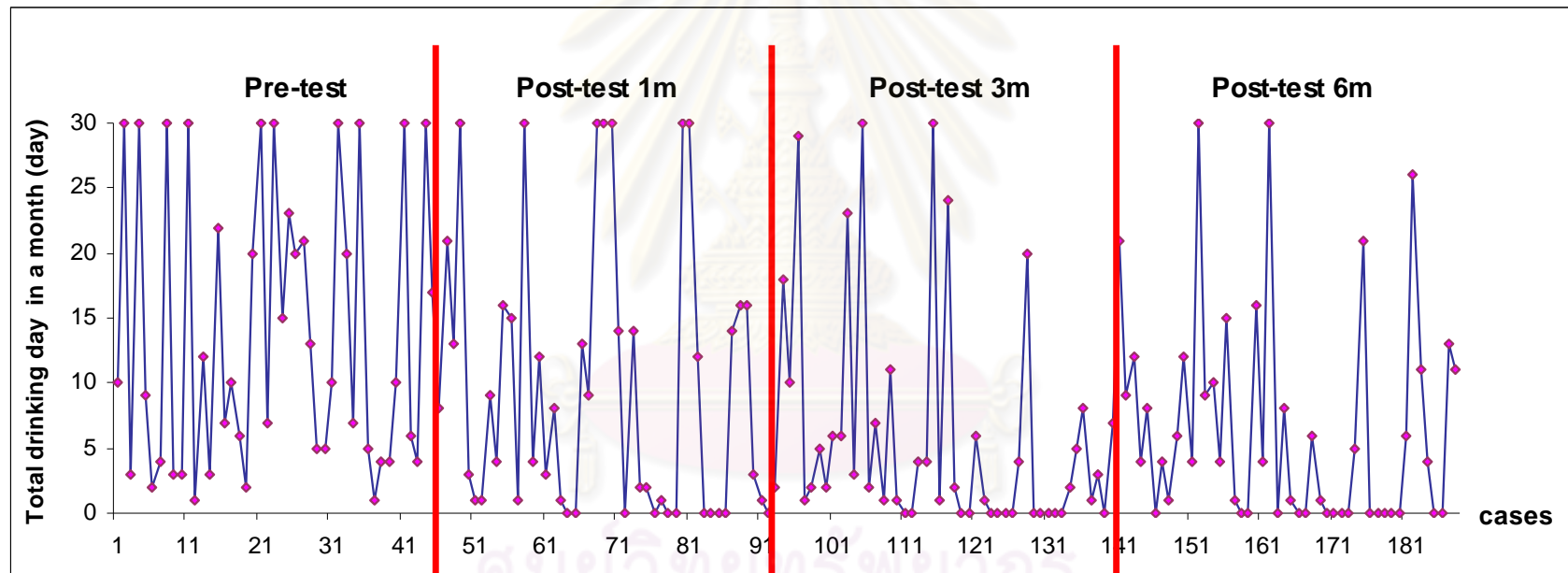
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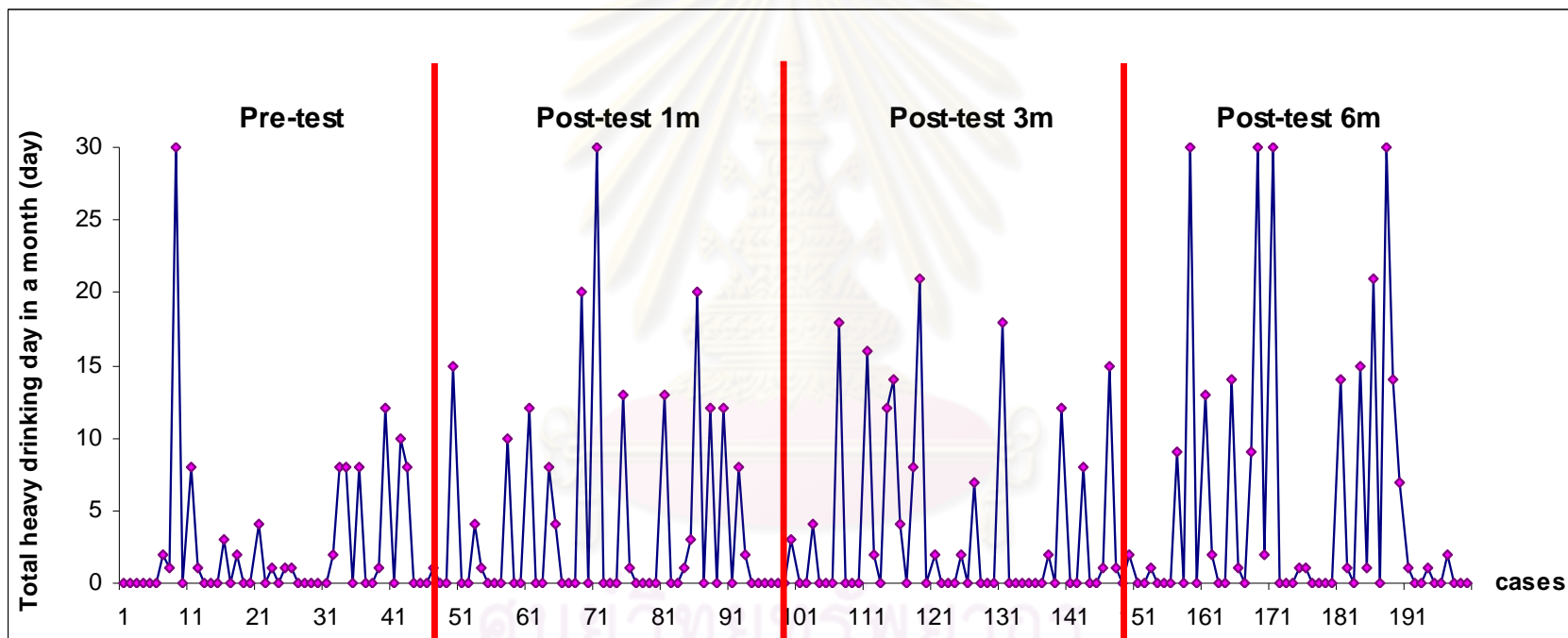
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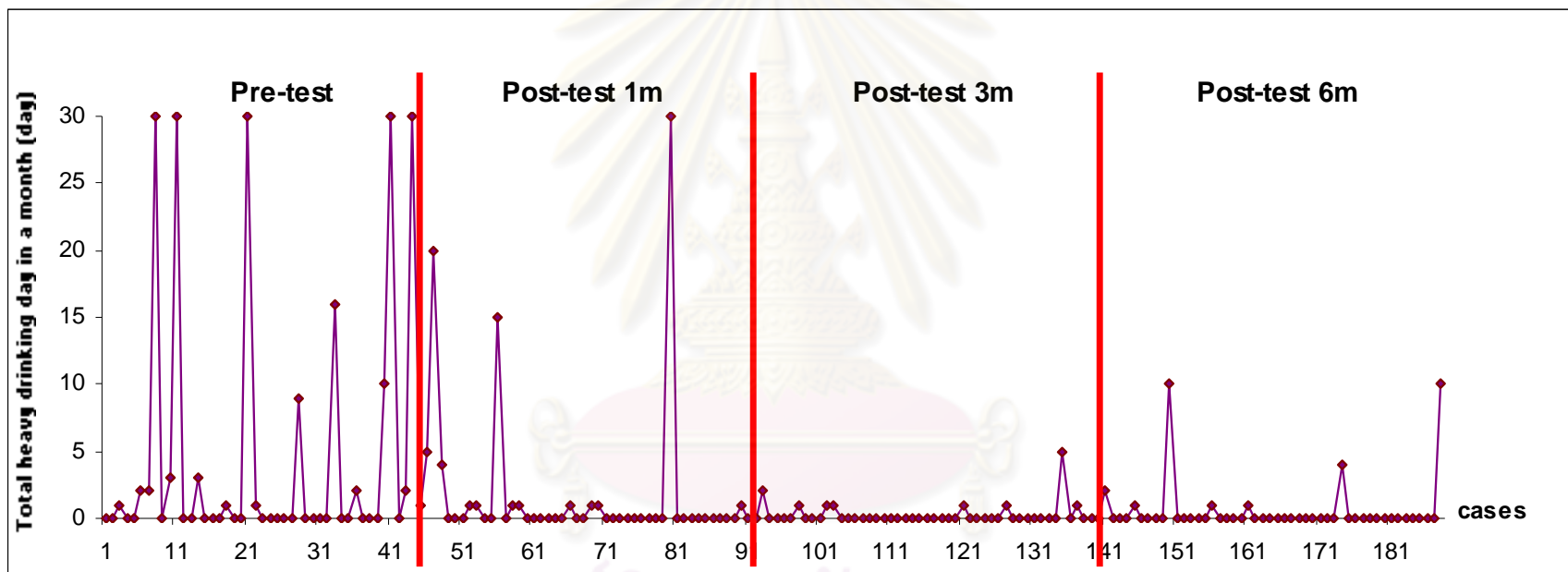
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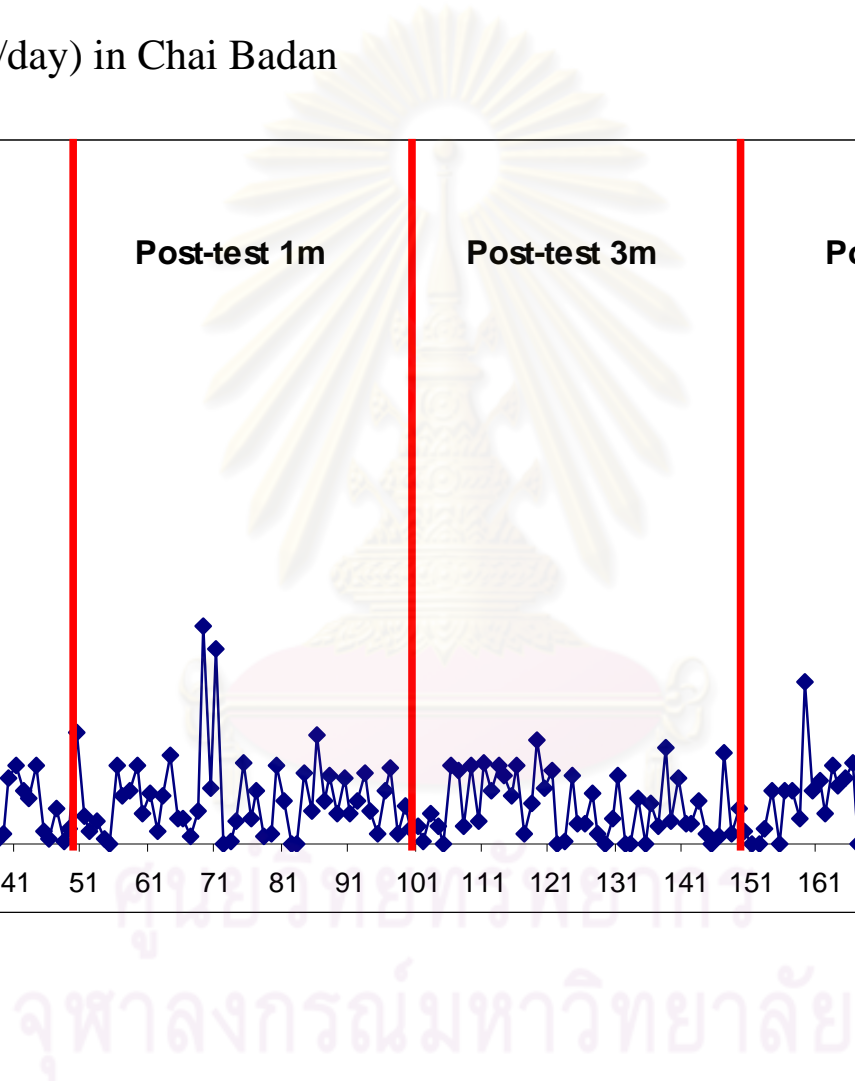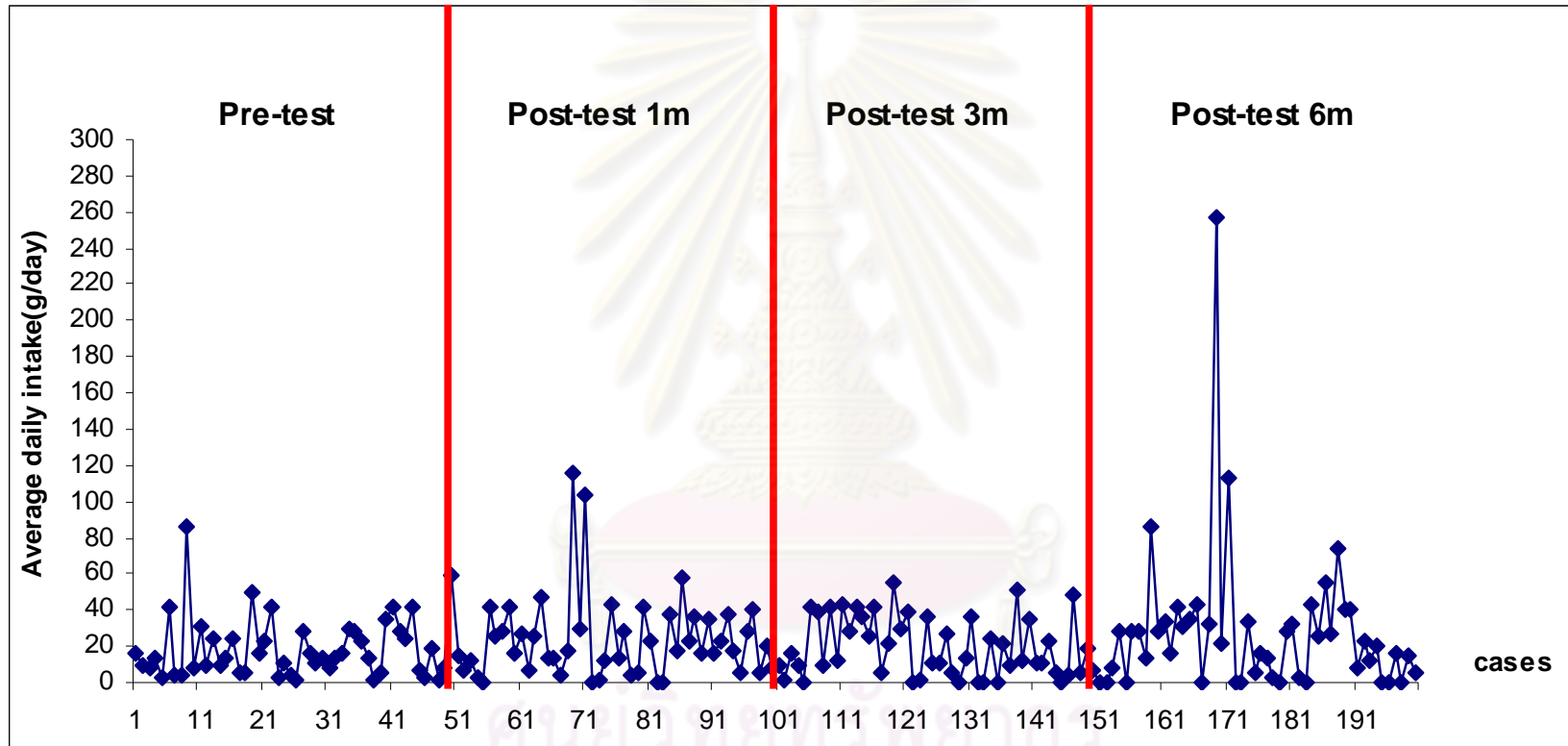
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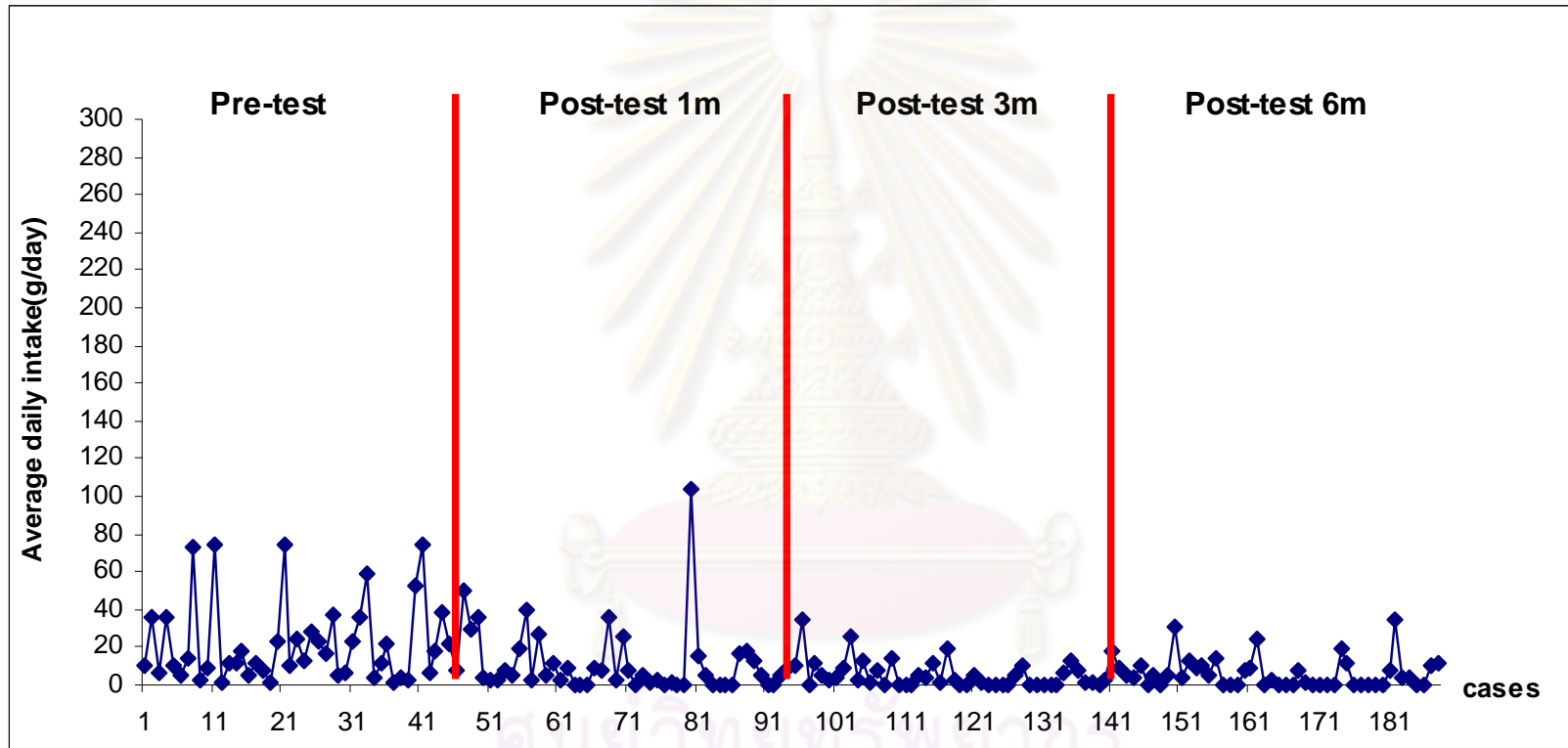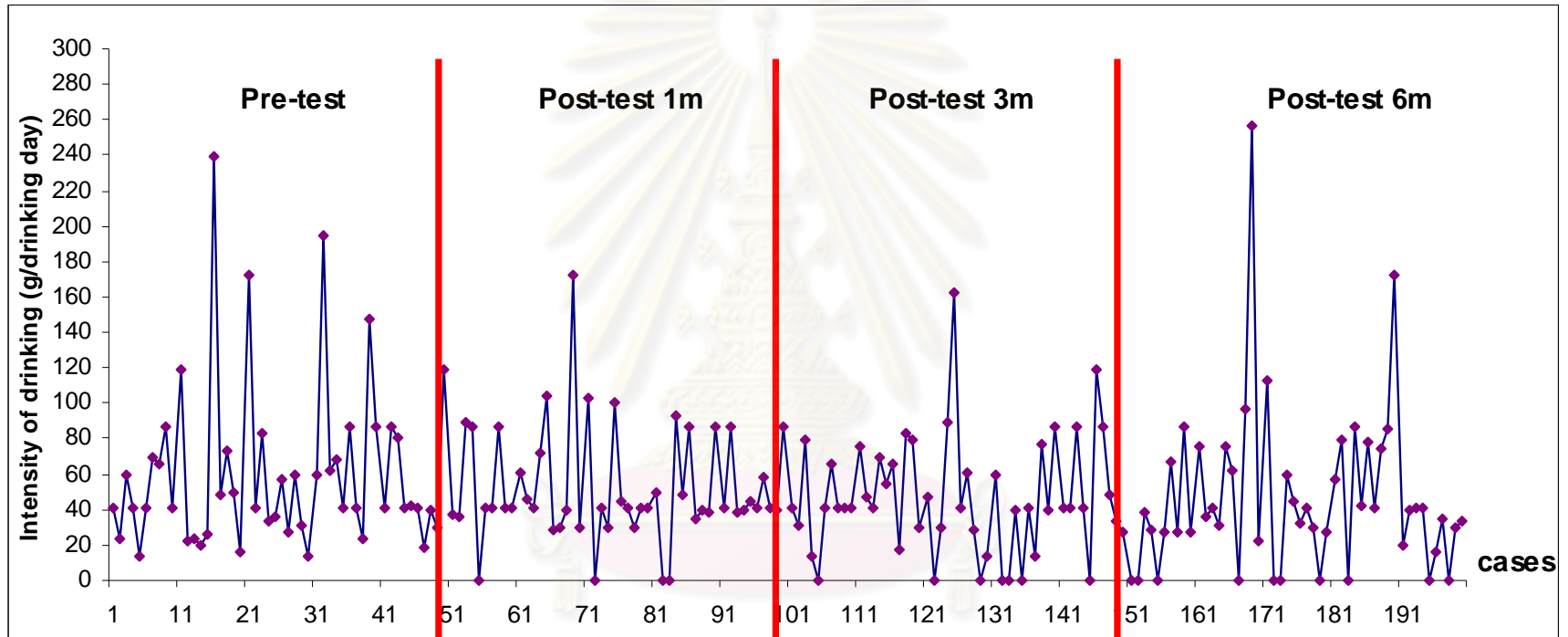
Intensity of drinking (g/drinking day) in Chai Badan

Intensity of drinking (g/drinking day) in Phatthana Nikhom
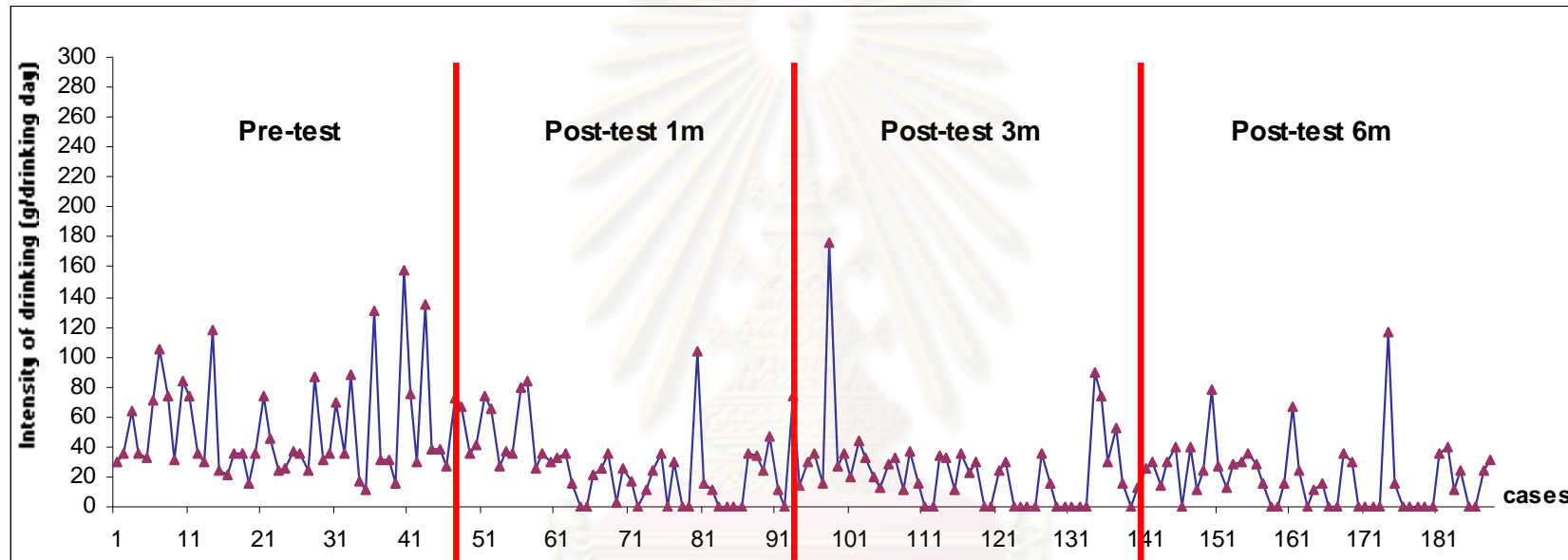
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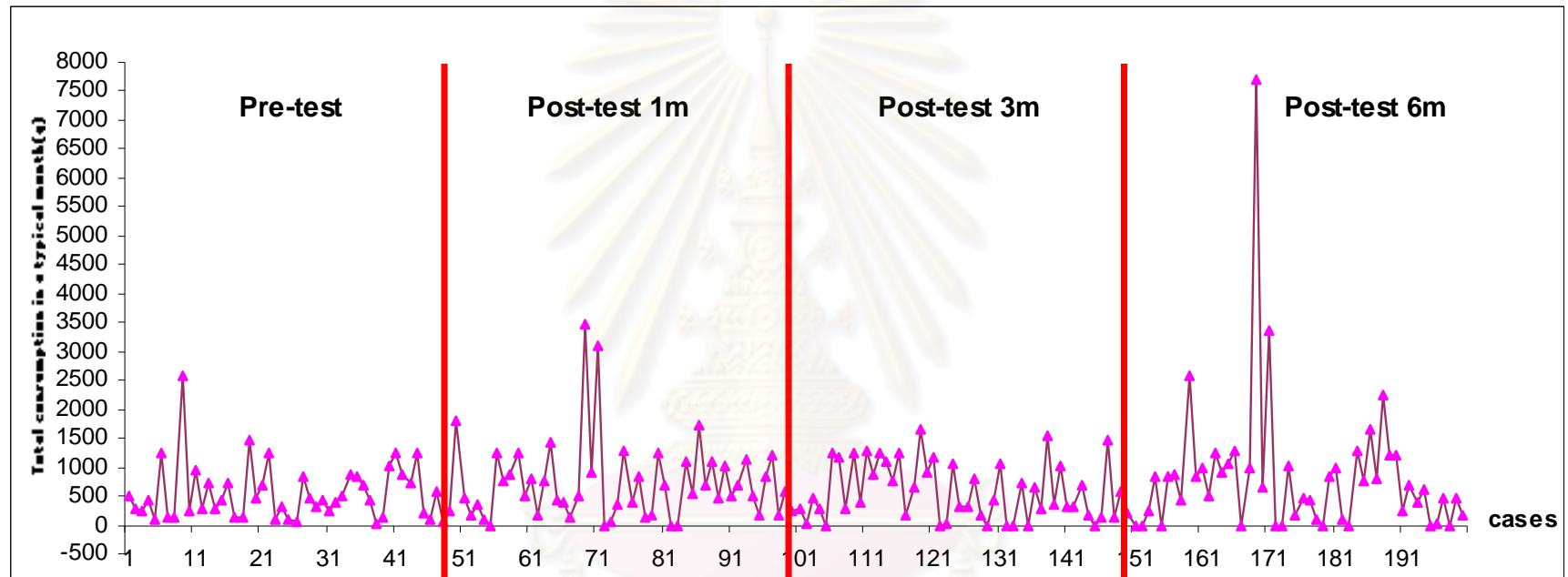
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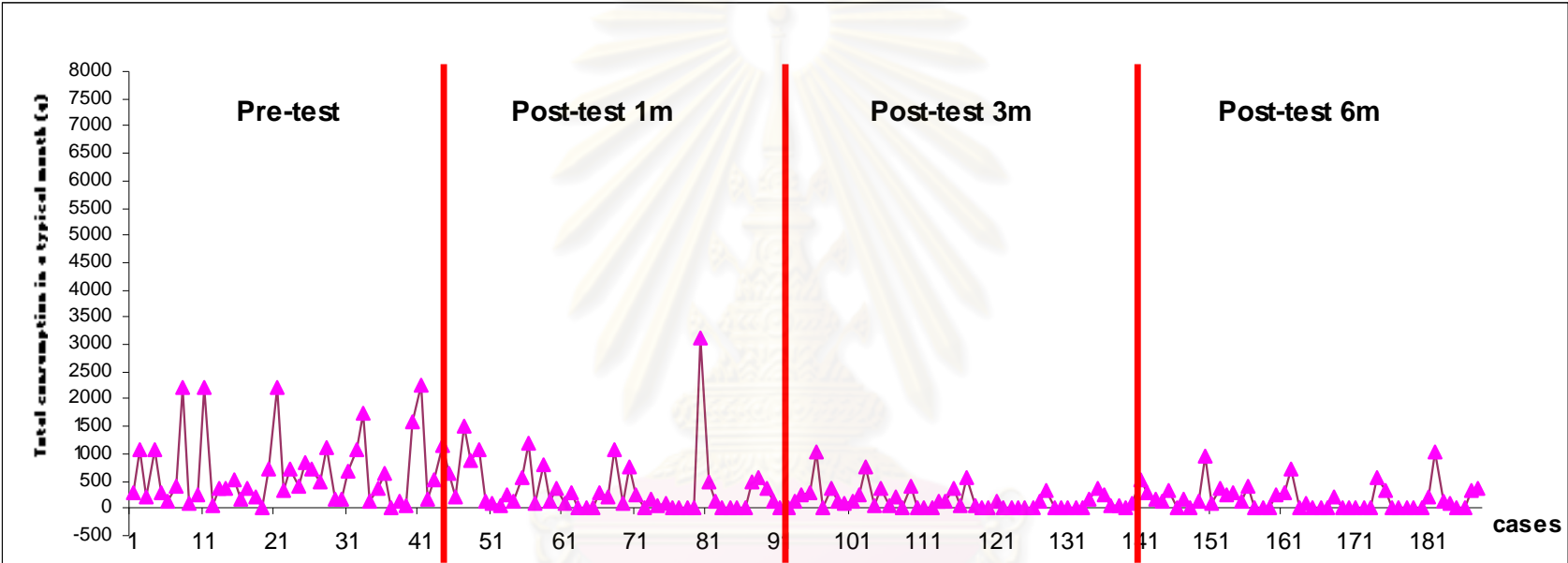
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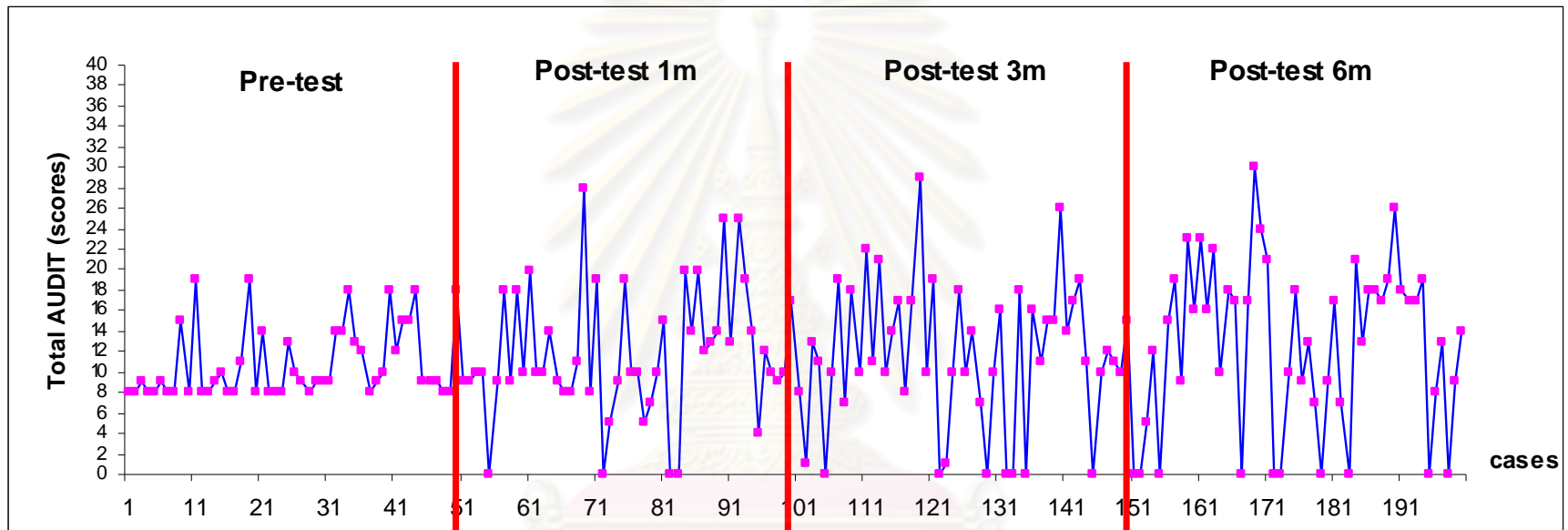
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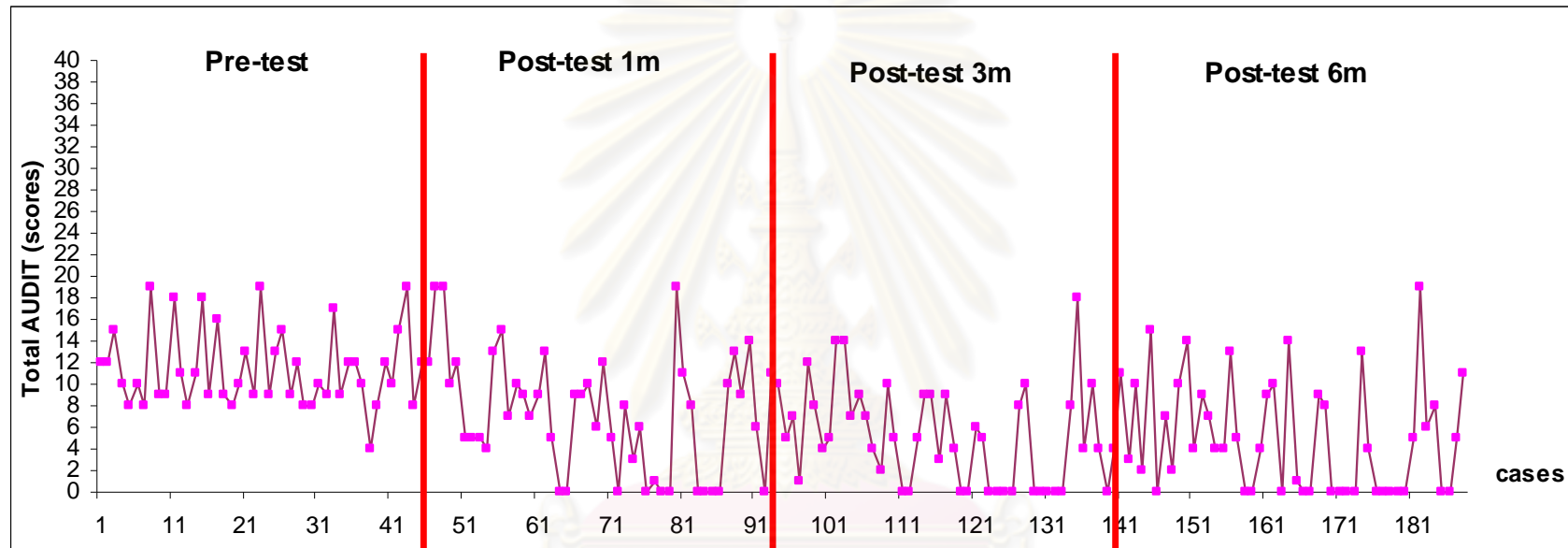
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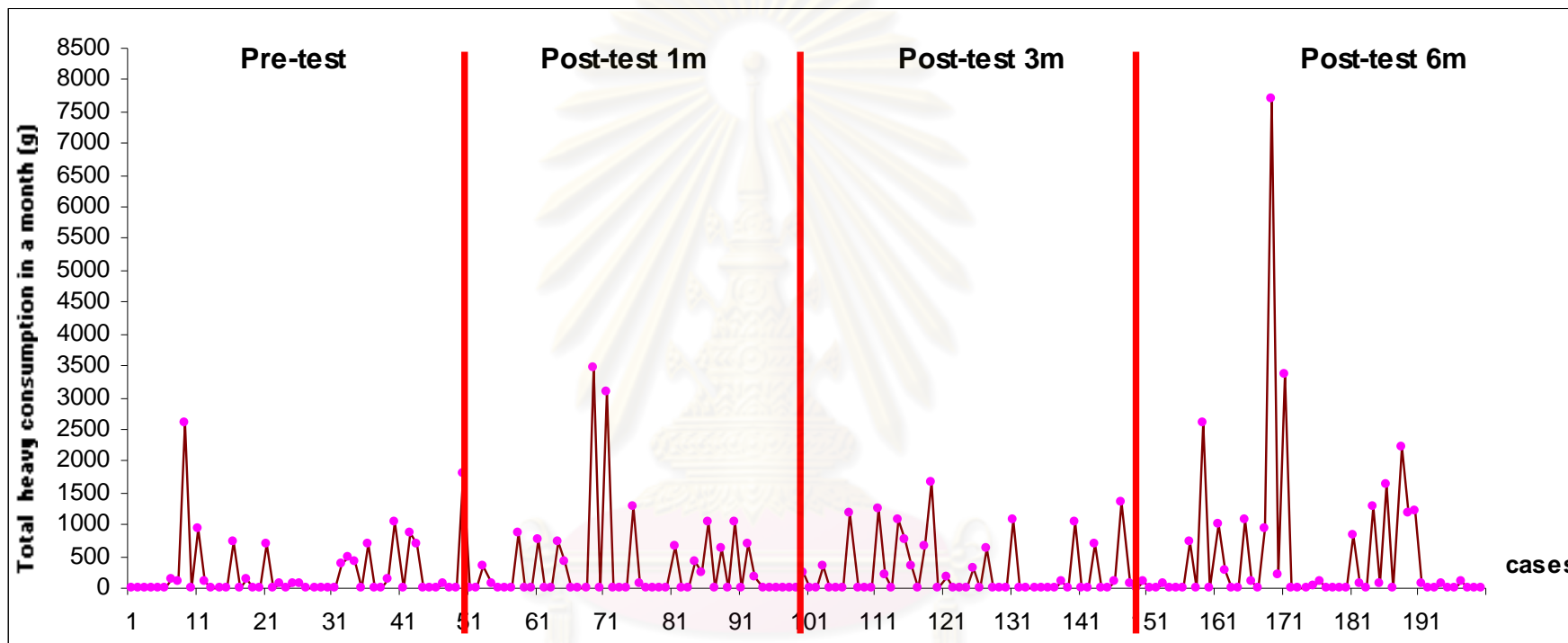
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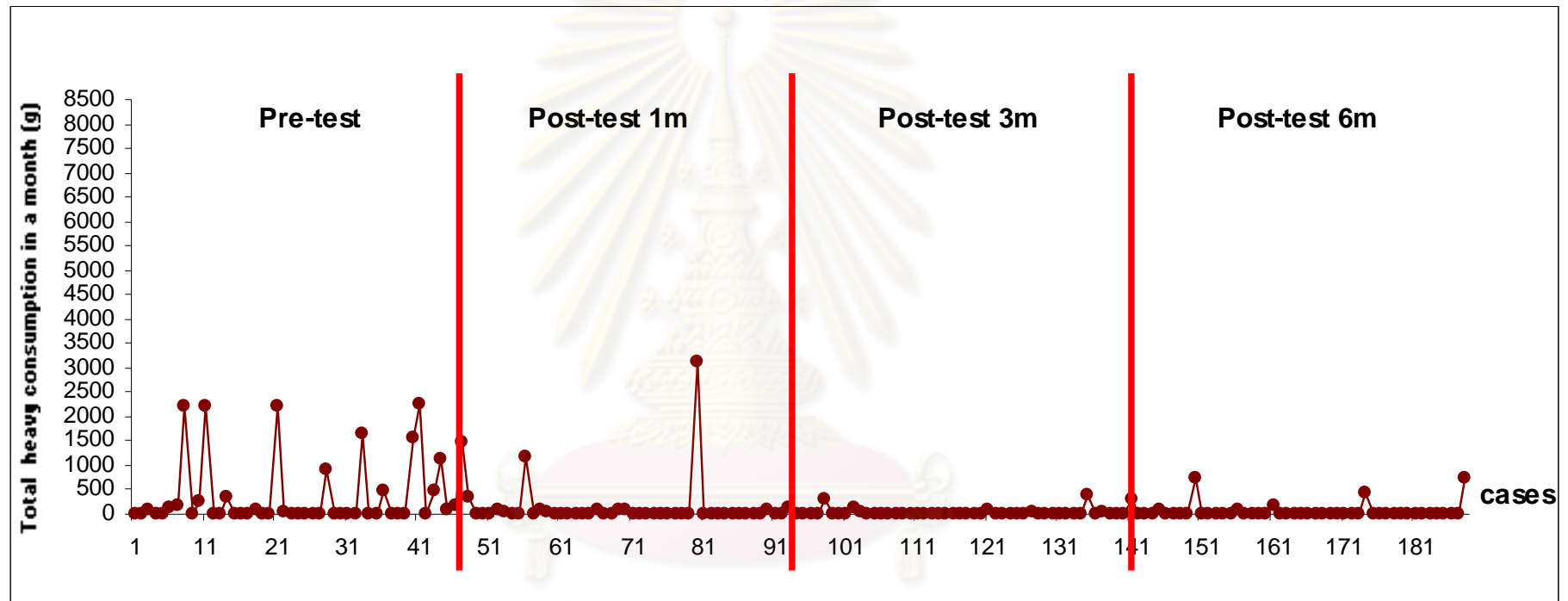
Intensity of heavy drinking (g/ heavy drinking day) in Chai-Badan
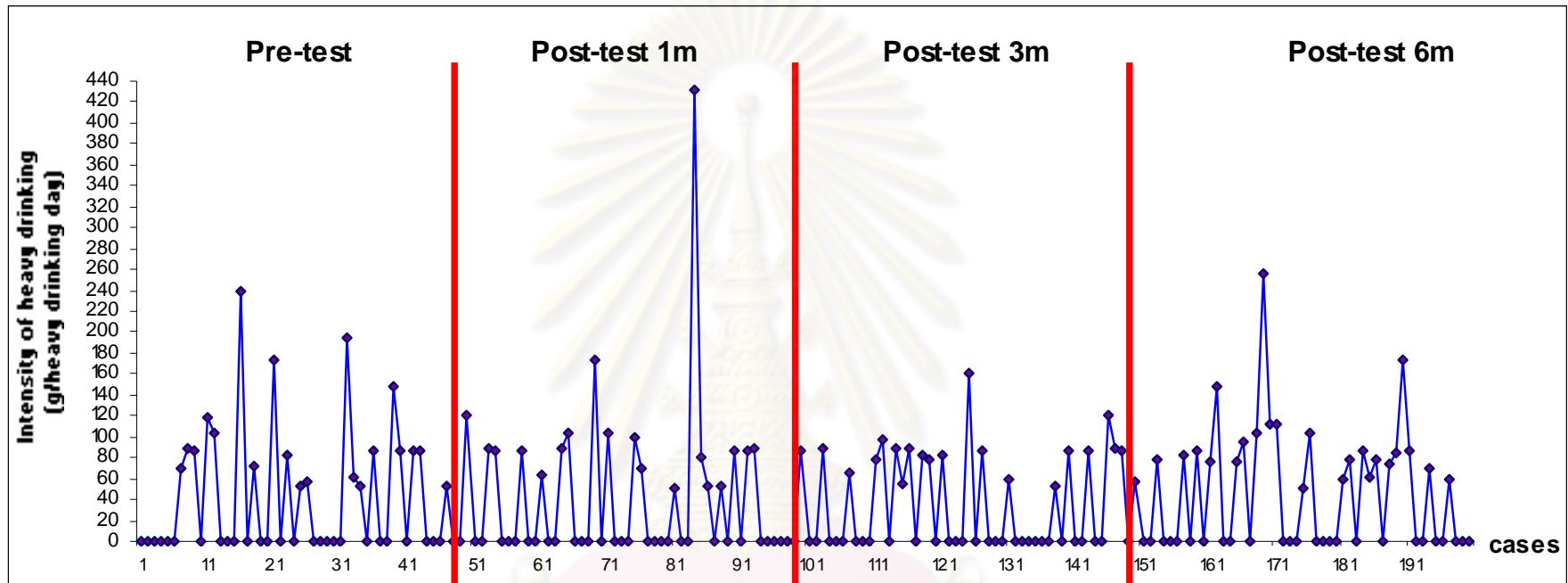
Intensity of heavy drinking (g/ heavy drinking day) in Phatthana Nikhom
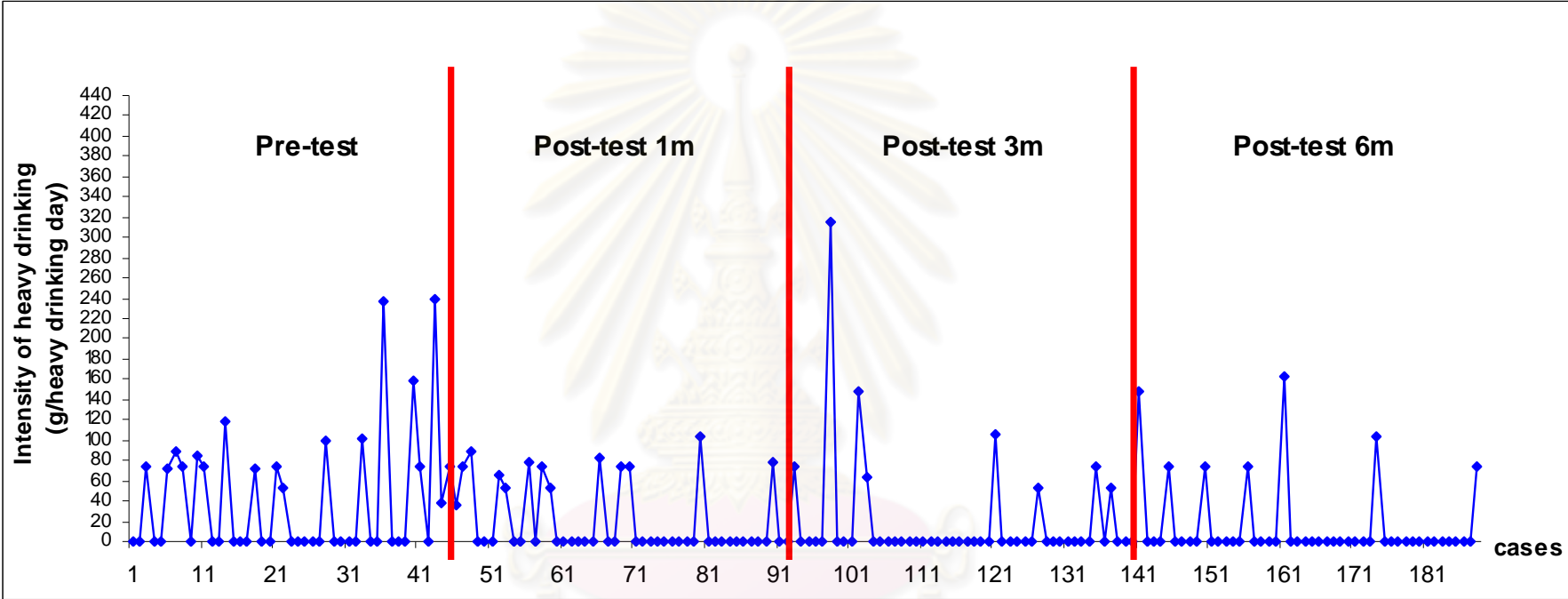
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