EFFECTIVENESS OF BEHAVIOR CHANGE INTERVENTION ON INJECTING DRUG USERS

Miss Duangta Pawa

A Dissertation Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy Program in Public Health Sciences
College of Public Health Sciences
Chulalongkorn University
Academic Year 2015

ประสิทธิผลของโปรแกรมเพื่อปรับเปลี่ยนพฤติกรรม ในกลุ่มผู้ใช้ยาเสพติดด้วยวิธีการฉีด

นางสาวดวงตา ปาวา

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรดุษฎีบัณฑิต
สาขาวิชาวิทยาศาสตร์สาธารณสุข
วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2558

Thesis Title	EFFECTIVENESS OF BEHAVIOR CHANGE INTERVENTION ON INJECTING DRUG USERS
By	Miss Duangta Pawa
Field of Study	Public Health Sciences
Thesis Advisor	Assistant Professor Chitlada Areesantichai, Ph.D.

Accepted by the College of Public Health Sciences, Chulalongkorn University in Partial Fulfillment of the Requirements for the Doctoral Degree

.....Dean of the College of Public Health Sciences
(Professor Sathirakorn Pongpanich, Ph.D.)

THESIS COMMITTEE

.....Chairman
(Professor Surasak Taneepanichskul, M.D.)
.....Thesis Advisor
(Assistant Professor Chitlada Areesantichai, Ph.D.)
.....Examiner
(Assistant Professor Usaneya Perngparn, Ph.D.)
.....Examiner
(Assistant Professor Chanida Palanuvej, Ph.D.)
.....External Examiner
(Associate Professor Sompoch Iamsupasit, Ph.D.)
.....External Examiner
(Colonel Nawaporn Hirunviwatgul, M.D.)

ดวงตา ปาวา : ประสิทธิผลของโปรแกรมเพื่อปรับเปลี่ยนพฤติกรรมในกลุ่มผู้ใช้ยาเสพติดด้วยวิธีการฉีด (EFFECTIVENESS OF BEHAVIOR CHANGE INTERVENTION ON INJECTING DRUG USERS) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ดร. จิตรลดา อารีย์สันติชัย, 182 หน้า.

โปรแกรมทริปเปิ้ล-เอส (Triple-S) เป็นโปรแกรมที่ออกแบบโดยมีพื้นฐานจากทฤษฎีการเรียนรู้ทางปัญญาเชิงสังคมและทฤษฎีการปรับเปลี่ยนวิถีชีวิต โปรแกรมนี้มุ่งเน้นการเพิ่มแรงจูงใจของผู้เข้าร่วมในโปรแกรมให้มีพฤติกรรมที่ปลอดภัยขึ้นและลดปริมาณการใช้ยาเสพติดจากกระบวนการสังเกต การเสริมแรงทางบวก การฝึกปฏิบัติ และการได้รับการสนับสนุนให้เกิดการปรับเปลี่ยนพฤติกรรม การวิจัยกึ่งทดลองนี้มีวัตถุประสงค์เพื่อวัดประสิทธิผลของโปรแกรมทริปเปิ้ล-เอสที่ดำเนินการกับกลุ่มผู้ใช้ยาเสพติดด้วยวิธีการฉีดในด้านของปริมาณการฉีดยาเสพติด พฤติกรรมการฉีดยาเสพติด เช่นการใช้ยาร่วมกันหลายชนิดและการผสมยาเสพติด และการรับรู้ความสามารถของตนเองด้านการลดอันตรายจากการใช้ยาในสถานการณ์เสี่ยงได้แก่ภาวะเสี้ยนยา ภาวะอารมณ์ด้านลบ และแรงกดดันจากสังคม ผู้เข้าร่วมในการศึกษาเป็นผู้ใช้ยาเสพติดด้วยวิธีการฉีดจำนวน 90 คนแบ่งเป็นกลุ่มทดลอง (45 คน) และกลุ่มควบคุม (45 คน) การประเมินประสิทธิผลของโปรแกรมดำเนินการสี่ครั้ง ได้แก่ ก่อนเริ่มโปรแกรม ติดตามผล 1, 3 และ 6 เดือนหลังจากเข้าร่วมโปรแกรม การประเมินความแตกต่างระหว่างกลุ่มใช้สถิติ Chi-square, Independent t-test และ Repeated Measured ANOVA ผลการศึกษาพบว่า โปรแกรมทริปเปิ้ล-เอสทำให้ลดความถี่ในการฉีดยาเสพติดได้อย่างมีนัยสำคัญทางสถิติเมื่อเปรียบเทียบกับกลุ่มควบคุม (p-value<0.001) ลดพฤติกรรมเสี่ยงในการฉีดยาเสพติดในด้านการฉีดยาเสพติดหลายตัวร่วมกัน (p-value<0.01) และลดการผสมยาเสพติดก่อนฉีด (p-value<0.01) การศึกษาพบว่าโปรแกรมทริปเปิ้ล-เอสทำให้การรับรู้ความสามารถของตนเองด้านการลดอันตรายจากการใช้ยาในทั้งสามสถานการณ์ดีขึ้น ผลการศึกษานี้ชี้ให้เห็นถึงความสำคัญของการดำเนินโปรแกรมเพื่อการปรับเปลี่ยนพฤติกรรมกับกลุ่มผู้ใช้สารเสพติดด้วยวิธีฉีด โปรแกรมนี้สามารถนำไปประยุกต์ใช้เพื่อให้ครอบคลุมพฤติกรรมด้านการลดอันตรายจากการใช้ยาเสพติดด้านอื่นๆ โดยสามารถนำไปดำเนินการร่วมกับบริการสำหรับผู้ใช้ยาเสพติดด้วยวิธีฉีดหรือนำไปประยุกต์ใช้ในบริบทอื่นๆ

สาขาวิชา วิทยาศาสตร์สาธารณสุข ลายมือชื่อนิสิต .....

ปีการศึกษา 2558 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

5479051953 : MAJOR PUBLIC HEALTH SCIENCES
KEYWORDS: SELF EFFICACY / HARM REDUCTION / INJECTING DRUG USER / SUBSTANCE USE

DUANGTA PAWA: EFFECTIVENESS OF BEHAVIOR CHANGE INTERVENTION ON INJECTING DRUG USERS. ADVISOR: ASST. PROF. CHITLADA AREESANTICHAI, Ph.D., 182 pp.

The Triple-S intervention was designed grounded in in Social Cognitive Learning Theory and Transtheoritical Model. The intervention focuses on enhancing participants' motivation to adopt safer behavior and reduce their drug use through a process of observation, positive reinforcement, practicing, and sustaining behavior change. The quasi experimental study aimed to examine the effectiveness of the Triple-S intervention that implemented with Injecting Drug User (IDU) in terms of level of drug injection i.e. rate of drug injection and OTI scale score, drug injection behaviors i.e. polydrug injection, drug mixing, injection at groin and injection site rotation, and harm reduction self-efficacy in three high risk conditions; withdrawal, negative emotions and social pressure conditions. The assessments were conducted four times; baseline, 1-, 3- and 6-month. Ninety participants were assigned to the Triple-S intervention (n=45) and the control group (n=45). Differences between groups were tested by using Chi-square, Independent t-test and Repeated Measured ANOVA. Findings suggested that the Triple-S intervention could significantly reduce the rate of drug injection compare to the control group (p-value<0.001). Unsafe drug injection behaviors were decreased in term of polydrug injection (p-value<0.01) and drug mixing (p-value<0.01). Participants in the Triple-S intervention group reported significantly higher harm reduction self-efficacy in all three high risk conditions at 3- and 6-month follow up. The results of this study may be taken to suggest the importance of behavior change intervention implemented with IDU. It can be applied to cover other harm reduction behaviors, integrated with existing services for IDU and implementation in different context.

Field of Study: Public Health Sciences Student's Signature .....

Academic Year: 2015 Advisor's Signature .....

ACKNOWLEDGEMENTS

During this journey of doctoral study, I am genuinely indebted to many wonderful people. I would like to express my gratitude to my advisor, Assistant Professor Chitlada Areesantichai Ph.D., and thesis committee, Professor Surasak Taneepanichskul, M.D., Assistant Professor Usaneya Perngparn, Ph.D., Assistant Professor Chanida Palanuvej, Ph.D., Associate Professor Sompoch Iamsupasit, Ph.D., and Colonel Nawaporn Hirunviwatgul, M.D. for their advice in improving my dissertation.

I am profoundly indebted to Professor Dennis McCarty, Ph.D, Thomas Kerr, Ph.D. and Assistant Professor Apinun Aramrattana, M.D., Ph.D. for their valuable comments on designing the Triple-S Intervention.

I am also grateful for the support of Population Services International, Ozone Foundation and Raks Thai Foundation in the recruitment of the target group and providing venues for conducting the intervention. I would further like to thank hard-working interventionists and interviewers.

Finally, I am deeply grateful to my family for the generosity of their compassion, patience, encouragement, and love shared during this journey. I would like to give special thanks to my colleagues and friends who supported me through the difficult times of my study.

This study was made possible through the generous financial support of the 90th Anniversary of Chulalongkorn University Fund (Ratchadaphiseksomphot Endowment Fund).

CONTENTS

Page

Page

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANOVA	Analysis of Variance
CBT	Cognitive Behavioral Therapy
CI	Confidence Interval
CM	Case Management
HIV	Human Immunodeficiency Virus
HRSEQ	Harm Reduction Self-Efficacy Questionnaire
IDU	Injecting Drug User
MI	Motivational Interviewing
MMT	Methadone Maintenance Treatment
ONCB	Office of Narcotics Control Board
OTI	Opiate Treatment Index
SOCRATES	Stages of Change Readiness and Treatment Eagerness Scale
TTM	Transtheoretical model
WHO	World Health Organization

CHAPTER I

INTRODUCTION

1.1 Rationales

Globally, there were 13.2 million people who injected drugs of which 22% are from developed countries. Drug injection is a major social and public health problem. Injecting drug use is driving HIV epidemics in many countries around the world. Worldwide, around three million of Injecting Drug Users (IDU) are living with HIV (UNODC 2011). HIV infection is caused by unsafe drug use, by sharing needle and injecting equipment with HIV infected persons (WHO 2010). In some countries in Eastern Europe and Central Asia over 80 percent of all HIV infections is related to unsafe drug use. In Thailand, the illegality of drug injecting and high levels of stigma of IDU mean that information on IDU in Thailand is limited. The recent estimation of the total number of IDU is around 40,300 (Aramrattana and et al 2011). The most previous estimate of IDU population size for Bangkok in 2009 was 4,200 (Johnston and et al 2012). HIV prevalence among IDUs in Bangkok and Chiang Mai were reported in 2010 ranging from 11% to 24% (WHO 2010). IDU in Bangkok reported high risk for HIV by sharing needle and injecting equipment, and unsafe sex (PSI 2008). Not only HIV infection, unsafe behaviors among IDU can also cause many blood-borne viruses infection including hepatitis B and C (WHO 2010). However, information regarding other health consequences of drug injection among IDU is limited.

Drug use cause not only public health problems but also economic and social problems to the nationwide. In Thailand, drug use is the major problem of the country. There are many organizations that address this issue including the government and non-government organization. These strategies implemented including drug control, drug treatment, and harm reduction. Currently Thailand has HIV/AIDS prevention intervention for IDU which is supported from Thai Government and The Global Fund. However, many more innovative treatment and intervention are needed in order to solve drug problems.

In the context of drug treatment, there are many types of interventions conducted to investigate the problem and motivate an individual for behavior change during the intervention. There are many types of behavioral intervention that implemented with injecting drug users and indicated effectiveness of drug abstinent including Cognitive Behavioral Therapy (Baker, Lee et al. 2004), Motivational interviewing (Roberts, Annett et al. 2011) and Motivational Enhancement Therapy (Smedslund and et al 2011). Social Cognitive Learning Theory was proposed to use with drug user in a role of craving and relapse (Niaura 2000). This is a major theory for behavior change and improves self-efficacy. Each theory can offer something to explain a given situation, context or a certain behavior. Transtheoritical model that involve progress of behavior change through six stages is another theory that could be applied to design intervention that match to each stage (Prochaska and Velicer 1997). However, there is no single theory that able to explain all dimensions.

For opioid dependence, Methadone Maintenance Treatment (MMT) is implemented to provide long-term prescribing of methadone as a substitution to the opioid on which the patient is dependent. Many studies indicated effectiveness of MMT for opioid addiction to decrease harms associated with drug use (Gowing, Farrell et al. 2005), prevent HIV infected and reduce criminal behaviors. However, the illegal nature of injection drug use can also create barriers to accessing adequate treatment and prevention services making IDU more vulnerable to HIV and its effects and other diseases (Fairbairn and et al 2011). Most of those who discontinue MMT later relapse to heroin use. This reflects the long history of use, the complexity of patients' situations and reasons for using drugs, and the biological basis of addiction. It is still unclear to what extent continued injecting behavior during methadone treatment is related to the use of non-opioid drugs (Gowing, Farrell et al. 2005). Many studies in Asia were done to analyze factors that associated with relapse to drug use which including self-efficacy, family support, and community support (Ibrahim and Kumar 2009).

Even there are many interventions including opioid substitution therapy, relapse problems still occurred and many IDU continue to use drugs. While there are many people unable to stop using drugs, harm reduction concept has been introduced to provide better treatment to them to minimize risks from using drugs and of harming

themselves or others. Many studies have shown that self-efficacy play an important role in quitting drug and relapse prevention and harm reduction self-efficacy could be improved to reduce harm associated with injecting drugs in high risk situations (Phillips 2005).

Therefore, Triple-S intervention was designed grounded in Social Cognitive Learning Theory and Transtheoritical Model. Triple-S intervention has three stages; Start, Smart and Strong. The intervention focus on enhancing participants' motivation to adopt safer behavior and reduce their drug use through observation process, positive reinforcement, practicing, and sustaining their behavior change. In this study, the intervention was tested for effectiveness. Main outcomes were assessed in term of reducing drug injection, safer drug injection behaviors, and improving IDU's harm reduction self-efficacy.

1.2 Research question

Is the Triple-S intervention effective on reducing level of drug injection, having safer drug injection behaviors, and improving harm reduction self-efficacy among IDU?

1.3 Hypothesis

Hypothesis for this study was IDU in the Triple-S intervention group and the control group would be difference in term of level of drug injection, drug injection behaviors, and harm reduction self-efficacy.

1.4 Objectives

General Objectives

To examine the effectiveness of the Triple-S intervention that implemented with IDU

Specific Objectives

1. To compare level of drug injection, drug injection behaviors, and harm reduction self-efficacy before and after the intervention in intervention group and compare between intervention and the control groups.
2. To compare level of drug injection, drug injection behaviors, and harm reduction self-efficacy at 1-, 3-, and 6-month follow up after the intervention.

1.5 Definition of terms

Injecting Drug Users (IDU): IDU mean people who use drugs by hollow needle and a syringe which is pierced through the skin into the intravenous or intramuscular or subcutaneous with any type of substances in the past 6 months, aged 18-45, male and female

Triple-S Intervention: Triple-S is a behavior change intervention designed grounded in Social Cognitive Learning Theory and Transtheoritical Model. Triple-S intervention was implemented with IDU in the intervention group. It comprises of six sessions aimed to change IDU behaviors. Triple-S intervention has three parts as follow;

Start	IDU prepare and start building readiness for behavior change
Smart	IDU change their behavior by improving harm reduction self-efficacy and having safer drug use behaviors
Strong	IDU reduce rate of drug use, realize benefit and maintain behavior change

Educational Intervention: Educational intervention implemented with a control group. This intervention was conducted only once at the beginning by providing self-help booklet. The information provided include knowledge about safer drug injection, harm reduction, and HIV risk. This group was assessed in order to compare with the intervention group.

Level of drug injection: Drugs that were measured include opioid and non-opioid drugs that IDU inject. Level of drug injection was measured by rate of drug injection and Opiate Treatment Index (OTI).

Rate of drug injection: Rate of drug injection was measured as a main outcome for level of drug injection. It was a self-reported of number of drugs injection per week.

Opiate Treatment Index: OTI was used to reflect the dimensions of treatment outcome. In this study, the domain chosen to reflect level of drug use was Drug Use domain to gather information about drug consumption.

Drug injection behaviors: Drug injection behaviors related to harm reduction were measured in term of polydrug injection, drug mixing, injection at the groin and injection site rotation.

Polydrug injection: Polydrug injection was measured by using number of study participants who reported inject more than one type of drugs in the past month.

Drug mixing: Drug mixing was measured by using number of study participants who reported mixing more than one types of drugs for each injection in the past month.

Injection at the groin: Groin is an area of hip between stomach and thigh. There are three to five deep inguinal lymph nodes that play a role in the immune system. In this study, it was measured by number of study participants who reported injection at the groin in the past month.

Injection site rotation: This outcome was measured by using number of study participants who reported rotating injection site every time when inject drugs in the past month.

Harm reduction self-efficacy: Outcomes from Triple-S intervention were measure of drug users' perceived confidence in their ability to utilize specific harm reduction

strategies in high-risk situations; withdrawal, negative emotions and social pressure condition.

Withdrawal condition: Drug withdrawal is the group of symptoms that occur upon the abrupt discontinuation or decrease in intake of drugs. The symptoms include feeling sweaty, having cramps or diarrhea, or be vomiting.

Negative emotions condition: Negative emotions include feeling sad, hate, anger, jealousy, boredom and depressed.

Social pressure condition: Social pressure condition refer to a situation that influence a peer group, observers, or an individual exerts that encourages others to change their attitudes, values, or behaviors to conform to those of the influencing group or individual.

1.6 Conceptual framework

Conceptual framework of this study as presented in Figure 1.1.

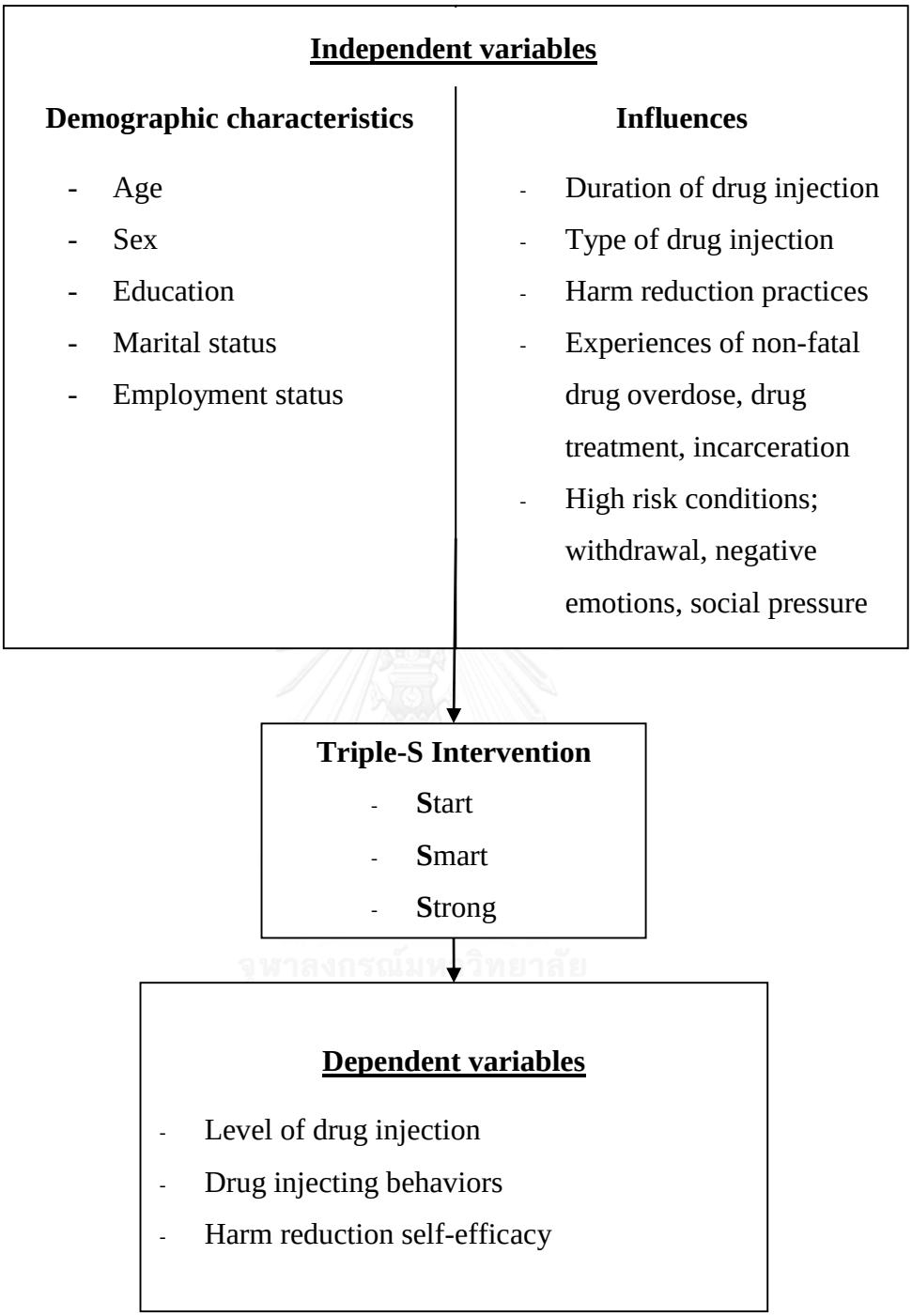

Figure 1.1: Conceptual Framework

CHAPTER II

LITERATURE REVIEW

To understand concepts of study, this chapter reviews the content related to drugs situation in Thailand, injecting drug users, harm reduction, social cognitive theory, Transtheoretical model, and relevant research.

2.1 History and drugs situation in Thailand

The international drug control regime is based on the three international drug control conventions, namely the 1961 Single Convention on Narcotic Drugs, the 1971 Convention on Psychotropic Substances, and the 1988 United Nations Convention against Illicit Trafficking in Narcotic Drugs and Psychotropic Substances with a comprehensive strategy for the achievement of a “drug-free world” (United Nations 1972). In the context of international drug control, "drug" means any of the substances listed in Schedule I and II of this treaty (Takahashi 2009). At present, the Single Convention controls 118 narcotic drugs and their preparations. Since then, it became an international treaty to prohibit production and supply of specific drugs and of drugs with similar effects except for specific purposes (INCB 2006). Drug prohibition spread worldwide structured by a series of international treaties. Every country is either a signatory to one or more of the treaties, or it has laws in accord with them. In consequence, every country has drug prohibition enforced by its police and military. In the past 80 years, almost every government has endorsed drug prohibition. The main reasons are not only because of the pressure from the United States but also military and government powers and influence from the United Nation (Levine 2003).

In Thailand, drug use has been noted in the past decades. It has been recorded that in the seventh century, Arabian brought opium into China. Later, ethnic people who live in the mountainous area in the southern part of China started to plant and smoke opium and brought them to Thailand when trading goods by ship. Drug prohibition in Thailand has been recorded since then because soldiers who smoked opium were unable to work efficiently. This situation made drug users into hidden population. Although there was opium control in that period of time, drug trafficking

were occurred, caused many problems to the country and changed into medical form as morphine. During the World War, Thailand had been involved in several international commissions for drug situation assessment and international drug control. Amphetamine had been started to use in medical and could be bought at pharmacy. However, after the spread of amphetamine, it had been changed into the control drug. In 1958, Thailand government banned opium cultivation and use. Heroin started to spread in Thailand since then (ONCB 2001).

In the past forty years, Thai Government has many strategies to deal with drug problems in the country. Office of Narcotics Control Board (ONCB) was set up in 1976 to be a national organization that solve drug problems and improve drug policy. Drugs spread in the border area of Thailand and Cambodia, Myanmar, Laos and Malaysia and with ethnic people and became a national problem. In 1993, there were more than one million drug users in Thailand using Inhalant, marihuana, amphetamine, heroin and opium respectively. Economic and social problems were the main factors that push people to start using drugs. Thai government tried to solve this problem by working with neighboring countries, controlling drug trafficking, strengthening the communities by improving the education, drug policy, family system, and religions, improve effectiveness of criminal system, and treatment for drug users. In 1998, ASEAN countries including Thailand concerned that illicit drug abuse and trafficking seriously endangers the development programs so these countries agreed to sign in Joint Declaration for A Drug-Free ASEAN (ONCB 2001).

Prior 2002, there were many drug laws in Thailand. Drug policy in Thailand has prioritized the criminalization and imprisonment of people who use drugs to make Thailand drug-free country. However, the Narcotic Addict Rehabilitation Act, B.E. 2545 (2002) used alternative approach. Drug users have not been arrested as “offenders” but “patients”. Instead of being prosecuted, they were diverted to rehabilitation under appropriate plans. Since the Act came into effect, Thailand’s compulsory drug treatment system has increased radically. Many drug users are turn away from prison into treatment program (Canadian HIV/AIDS Legal Network 2009). In 2003, Thai government announced a national campaign “war on drugs,” which led to widespread gross human rights violations. At the end of the three month period, more

than 2,800 people had been killed (Takahashi 2009, Meesit and Chapchai 2012), and over 70,000 people involved in the drugs trade were arrested while most of them were false confession. The aims of the war on drugs were to reduce the use and availability of drugs. Even drug were reported to higher retail price which related to a significant fall in availability of drugs, there were reported about drug users switching into other drugs and more profit gain in drug trafficking (Roberts, Trace et al. 2004). Impacts of war on drugs were resulted in many unintended negative consequences including violence and corruption, perverse consequences, HIV/AIDS, imprisonment, and crime (Roberts, Trace et al. 2004).

Currently, Thai government announces that drug users are patients, not a criminal. However, it is not clear in practice. Harm reduction policy has not been in place and drug problems have been addressed inappropriately. Many studies indicated that drug policy in Thailand should be reformed to response to current situations (Canadian HIV/AIDS Legal Network 2009, Meesit and Chapchai 2012). Drug use is still illegal in Thailand make drug users a hidden population, difficult to access to health system. Since 1989, HIV prevalence among IDU has been reported 30-50% and it is reported that HIV transmitted through sharing contaminated needles and injecting equipment. Moreover, HIV and Hepatitis C coinfection have been reported among IDU in prison as 99% (Canadian HIV/AIDS Legal Network 2009).

Many types of treatment for drug users have been developed and implemented in order to reduce the harm related to drug use and including drug abstinent. Princess Mother National Institute on Drug Abuse Treatment at Thanyarak Hospital is a government lead organization in narcotic drug addiction treatment to treat narcotic drug addicts to return drug user back to society. There are many types of treatment for inpatient drug users. Methadone Maintenance is another treatment implemented to provide long-term prescribing of methadone as a substitution to the opioid on which the patient is dependent. Many studies indicated effectiveness of MMT for opioid addiction to decrease harms associated with drug use (Gowing, Farrell et al. 2005). However, even there are many types of treatment in Thailand, drug use is still a major problem of the country.

2.2 Injecting Drug Users

2.2.1 Initiation to drug Injection

People start using drugs with many reasons. Many studies indicated that the initiation of drug use was strongly affected by the biological and psychological factors including social influence of other users, use by parents, availability, genetics, poor family environment, psychological problems and personality (van den Bree, Johnson et al. 1998, Nyamathi, Bayley et al. 1999). People take drugs for a variety of reasons with different modes of administration. Current epidemiologic research indicates significant increases in the use of a variety of illicit drugs of abuse. Drugs can be taken in a variety of ways including drinking, smoking, snorting, rubbing and injecting. Many literatures indicated that injecting initiation related to social influences, differed by drug types and longer duration of drug use (Harocopos, Goldsamt et al. 2009, Small, Fast et al. 2009, Lankenau, Wagner et al. 2010, Morris, Brouwer et al. 2011)

The most commonly injected drugs are heroin and other opiates, cocaine and amphetamines. The prevalence of each is likely to vary according to location and population group. Heroin is the most common injecting drug in most Western European nations, however, there has been a decline in the injecting of illicit drugs in Europe (EMCDDA 2014). Across Latin America, cocaine is the most prevalent injected drug. In Thailand, IDU surveillance report stated that the most prevalent injected drugs were heroin and methamphetamine (Pansuwan, Wisawakam et al. 2012).

There are several reasons as to why drugs are injected including the availability of drugs that can be injected, related to production locations and trafficking routes; cheaper price and faster absorbed method; the sharing of knowledge about the techniques; and when drug control efforts reduce its availability (EMCDDA 2010).

2.2.2 Effect of drug injection

Injecting drugs for purposes is illegal worldwide, and the criminalization of drug use and possession can hinder attempts to engage IDU with available HIV services. Police in Thailand have reportedly acted similarly despite possession of

syringes being legal in the country. It is estimated that 40% of countries have laws that interfere with their ability to reach injecting drug users (Human Rights Watch 2007).

Roughly one tenth of new HIV infections result from needle sharing, with this figure rising to just under a third outside of sub-Saharan Africa. One study estimates that under one-fifth IDU globally may be infected with HIV (Mathers, Degenhardt et al. 2008). While Thailand has claimed success in HIV prevention in general population, IDU may still face higher risk for HIV infected as well as Hepatitis transmission. From stigma and discrimination problems make this group more vulnerable and become a hidden population. They are hard to reach and low access of necessary injecting equipment, knowledge and access to services. Drug injection can cause permanent damage and negative health consequences not only HIV and Hepatitis infection but also skin infection such as abscess, scars and overdose risk (UNODC 2012, Gilbert, Primbetova et al. 2013, Handanagica, Bozicevica et al. 2016).

2.3 Harm reduction

The term "Harm Reduction" was described by the International Harm Reduction Association as follow (IHRA 2010):

> *"Harm Reduction refers to policies, programs and practices that aim primarily to reduce the adverse health, social and economic consequences of the use of legal and illegal psychoactive drugs without necessarily reducing drug consumption. Harm reduction benefits people who use drugs, their families and the community."*

Harm reduction based on the recognition that many people throughout the world continue to use drugs. Harm reduction accepts that many people who use drugs are unable or unwilling to stop using drugs at any given time. It is important to provide good treatment; however, many of them are unable or unwilling to get treatment. Therefore, there is a need to provide them with options that help to minimize risks from continuing to use drugs, and of harming themselves or others (IHRA 2010).

It is therefore essential that harm reduction information, services and other interventions exist to help keep people healthy and safe. Allowing people to suffer or die from preventable causes is not an option. Many people who use drugs prefer to use informal and non-clinical methods to reduce their drug consumption or reduce the risks associated with their drug use. Harm reduction is defined as policies, programs and practices that aim to reduce adverse health consequences of drug use. It is a proven, effective and cost-effective approach for people who use drugs (Strathdee and Vlahov 2001, Ritter and Cameron 2005, Wodak and Cooney 2006, Strathdee and Pollini 2007, Bridge, Hunter et al. 2015, Stockings, Hall et al. 2016). Harm reduction approaches aim to prevent the spread of infections, reduce the risk of overdose and decrease the negative effects of drug use (NPNU Initiative 2007, Logan and Marlatt 2010, Wilsona and et al 2015). UNODC's work in relation to reduce the adverse health and social consequences of drug abuse has three part strategy; preventing drug abuse, facilitating entry into drug dependence treatment and establishing effective measures to reduce adverse health and social consequences of drug abuse (UNODC 2010). Strategies to reduce individual harms include: reducing the amount of drugs consumed, avoiding using drugs alone, using a different vein every time to inject and always use new injecting equipment (Hunt 2010, Harm Reduction Coalition 2012). Harm minimization strategies are also directed towards altering drug use behaviors and effects from drug acquisition, drug use and drug withdrawal (UNODC 2007). Harm reduction seeks conditions surrounding drug use to prevent the spread of HIV, unequal access to health services, unsafe injecting behaviors, mental health or other determinants (Hilton, Thompson et al. 2001). Harm reduction interventions that implemented include needle and syringe programs, methadone and other replacement therapies, heroin prescribing, depenalisation and the harms associated with criminal penalties for drug use, information, education and communication, safer injecting and other drug consumption rooms, pill testing and allied warning systems and motivational interviewing (Hunt 2010, AMFAR 2015)

2.4 Social Cognitive Theory

Social Cognitive Learning Theory was introduced by Albert Bandura in 1977 with the publication of "Self-efficacy: Toward a Unifying Theory of Behavioral

Change," he identified the important piece of the missing element - self-beliefs (Bandura 1977). With the publication of *Social Foundations of Thought and Action: A Social Cognitive Theory*, Bandura (1986) advanced a view of human functioning that accords a central role to cognitive, vicarious, self-regulatory, and self-reflective processes in human adaptation and change. From this theory, Bandura believed human functioning as the product of a dynamic interplay of personal, behavioral, and environmental influences. This is the concept of 'reciprocal determinism'. Social cognitive theory favors a model of causation involving triadic reciprocal determinism. In this model of reciprocal causation, behavior, cognition and other personal factors, and environmental influences all operate as interacting determinants that influence each other bidirectionally (Bandura 1989).

Social Cognitive Theory integrates a large number of discrete ideas, concepts, and sub-processes into an overall framework for understanding human functioning. Three core concepts of this theory include observational leaning, self-regulation and self-efficacy.

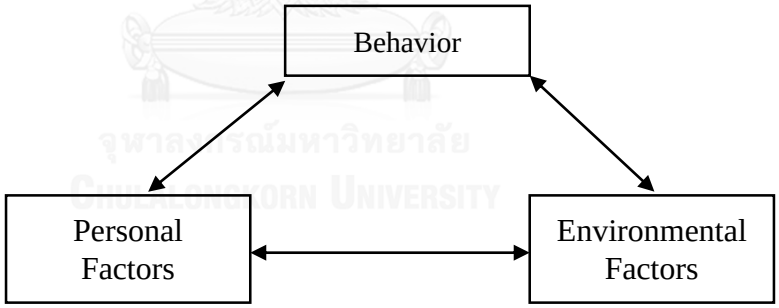

Figure 2.1: Model of reciprocal determinism

Observational learning of thinking skills is highly facilitated by modelling thought processes with action strategies (Meichenbaum 1984). Modelling has been shown to be an effective means of establishing abstract or rule governed behavior. On the basis of modelled information, people acquire, among other things, judgmental standards, linguistic rules, styles of inquiry, information-processing skills, and standards of self-evaluation (Bandura 1989). Bandura identified three basic models of observational learning:

1. A live model, which involves an actual individual demonstrating or acting out a behavior
2. A verbal instructional model, which involves descriptions and explanations of a behavior
3. A symbolic model, which involves real or fictional characters displaying behaviors in books, films, television programs, or online media

Successful modelling of these more complicated patterns of behavior require development of the major sub-functions that govern observational learning including attentional, retention, production and motivational processes (Bandura 1989).

- **Attention:** In the learning process, people need to pay attention. If the learning topics are interesting, they are more likely to pay full attention.
- **Retention:** The process of retention is the ability to store information. It is the ability to pull up information later and act on it is vital to observational learning.
- **Reproduction:** It is the process after attention and retention when people start to perform the desired behavior. It will improve their behavior and advance their skills.
- **Motivation:** In order for observational learning to be successful, motivation needs to be created. Reinforcement and punishment play an important role in motivation.

Self-regulation mechanism operates through three principle sub functions include self-observation, judgment process and self-reaction (Bandura 1991). Self-observation can be used to assess one's progress toward goal attainment. The behavior should be continuously observed while it occurs. Judgment process or self-evaluation compares one person's performance with a goal. People will be satisfied when they achieve goals that they value. When people achieve these valued goals, they are more likely to continue to exert a high level of effort, since sub-standard performance will no longer provide satisfaction (Bandura 1989). Self-reaction refers to one's performance can be motivated. If the progress made is deemed acceptable, then one will have a feeling of self-efficacy with regard to continuing, and will be motivated towards the achievement of their goal.

Self-efficacy beliefs are an important aspect of human motivation and behavior. People are more likely to engage in activities for which they have high self-efficacy (van der Bijl and Shortridge-Baggett 2001). Self-efficacy has influence over people's ability to learn, their motivation and performance (Lunenburg 2011).

2.4 Transtheoretical Model (Stages of Change)

Transtheoretical model (TTM) is the theory that identifies key stages that people can go through when adopting different behaviors. This theory sees behavior as a process rather than an event (French, Blair-Stevens et al. 2009). TTM was developed by James O. Prochaska of the University of Rhode Island and colleagues. One of the key constructs of the TTM is the Stages of Change. Behavioral change can be thought of a progression through a series of stages (Prochaska 2005). The Stages of Change are as follows:

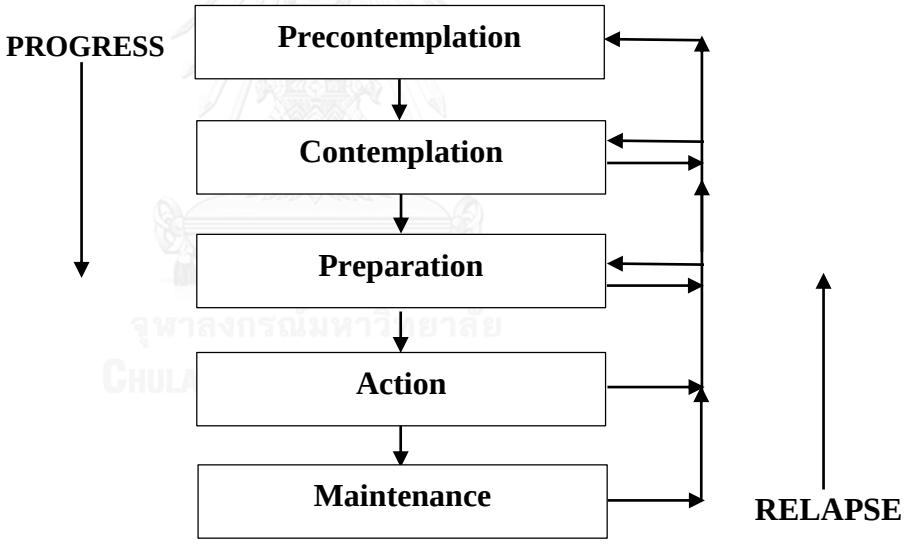

Figure 2.2: The Stages of Change Continuum

- **Pre-contemplation:** The person is unaware or not intending to change a particular behavior. They are usually not armed with the facts about the risks associated with their behavior.
- **Contemplation:** The person become aware, begin to understand and desire to change a particular behavior. The person consider advantages and disadvantages of the desired behavior and ambivalent about change.

- **Preparation:** The person has some experience about change and is trying to change. The person outweighs the disadvantages and plan for action.
- **Action:** This stage means that the person practices the desired behavior. It is the beginning of behavior change process.
- **Maintenance:** When the person continue commitment to sustain desired behavior for at least six months.

In this study, Social Cognitive Theory was applied and used in the design of the Triple-S intervention. It focuses on improving self-efficacy of study participant from the process of motivation improvement, cognitive recognition and observation learning from the modelling. The intervention was specific on improving drug users' perceived confidence in their ability to utilize specific harm reduction strategies in high-risk situations; withdrawal, negative emotions and social pressure conditions. The Stages of Change addresses change is a process that occurs over a period of time. Both linear and non-linear mechanism can be occurred in these changes. The Stage of Change can be recycled. This study used this theory to assess level of stage of change for each person and apply intervention to move IDU to next level of Stage of Change. Standard questionnaire (SOCRATE 8D) was used to assess each person before attending the sessions.

2.5 Relevant Research

Literature review was conducted for relevant research from year 1996 to 2011. The relevant researches are related to drug initiations, IDU risk behaviors and treatment.

A study in Mexico was conducted to identify background characteristics of individuals who injected as their first illicit drug-use experience (Morris, Brouwer et al. 2011). Given these individuals' accelerated transition into injection drug use, this study examined how their current drug using and sexual behaviors differed compared to individuals who initiated illicit drug use through snorting, smoking, or ingesting. Data provide little support that this IDU subgroup engaged in behaviors that placed them at higher risk of acquiring blood-borne infections. Instead this unique subgroup

of IDU may represent a more stable, less risky group who could act as potential leaders in their community to change social norms and motivate behavior change.

A multi-site study was undertaken in 2004 to describe risk behaviors and patterns of drug use among young IDU with a recent history of injecting ketamine (Lankenau, Wagner et al. 2010). Several variables evidenced statistically significant relationships with drug type: age at injection initiation, level of education, region of initiation, setting, mode of administration, patterns of self-injection, number of drugs ever injected, current housing status, and their hepatitis C virus (HCV) status. Qualitative analyses revealed that rationale for injection initiation and subjective experiences at first injection differed by drug type.

Another qualitative study was conducted to explore the factors that influence the initiation of drug and alcohol use among homeless women and the health and social consequences of drug and alcohol use (Nyamathi, Bayley et al. 1999). Findings revealed that they had suffered traumatic childhood events and family dysfunction and had low self-esteem, emotional distress, and poor physical health. The initiation of drug and/or alcohol use was strongly affected by the social influence of other users.

A study conducted in Thailand revealed situation about IDU (Werb, Hayashi et al. 2009). This study aimed to identify drug use patterns among IDU participating in a cross-sectional study conducted in Bangkok. More than half of IDU (61.5%) reported heroin injection and 52.4% reported injection midazolam use at least daily in the past six months. Participants in this study reported high levels of illicit drug use, including the injection of both illicit and licit drugs. In bivariate analyses, no association between increased police presence and drug use behaviors was observed. These findings demonstrate high ongoing rates of drug injecting in Thailand despite reports of increased levels of strict enforcement and enforcement-related violence, and raise questions regarding the merits of this approach

Effectiveness of a brief intervention and continuity of care in enhancing attendance for treatment by adolescent substance users was conducted (Tait, Hulse et al. 2004). This study aimed to evaluate the effectiveness of a brief intervention

enhanced by a consistent support person in facilitating attendance for substance use treatment following a hospital alcohol or other drug presentation. Randomized control trial was used with 127 adolescents from hospital emergency departments. This study revealed that adolescent attendance for treatment can be improved by brief intervention with harmful substance use behaviors reduced for both occasional and daily users.

There are many studies worldwide indicated effectiveness of cognitive behavioral therapy CBT among IDU. A Randomized controlled trial study was conducted with 214 regular amphetamine users to test feasibility of brief interventions consisting of motivational interviewing (MI) and CBT compared with a control condition (Baker, Lee et al. 2004). The main outcomes of this study were to measure changes in amphetamine use, changes in other drug use and changes in drug-related harm by using standard measurement related to drugs use and mental health. This study revealed that there was a significant decrease in the likelihood of amphetamines abstinent among those receiving treatment sessions. The number of sessions attended associated with a faster improvement in depression level.

A study conducted to identify feasibility of brief CBT among amphetamine users, to assess the effectiveness of intervention and to pilot multiple session interventions (Baker, Boggs et al. 2001). The Opiate Treatment Index (OTI) was the main measurement for this study. Findings indicated a significant reduction in amphetamine use. This study concluded that brief CBT appear feasible among regular users of amphetamine.

A study conducted from Boston University (McHugh, Hearon et al. 2010) revealed that CBT for substance use disorders demonstrated efficacy as both a therapy and as part of combination treatment strategies. Evidence supporting the use of CBT were shown and focused on overcoming the powerfully reinforcing effects of psychoactive substances.

Another study conducted in Brazil compare individual and group CBT for alcohol and drug-dependent patients by using a randomized clinical trial (Marques and Formigoni 2001). This study revealed similar levels of drug consumption, dependence

and associated problems for both groups. These two groups, individual and group CBT, presented similar outcomes. While a group format could be used as a good option to reduce costs, staff and therapist characteristics are also important aspects to be considered.

An evaluation of a CBT for pregnant IDU at risk of HIV infection was conducted in Australia by using randomized control trial (O'Neill, Baker et al. 1996). Findings revealed that there was no change in drug use per se in either group after the intervention and the intervention had no effect on sexual risk behaviors. An intervention may be used for individuals persisting with injecting risk behaviors despite methadone maintenance treatment. The availability of sterile injection equipment should also be considered.

A systematic review of interventions to increase the uptake of opiate substitution therapy in injecting drug users was conducted in United Kingdom (Roberts, Annett et al. 2011). Studies were categorized into MI, case management (CM) or mixed approaches. Meta-analysis was performed for these six studies. Individuals exposed to MI were 1.46 times more likely to enter treatment at follow up and individuals exposed to CM were 2.95 times more likely to be entering treatment at follow up. This study indicated the use of both CM and MI approaches to increase the uptake of IDU into treatment.

Methadone treatment of IDU for prevention of HIV infection was revealed from a systematic review (Gowing, Farrell et al. 2005). Twenty-eight studies involving methadone treatment were included in the review. MMT is associated with statistically significant reductions in injecting use and sharing of injecting equipment. It is also associated with reductions in numbers of injecting drug users reporting multiple sex partners or exchanges of sex for drugs or money, but has little effect on condom use.

Factors associated with methadone treatment among IDU in Thailand were analysed (Fairbairn and et al 2011). It was found that non injection methamphetamine use were negatively associated with methadone treatment and majority of IDU on methadone continued to inject drugs, and the most common reason for stopping

methadone was becoming incarcerated. This study suggested that evidence-based addiction treatment in the form of methadone maintenance therapy, with attention paid to concomitant midazolam injection in this setting, should be implemented.

From all of these relevant researches, they were indicated about IDU risk behavior and HIV risk. Behavior change theory is more likely to be applied and implemented with IDU in either group or individual format. IDU in Thailand is still at risk behavior and continued to inject drugs. From these reasons, this study aim to reduce the gap by designing the intervention for IDU to reduce rate of drugs injection, practice safer behaviors and improve their general and harm reduction self-efficacy.

CHAPTER III

RESEARCH METHODOLOGY

This study was done by using quasi experimental research design. This study assessed the effectiveness of Triple-S intervention. Study participants were assigned into two groups. The intervention group received Triple-S intervention. Another group was a control group received self-help booklet only once at the beginning. This study evaluated effectiveness of the intervention compare to a control group and was assessed before and after the intervention and follow up at 1-, 3- and 6-month. Outcomes were assessed in term of reducing rate of drug injection, having safer drug injection behaviors, and improving harm reduction self-efficacy.

3.1 Study population

In Bangkok, the IDU population was estimated to be around 4,200 (Johnston and et al 2012).Target population in this study were IDU, aged older than 18 in Bangkok and its vicinity and reported injecting any type of illicit drug in the past 6 months.

3.2 Sample size

Sample size was calculated for test of different (Cohen 1992), with 95% confidence interval and 90% power, and equal sample sizes in two groups. The primary outcome of interest is dichotomous (Chan 2003). From the meta-analytic review of psychosocial intervention for substance use disorders (Dutra, Stathopoulou et al. 2008), 13% of the participants on the control group achieved a successful outcome for drug abstinence rate and 27% of the subjects had a successful outcome. The effect size was also referred from this meta-analytic review which reported 0.23. The formula for sample size calculation is as follow;

$$N = \frac{K \times [p_1 (1 - p_1) + p_2 (1 - p_2)]}{(p_1 - p_2)^2}$$

Where, N = the sample size in each of the groups

K = constant which is a function of α and β

($K = 10.5$ for 90% power)

p_1 = proportion of successes on control group

p_2 = proportion of successes on intervention group

$$N = \frac{10.5 \times [0.13(1 - 0.13) + 0.36(1 - 0.36)]}{(0.13 - 0.36)^2}$$

$$N = 31.74$$

From the calculation, it was the minimum number of the sample size. In order to prevent loss follow up, 20% of sample size was added up and adjusted the sample size into 45 per group. Totally, 91 IDU were recruited in this study.

3.3 Sampling procedures

Announcement about this study was posted at IDU Drop-in Center in Bangkok and its vicinity and by word of mouth. Non-probability sampling was done to recruit eligible respondent to the study. A purposive sample was used as a non-representative subset of some larger population, and constructed to serve a very specific need or purpose. Recruitment with snowballing was also done to reach the targeted sample size. As IDUs are hard to reach population and drug use is illegal, in order to reach and recruit them into the study, gaining trust and ensuring their security were important issues in the recruitment process.

Ninety eligible respondents were assigned to one of two groups by intervention site. The control group consisted of individuals from two sites located in center and southern of Bangkok (Sathorn and Bang Khae District) and a community in center area (Klong Toei District). The intervention group was from two sites located in the center and northern of Bangkok (Phrakhanong and Bang Sue District) as shown in the Figure 3.1. In order to have the same population characteristics for two groups, average age, average duration of drug use (Carney and Myers 2012) and sex (Ettorre 2004) were monitored in the sampling process.

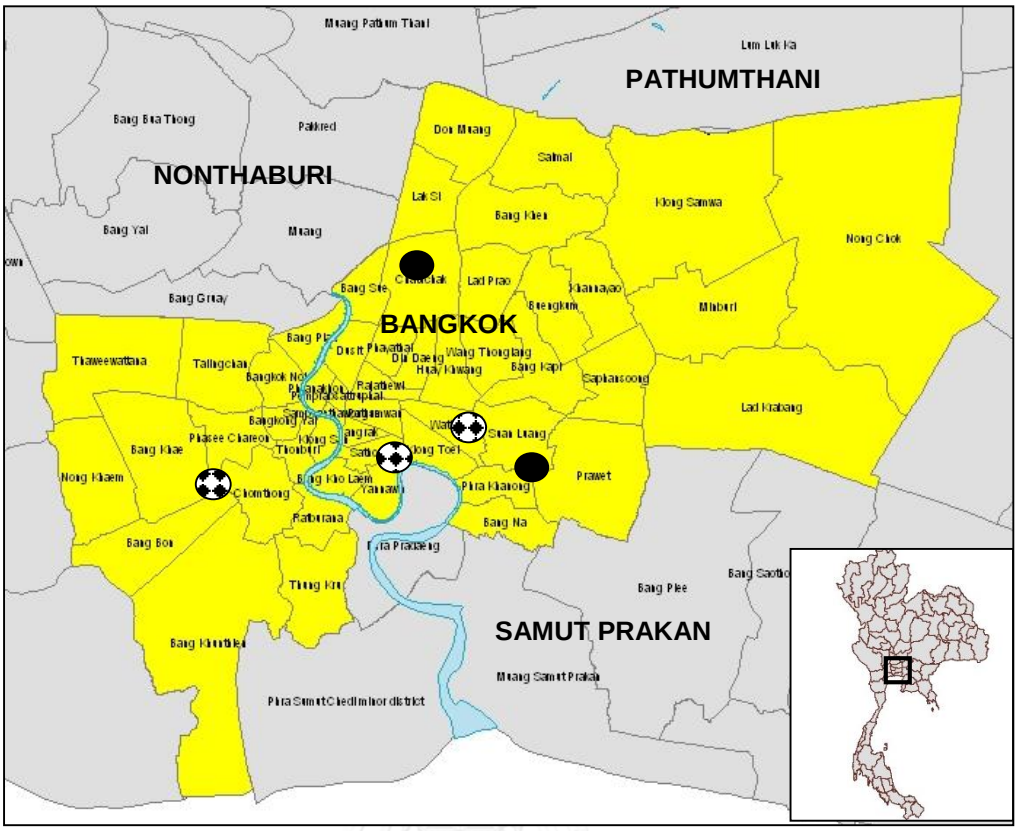

Figure 3.1: Map of areas of the study site

3.4 Inclusion and exclusion criteria

In order to be eligible to this study, inclusion and exclusion criteria were as follow;

Inclusion criteria:

- Aged older than 18 years old
- Have been injected any type of substance in the past 6 months
- Resident in Bangkok and its vicinity for at least 6 months
- Willing to be contacted for follow up assessment in the duration of 10 months
- Able to give informed consent

Exclusion criteria:

- Any female participant who is pregnant and early pregnant during the intervention
- Any person who has participated in a similar research study in the past 6 months
- Any person who currently receive Methadone Maintenance Treatment
- Any medical or psychiatric conditions
- Any person who are unable to read and write

Participants were screened for eligibility by using screening questionnaire as shown in Appendix G.

3.5 Study procedure

Eligible respondents were assigned to one of two groups: intervention group was the experimental group receiving Triple-S intervention that was being tested and a comparison group (a control group). These groups were then followed prospectively to assess the effectiveness of the intervention.

All potential respondents were given an overview of the study. Then, all potential participants were forwarded to the interviewers and a meeting was arranged. Interviewers were then administer the informed consent protocol and arrangements were made for the first measurement to conduct within 2-3 days. Informed consent was obtained for both the interview and the data analysis. Anonymity of responses was assured by use of non-identifying nicknames in place of names. Interview, transcripts, note taking and any other information related to the collection of data was maintained under secure lock and key for only researchers to access.

Triple-S intervention was done by using grouping format. It was 5 participants per group. Information from baseline measurement related to stage of change and type of main drug injection were used to arrange participants into group. Study participants in the same group that was not available in the same time, groups were merged with the participants who had the same level of stage of change and type of main drug injection. Procedure of the study as shown in Figure 3.2.

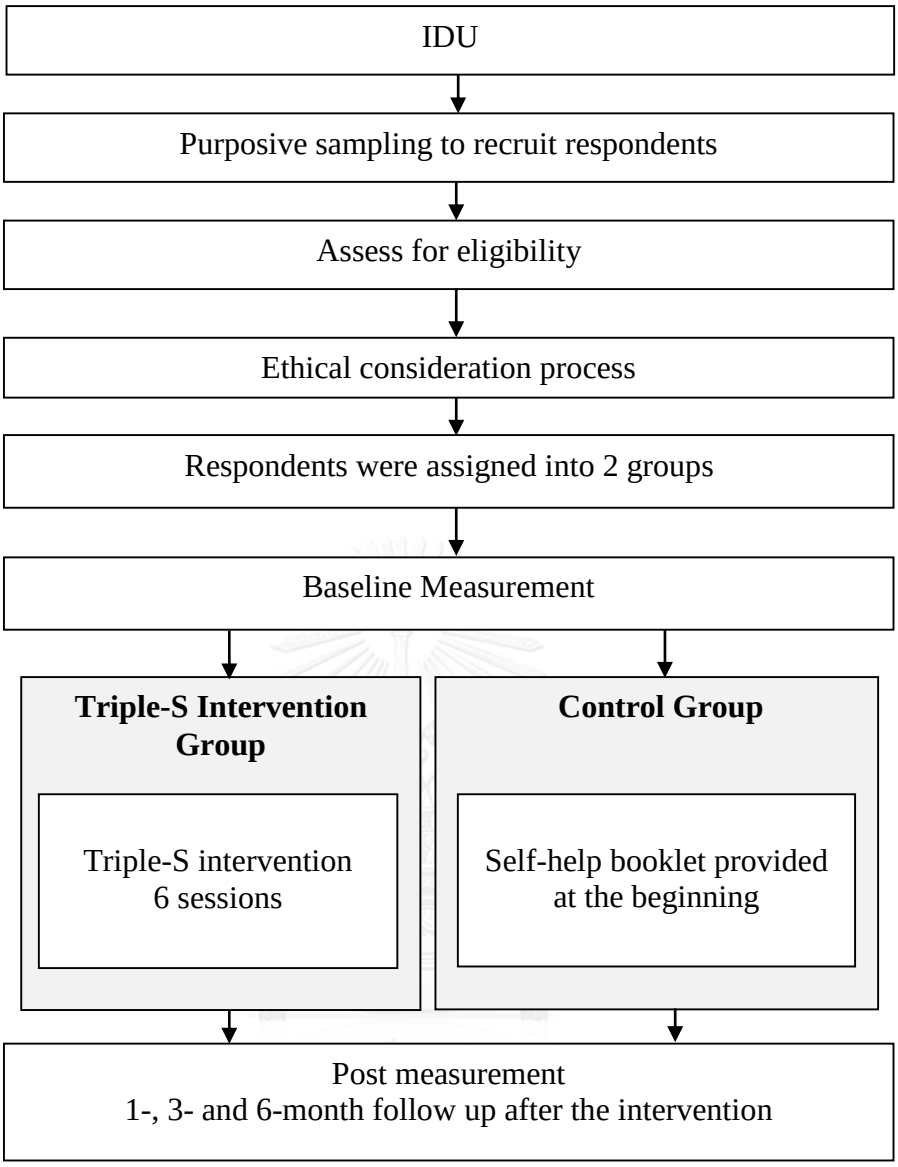

Figure 3.2: Study procedure

Flow of the Participants through the study as shown in Figure 3.3. There were 125 IDU screened and 91 respondents were eligible to attend the study. 35 persons who were not eligible because they were in methadone treatment (15 persons), not injecting drug in the past six months (6 persons) and unreachable after passing the screening process (13 persons). Of those who were eligible to the study, one person passed away before assignment to the group. In total, there were 90 participants in this study. 45 participants were assigned to the intervention group and another half were assigned to the control group. For the intervention group, 36 participants completed all six sessions of the Triple-S intervention. There were 31 participants completed all three follow up

assessment. For the control group, there were 20 participants completed all assessments. Loss follow up rate for both groups were 43%. The loss follow up rate was 31% in the intervention group and 56% in the control group. The reasons for loss follow up were imprisonment (5 persons), died (2 persons) and unreachable (23 persons).

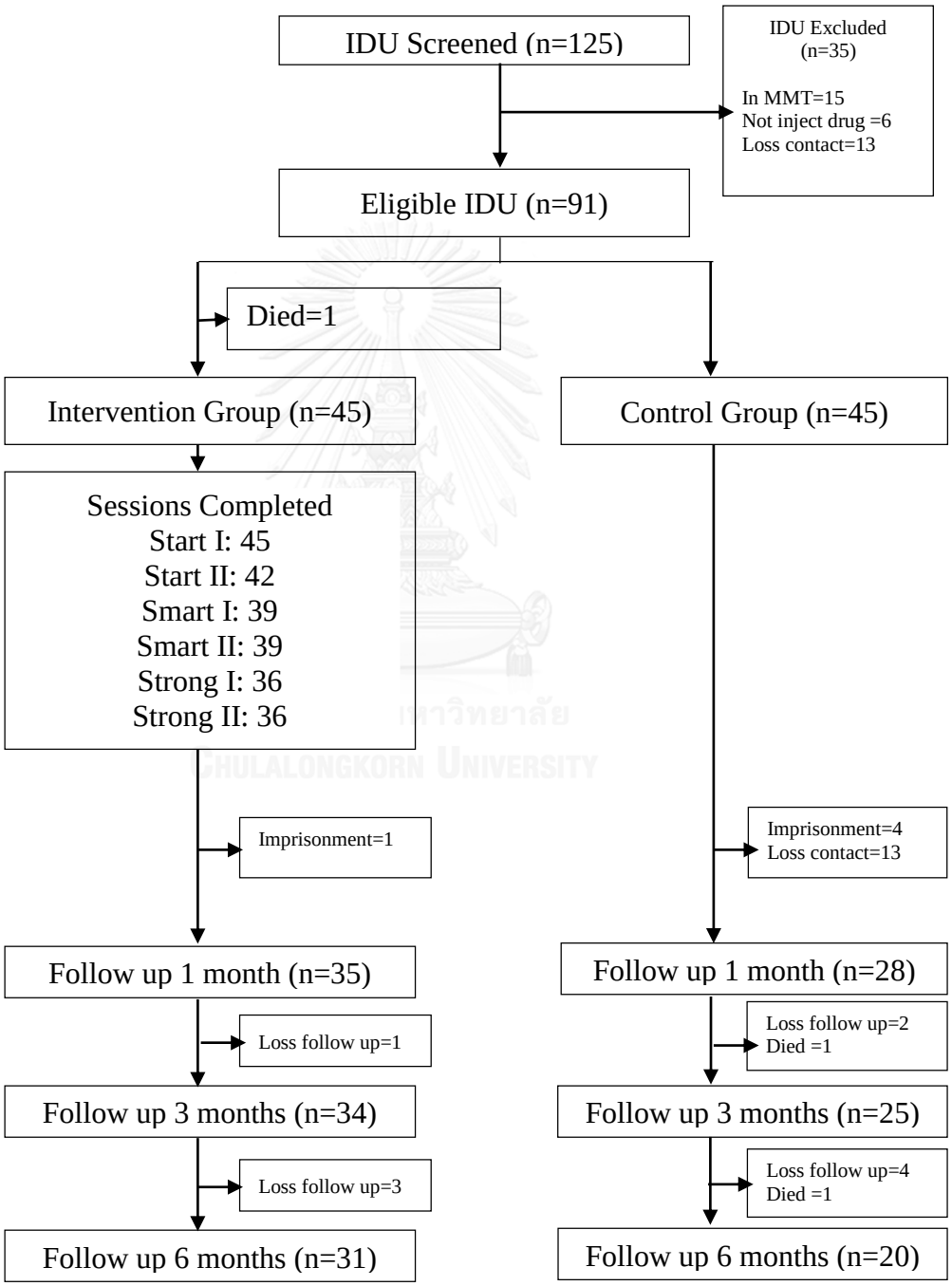

Figure 3.3: Flow of study participants through the study

3.6 Intervention

Many studies used individual format for the intervention and it was found that both of the individual format and group session presented similar effectiveness (Sampl and Kadden 2000, Marques and Formigoni 2001, McHugh, Hearon et al. 2010). Therefore, this study was designed by using grouping format (5 persons per group). Triple-S intervention was conducted by interventionists who have experience working with drug users. Totally, two interventionists and two research assistants were hired and trained for this study.

Details of two types of intervention in this study are as follow;

- **Educational intervention**

This intervention was applied for control group. Self-help booklet was provided to study participants only once at the beginning of the study. The overview of the self-help booklet is as follow (Appendix C);

- Harm reduction from drug use
- Safe injection
- Overdose prevention

- **Triple-S intervention**

Triple-S is a behavior change intervention designed grounded in Social Cognitive Learning Theory and Transtheoritical Model. Triple-S was implemented with IDU in the intervention group. It comprises of six grouping sessions complemented with individual sessions aimed to change IDU behaviors. Triple-S intervention has 3 parts as follow;

Start – IDU prepare and start building readiness for behavior change

Smart – IDU change their behavior by improving harm reduction self-efficacy and having safer drug use behaviors

Strong – IDU reduce rate of drug use, realize benefit and maintain behavior change

Main Outcomes that were measured from this intervention are as follow;

- Reduce level of drug injection
- Safer drug injection behaviors
- Improve IDUs' harm reduction self-efficacy

Triple-S intervention was designed grounded in behavior change theories. The intervention help the study participants to learn in each session including discussion with the interventionists. This intervention was applied to experimental or intervention group. Intervention was designed as in Figure 3.4.

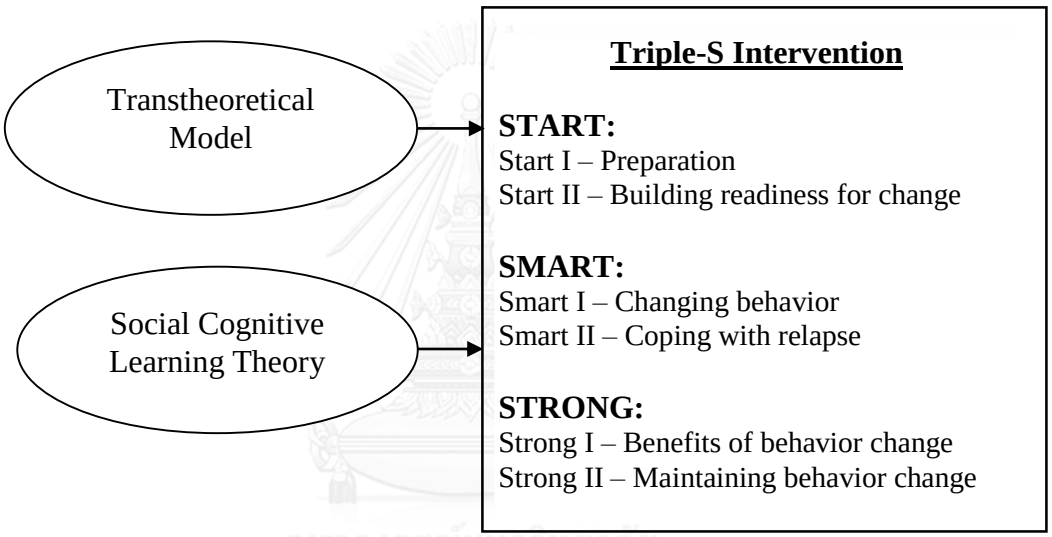

Figure 3.4: Triple-S Intervention

The intervention was conducted in the duration of three months which took around one hour per group per session. Totally, six sessions of intervention were conducted with each group complimented with individual sessions. Manual for Triple-S intervention was created, reviewed and approved by experts from public health and psychology field before being implemented (Appendix A). Training for interventionists was also conducted. Individual log sheet with information from baseline measurement was designed and used with each participant. Transtheoretical model was applied to assess each participant readiness to change (Appendix F). Interventionists used this log sheet to record each participant responses after each session. Details of Triple-S intervention that was conducted is as follow;

Start I: Preparation

Objective: To prepare study participant for Triple-S sessions

Each person was contacted for preparation for the sessions. Study participant provided information about their life situation and drug use problems. Challenging about their life was discussed and expectation for attending this intervention were defined. Insights of IDU were generated and this information was used for segmenting the target group. At this stage, Triple-S intervention was introduced to study participant. This information was used to plan for motivation enhancement for each person in each stage. Outline of the sessions of the intervention was given to the participants. Appointment for the next sessions was made.

Start II: Building readiness for change

Objective: To motivate study participant to observe their own behaviors and start thinking about changing their drug use behavior

This session was about building readiness for change. The interventionist began the process of assessing and building the participant's motivation to change by addresses their life goal. Study participants discussed with the interventionist about how drug use affect their life goal. Self-efficacy should improve by changing their belief about their own capability to learn or perform behaviors. Harm reduction knowledge and concept was given to study participants. Homework exercise was given to study participant which was about recording rate of drug use and their injecting behaviors.

Smart I: Changing behavior

Objective: To provide knowledge and information for changing their drug use behavior

This part includes reviewing about drug use problems that occur with study participant's life. Each person defined their drug use behavior that they intended to change, benefits to their life, and set goals of behavior change. They should set the plan for changing their behaviors. Role model was shown and discuss to support attentional, retention and production process. Homework exercise was

given to study participant to record their drug use behaviors, changes that occur in their drug use behaviors and their feeling about it.

Smart II: Coping with relapse

Objective: To develop skills to deal with challenges that may occur during behavior change process

This session develop further skills for IDU to deal with challenges that may occur and assist each participant to develop emergency plan in order to cope with relapse and maintain their behavior change. Self-observation related to their drug use behaviors was discussed. Past experiences of them related to relapse were also discussed. Factors that associated with relapse were discussed with study participants including peer pressure, family support, community support and employer support. Key person support was identified in order to assist them during the process. Planning for stronger coping strategies with at-risk situations were defined and various situations that may cause relapse were shown with possible solutions. The group discussed about how to deal with each challenge. Homework exercise was given to study participant to record their feeling when practicing safe drug use behaviors, problems occur and how to deal with each situation.

Strong I: Benefits of behavior change

Objective: To realize benefit of their behavior changes and enhance motivation

Motivation to drug use behavior change was discussed and strengthen benefits that they got. Motivation can be enhanced by emphasizing that using/injecting drug may affect their life goal. Changing in their life was discussed. Challenges from practicing harm reduction were defined and discussed. Environmental factors that may cause at-risk situation were given and discussed possible solutions. Internal rewards were reinforced. Capability to behavior change was strengthened and motivated them to maintain their behavior change and evaluate trigger for relapse. Homework exercise was given to study participant to record their feeling and changing in their life after behavior change.

Strong II: Maintaining behavior change

Objective: To create commitment for sustaining behavior change

This session assisted each participant to realize advantages of behavior change that lead to their life goals, belief in their capability to change and deal with challenging situations and continue commitment to sustaining new behavior. Advantages of behavior change that lead to their life goals were discussed. Internal rewards were reinforced. Key person support was identified in order to assist them during the process. Type of support and how they can get it was introduced to each participant. Follow up scheduling was planned.

3.7 Research measurement instruments

Research measurement instruments were designed and used to assess the intervention and outcomes of the study as follow;

3.7.1 Intervention assessment

These assessments were used during the intervention in order to monitor and evaluate effectiveness of each process and used to apply the intervention as appropriate. The intervention assessment consists of;

- **The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES).** It is an instrument designed to assess readiness for change in alcohol abusers. A version for drug users was developed that has three scale scores, including Recognition, Ambivalence, and Taking Steps, which correspond to the appropriate stages of change. The Recognition scale examines whether study participants recognize problems related to their drug use or if they deny that their use is causing any problems to their life. The Ambivalence Scale consider whether drug users are in the pre contemplation/contemplation stage, and examines ambivalence to change, including whether they wonder if they are in control of their drug use. The Taking Steps subscale looks at whether study participants are taking any steps to change their drug use. The measure applies a 5-point Likert scale that ranges from 1 (Strongly

Disagree) to 5 (Strongly Agree). Three subscale scores (Recognition, Ambivalence and Taking Steps) indicate whether a study participant scored in the low, medium or high range for a particular stage of change. SOCRATES 8D is a 19-item drug/alcohol questionnaire for clients as shown in Appendix F. Standard questionnaires have been tested and reported for reliability and validity. SOCRATES indicates moderate internal consistency (alpha range of .60-.96) and high test-retest reliability (.82-.93) (Phillips 2005). The scoring sheet for SOCATES 8D can be seen in Appendix G and the scores can be interpreted as in Table 3.1 (McNicholas 2004);

Table 3.1: Interpretation of SOCRATES scores

Score	Recognition	Ambivalence	Taking Steps
90 Very high		19 – 20	39 – 40
80		18	37 – 38
70 High	35	17	36
60	34	16	34 – 35
50 Medium	32 – 33	15	33
40	31	14	31 – 32
30 Low	29 – 30	12 – 13	30
20	27 – 28	9 – 11	26 – 29
10 very low	7 – 26	4 – 8	8 – 25

- **Homework after each session** to record daily. After each session, study participant was given homework to record their thought, feelings, behaviors and how to deal with the situations. This homework have specific information to record by the topic discussed in each session. The homework was reviewed by the interventionist before the next session. Information from participant's homework was recorded in the log sheet (Appendix B).

3.7.2 Outcome assessment

This quasi-experimental study was tested for baseline and follow up for each participant four times; baseline, after complete the intervention (first month) and follow up for sustainability (third and sixth month), within group and between group.

Main outcomes that were measured from this intervention are as follow;

- Reduce level of drug injection
    - Rate of drug injection
    - OTI Scale Score
- Safer drug injection behaviors
    - Polydrug injection
    - Drug mixing
    - Injection at groin
    - Injection site rotation
- Harm reduction self-efficacy in three conditions
    - Withdrawal condition
    - Negative emotions condition
    - Social pressure condition

These outcomes were measured by;

- **Socio-Demographic and drug injection behavior questionnaire:** This questionnaire includes information about population characteristics, rate of drug injection, drug injection behaviors

- **The Opiate Treatment Index (OTI):** The OTI consists of six independent outcome domains. The domains chosen to reflect the dimensions of treatment outcome were: Drug Use, HIV Risk-taking Behaviour, Social Functioning, Criminality, Health Status, and Psychological Adjustment. The reliability and validity of the OTI scales were tested by a series of sub-studies. Coefficient alpha for each of the scales to date are as follows: HIV Risk-taking Behavior: 0.70; Social Functioning: 0.58; Criminality: 0.38; Health: 0.76; Psychological Adjustment (GHQ): 0.83. For poly-drug use, coefficient alpha was not

calculated as it could not be combined the drug use data into a single scale score (Darke, Ward et al. 1991). In this study, Opiate Treatment Index (OTI) was used in drug use domain to gather information from the study participants. All questions concern behavior in the month prior to the day of interview. The intervals between days of drug use, and the amounts consumed on these days, are employed to estimate recent consumption. Average amount per day (Q Score) can be calculated by the formula;

$$Q = \frac{q1 + q2}{t1 + t2}$$

where Q = average amount per day

q1 = amount consumed on the last use occasion

q2 = amount consumed on the second last use occasion

t1 = interval between the last day of drug use and the next to last use day

t2 = interval between the second and third last days of drug use

Q Score can be interpreted as Table 3.2;

Table 3.2: Interpretation of Q scores

Quantity/Frequency	**Q**
Abstinence	0.00
Once a week or less	0.01 - 0.13
More than once a week	0.14 - 0.99
Once a day	1.00 - 1.99
More than once a day	2.00 or more

- **Harm Reduction Self-Efficacy Questionnaire (HRSEQ):** This questionnaire was used for measurement of drug users' perceived confidence in their ability to utilize specific harm reduction strategies in high-risk situations. HRSEQ was tested by using test-retest reliability and reported for three conditions. For withdrawal condition, $r = .84$, $p =$

.0001, for negative emotion condition, r = .70, p = .0001 and for social pressure condition, r = .85, p = .0001 (Phillips 2005).

3.8 Reliability and validity

Questionnaires were tested for content validity by experts from academic and related field and back translation of all questionnaires were done by English language specialist who familiar with translating documents related to drug use and harm reduction. All of research instruments in this study were tested for reliability and validity. Questionnaires were pilot tested with 30 IDUs in Samutprakarn Province who were not included in this study. For poly-drug use in OTI, coefficient alpha was not calculated as it could not be combined the drug use data into a single scale score. Internal reliability Cronbach's alpha for HIV Risk-taking Behavior was 0.70. For Harm Reduction Self-Efficacy Questionnaire, Withdrawal condition, Cronbach's alpha was calculated at 0.649, for Negative Mood condition, Cronbach's alpha was 0.742 and for Social Situation condition, Cronbach's alpha was 0.789. Experts in the field of harm reduction were identified. The experts' opinions resulted in IOC value of 0.80. The revisions of the instrument according to experts' comments were incorporated. Reliability of the Stages of Change Readiness and Treatment Eagerness Scale that was used for intervention assessment demonstrated Cronbach's alpha 0.835.

3.9 Data analysis

This study used a two-parallel group, quasi-experimental design to one of the two conditions. Data analysis was done as following process;

- Baseline data was collected. Prior to testing for intervention effects, baseline data was analyzed for demographic and drug injection behaviors between the intervention and the control group to reduce confounding variables. A chi-square test was used to compare categorical variables between the intervention and the control groups. An independent t-test was used to determine the mean differences between the intervention and the control groups for continuous variables.

- Outcome assessments was used with two groups to follow up at baseline, and follow up (1-, 3- and 6-month) to evaluate effectiveness of Triple-S intervention. After collected data, it was cleaned and verified for all variables. SPSS software package version 22 was used to analyze quantitative data. A chi-square test was used to compare categorical variables between the intervention and the control groups. Independent t-test were used to measure the difference of two mean scores between groups. Repeated measures ANOVA was analyzed to explore the effects of overall changes and difference within group. A p-value of 0.05 was used as the criterion for statistical significance for all analyses.

3.10 Ethical consideration

The Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University, approved this study on September 29, 2014 with the research project number 106.1/57.

No participant was interviewed without their informed consent. Prior to data collection, potential respondents were provided a verbal consent form (Appendix H).

CHAPTER IV

RESULTS

This chapter presents the analysis and interpretation derived from IDU who participated in the study. The results presented in this chapter include descriptive findings of the demographic characteristics of the IDU and effectiveness of the Triple-S intervention. The effectiveness of the intervention was assessed by the differences in level of drug injection, drug injection behaviors and harm reduction self-efficacy of IDU who completed the Triple-S intervention compared to the control group.

4.1 Demographic characteristics

Demographic characteristics of study participants were analyzed from the baseline assessment to provide information and to compare between the intervention and the control groups. This part presented the frequency distribution of selected variables describing the background of IDU before the intervention. Data was aggregated by the intervention and the control group. For categorical variables, a chi-square was used to determine the differences between the intervention and the control groups. Independent t-test was used to determine the mean differences between the two groups. The frequency of distribution for the selected variables of socio demographic characteristics include sex, age, education level, employment status, income and marital status, as presented in Table 4.1.

Most of study participants (87%) were male as they are a majority of drug use population in Thailand. Only 13% of female participated in this study, 16% in the intervention group and 11% in the control group. Median age of participants was 39 years old and mean age was 41 years old. According to National Education Act of B.E. 2542 (1999), compulsory education shall be for nine years which mean completing secondary school (Matthayom 3) (ONEC 1999). This information was used to consider number of IDU who completed basic education. It was found that two-third of study participants (66%) completed nine years of basic education or higher. There were 67% for the intervention group and 64% for the control group who completed Matthayom 3 or higher. One-third of study participants (34%) had completed lower than basic

education. More than half (62%) of study participants had been employed, either a full time or part time job. There were higher proportion of the intervention group (71%) compared to the control group (53%) that had been employed, however, it was not statistically difference. Average and median monthly income was 5,990 and 6,000 Thai Baht respectively. Average income of the control group (5,378 Thai Baht) was lower than the intervention group (6,602 Thai Baht). It can be considered that there was a lower proportion of the control group who had been employed. Around one-third (36%) of study participants were married. Anyhow, there was no statistically difference in all demographic characteristics between groups.

Table 4.1: Demographic characteristics of study participants

Variable	**Intervention Group n=45 n (%)**	**Control Group n=45 n (%)**	**Total n=90 n (%)**	**p-value**
Sex				
Male	38 (84%)	40 (89%)	78 (87%)	0.535 (a)
Female	7 (16%)	5 (11%)	12 (13%)	
Age				
Mean (SD)	41.56 (8.03)	41.29 (8.99)	41.42 (8.48)	0.882 (b)
Education				
Lower than secondary school	15 (33%)	16 (36%)	31 (34%)	0.824 (a)
Secondary school and higher	30 (67%)	29 (64%)	59 (66%)	
Employment				
Employed	32 (71%)	24 (53%)	56 (62%)	0.082 (a)
Unemployed	13 (29%)	21 (47%)	34 (38%)	
Income				
Mean (SD)	6,602 (5,737)	5,378 (5,142)	5,990 (5,452)	0.289 (b)

Variable	Intervention Group n=45 n (%)	Control Group n=45 n (%)	Total n=90 n (%)	p-value
Marital Status				
Married	17 (38%)	15 (33%)	32 (36%)	0.660 (a)
Single/Others	28 (62%)	30 (67%)	58 (64%)	

(a) p-value derived from chi-square, (b) p-value derived from independence t-test

Other drug injection behaviors data was also collected to better understand IDU's behaviors. A chi-square was used to determine the differences between the intervention and the control groups for categorical variables. For mean duration of drug injection, independent t-test was used to determine difference between the intervention and the control groups. It was found that IDU in Bangkok had been injecting drugs for an average and median of 19.86 and 20 years respectively. Maximum duration of drug injection was 42 years. Study participants in the control group reported little longer duration of drug injection (20.51 years), however, it was not significance difference between groups. On average, participants injected two types of drugs. There were 60% of study participants reported injection 2-4 types of drugs or polydrug injection. Higher proportion of study participants in the control group reported polydrug injection (intervention group 53% vs control group 67%). However, it was not statistically difference. Only 3% of the study participants reported sharing needle and injecting equipment in the past month which mean almost all study participants (97%) reported not sharing needle and injecting equipment. It was positive to consider that all participants in the intervention group reported not sharing needle and injecting equipment at all in the past month. This may be a result of a needle syringe exchange program that implemented at the drop-in centers. There were 27% of study participants reported using tourniquet, 22% of the intervention group and 31% of the control group. This variable has to be considered together with part of the body that they injected. Anyhow, there was no statistically difference in all drug injection practices between the intervention and the control groups at baseline assessment as presented in Table 4.2.

Table 4.2: Drug injection practices in the past month

Variable	Intervention Group n=45 n (%)	Control Group n=45 n (%)	Total n=90 n (%)	p-value
Duration of drug injection				
Mean (years)	19.20 (8.51)	20.51	19.86	0.470 (b)
(SD)		(8.64)	(8.55)	
Number of drug injection				
1 type of drug	21 (47%)	15 (33%)	36 (40%)	0.197 (a)
2 – 4 types of drug	24 (53%)	30 (67%)	54 (60%)	
Needle sharing				
Yes	0 (0%)	3 (7%)	3 (3%)	0.078 (a)
No	45 (100%)	42 (93%)	97 (97%)	
Tourniquet usage				
Yes	10 (22%)	14 (31%)	24 (27%)	0.340 (a)
No	35 (78%)	31 (69%)	66 (73%)	

(a) p-value derived from chi-square, (b) p-value derived from independence t-test

Study participants reported one type of drug injection including midazolam (21%), heroin (9%), and methamphetamine (9%). Half of them (50%) reported two types of drugs injection. Main drugs that one third of study participants (32%) injected were heroin and midazolam. When considering difference between the groups, it was found that 16% from the intervention group and 49% from the control group reported inject heroin and midazolam.

Table 4.3: One type of drug injection in the past month

Variable	Intervention Group n=45 n (%)	Control Group n=45 n (%)	Total n=90 n (%)	p-value
One type of drug				0.002
Midazolam	10 (22%)	9 (20%)	19 (21%)	
Heroin	3 (7%)	5 (11%)	8 (9%)	
Methamphetamine	8 (18%)	0 (0%)	8 (9%)	
Crystal-methamphetamine	0 (0%)	1 (2%)	1 (1%)	

(a) p-value derived from chi-square

There were 60% of study participants reported polydrug injection or injected more than one type of drugs. Around one-third of study participants (32%) reported inject heroin in combination with midazolam. Other two types of drugs injection included midazolam and methamphetamine, heroin and methamphetamine etc. There were 7% of study participants injected three types of drugs and 3% injected four types of drugs. There was significant difference between the intervention and the control groups (p-value<0.01) as shown in Table 4.4.

Table 4.4: More than one type of drugs injection in the past month

Variable	Intervention Group n=45 n (%)	Control Group n=45 n (%)	Total n=90 n (%)	p-value
Two types of drugs				0.006
Heroin and midazolam	7 (16%)	22 (49%)	29 (32%)	
Others (i.e. midazolam and methamphetamine)	11 (23%)	5 (11%)	16 (18%)	
Three types of drugs	3 (7%)	3 (7%)	6 (7%)	
Four types of drugs	3 (7%)	0 (0%)	3 (3%)	

(a) p-value derived from chi-square

Drug injection related behaviors of the intervention and the control groups were presented in Table 4.4. A chi-square was used to determine the differences between the intervention and the control groups for categorical variables. In terms of other behaviors related to drug injection, high proportion of study participants (82%) reported having received some form of drug treatment, 78% of the intervention group and 87% of the control group. This study screened only IDU who were not in any type of drug treatment during the recruitment period. It was interesting that a majority of study participants had ever been in drug treatment while they discontinued and still injecting drugs. Drug use is illegal in Thailand, unsurprisingly, there were 83% of study participants reported ever been in prison as a result of drug related charges. There were 87% of the intervention group and 80% of the control group, however, it was not statistically difference.

Drug overdose is currently the leading cause of death among drug users. Therefore, it is important to consider information on prevalence of non-fatal drug overdose among IDU. From this study, it was found that almost one-third (29%) of study participants reported ever experienced a non-fatal drug overdose. There were equal proportion between the intervention and the control groups (29%).

Data presented in this part regarding the demographic characteristics, drug injection practices and drug injection related behaviors can be found that even the control group seem to have less socio-economic status and more complex behaviors i.e. less income, longer duration of drug injection, higher proportion of study participant who reported polydrug injection, it had been statistically tested and found that the intervention and the control groups were no significance difference in any demographic characteristics, drug injection practices and related variables at baseline assessment.

Table 4.5: Drug injection related behaviors

Variable	Intervention Group n=45 n (%)	Control Group n=45 n (%)	Total n=90 n (%)	p-value
Ever been in drug treatment				
Yes	35 (78%)	39 (87%)	74 (82%)	0.270 (a)
No	10 (22%)	6 (13%)	16 (18%)	
Ever been in prison because of drug related				
Yes	39 (87%)	36 (80%)	75 (83%)	0.396 (a)
No	6 (13%)	9 (20%)	15 (17%)	
Ever experienced drug overdose				
Yes	13 (29%)	13 (29%)	26 (29%)	1.000 (a)
No	32 (71%)	32 (71%)	64 (71%)	

(a) p-value derived from chi-square

4.2 Effectiveness of the Triple-S intervention

This part presents effectiveness of the Triple-S intervention implemented with study participants compare to the control group. The effectiveness of the intervention was assessed by the difference in level of drug injection, drug injection behaviors and harm reduction self-efficacy of study participants who completed the Triple-S intervention compared to the control group at baseline, and follow up (1-, 3- and 6-month). The main outcomes of interest from the intervention were as follow;

- Level of drug injection
    - Rate of drug injection
    - OTI scale score for heroin
    - OTI scale score for midazolam

- Drug injection behaviors
    - Polydrug injection
    - Drug mixing
    - Injection at groin
    - Injection site rotation
- Harm reduction self-efficacy
    - Withdrawal condition
    - Negative emotions condition
    - Social pressure condition

In total, there were 10 measurements to consider effectiveness of Triple-S intervention. Data was analyzed from study participants who completed each assessments which were baseline, 1-, 3- and 6- month follow ups. At completed follow up assessment, data of 51 study participants was analyzed; 31 participants from the intervention group and 20 participants from the control group. Data was analyzed to consider differences between and within groups. All measurements were presented as following results;

4.2.1 Rate of drug injection

Level of drug injection was analyzed by using two measurements which were rate of drug injection and OTI scale score. Rate of drug injection was measured by using number of drugs injection per week.

Independent t-test was used to determine differences between the intervention and the control group at baseline, 1-, 3- and 6-month follow up. It can be found at baseline assessment that study participants in the intervention group had lower rate of drug injection compare to the control group (Mean 6.74 and 10.53 respectively). However, there was no difference between groups as shown in Table 4.6.

Table 4.6: Comparison of mean rate of drug injection between groups at baseline assessment

Assessment	n	Mean	SD	t-test
Baseline				-2.157
Intervention group	45	6.74	7.89	
Control group	45	10.53	8.76	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At follow up assessment, it was positive to see difference between the intervention and the control groups. At 1-month follow up, rate of drug injection decreased to 3.88 times per week while in the control group it was two times higher rate of drug injection than the intervention group. Independent t-test was used to determine difference between the intervention and control group as in Table 4.7. It can be found that there was significant difference between groups ($t = -3.590$, $p<0.01$).

Table 4.7: Comparison of mean rate of drug injection between groups at 1-month follow up assessment

Assessment	n	Mean	SD	t-test
1-month follow up				-3.590**
Intervention group	35	3.88	4.23	
Control group	28	9.57	8.10	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

The similar pattern has been shown in 3-month follow up assessment. The control group had two times higher rate of drug injection than the intervention group. The rate of drug injection in the control was 8.40 times per week and in the intervention group, it was 4.00 times per week. Results from using an independent t-test showed that there was significant difference between the groups (t-test = -3.086, p-value<0.01).

Table 4.8: Comparison of mean rate of drug injection between groups at 3-month follow up assessment

Assessment	n	Mean	SD	t-test
3-month follow up				-3.086**
Intervention group	34	4.00	4.32	
Control group	25	8.40	6.63	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 6-month follow up assessment, the control group had around 2.5 times higher rate of drug injection than the intervention group with mean 8.50 and 3.34 respectively as presented in Table 4.9. Results from the analysis using an independent t-test showed that there was significant different between groups (t=-3.753, p<0.001).

Table 4.9: Comparison of mean rate of drug injection between groups at 6-month follow up assessment

Assessment	n	Mean	SD	t-test
6-month follow up				-3.753***
Intervention group	31	3.34	3.45	
Control group	20	8.50	6.36	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

In order to test the overall change in rate of drug injection, repeated measures ANOVA was performed. It was found that rate of drug injection of four measurements, baseline, 1-, 3- and 6-month follow up, differed significantly between the intervention and the control group ($F(1,49) = 8.53$, p-value<0.01). For within subjects, there was significant difference over four assessments at baseline, 1-, 3- and 6-month follow up ($F(3,147) = 4.51$, p-value<0.01). There was no interaction between the assessments and group variables. Output of repeated measures ANOVA analysis as shown in Table 4.10.

Table 4.10: Effectiveness of Triple-S intervention on rate of drug injection at completed follow up assessment

Source of variation	SS	df	MS	F	p-value
Between subjects					
Group	902.29	1	902.29	8.53	0.005
Between subjects error	5,186.23	49	105.84		
Within subjects (s)					
Assessment	120.47	3	40.16	4.51	0.005
Assessment x Group	39.47	3	13.16	1.48	0.223
Within subjects error	1308.223	147	8.899		

(s)=Sphericity Assumed, p-value derived from repeated measures ANOVA

In conclusion, it was found that the intervention group had significantly reduced rate of drug injection compare to the control group. There were significant differences between the group at 1-month (p-value<0.01), 3-month (p-value<0.01) and 6-month (p-value<0.001) follow up assessments. Therefore, it was concluded that Triple-S intervention had an impact on reducing rate of drug injection.

4.2.2 OTI scale score for heroin

At baseline assessment, almost half of study participants (48%) reported heroin injection in the past month. Study participants in the control group reported injecting heroin higher than the intervention group (60% and 36% respectively). A chi-square was used to determine the differences between the intervention and the control groups. It was found that there was significant difference between study participants who reported heroin injection in the intervention and the control groups (p-value<0.05) as presented in Table 4.11.

Table 4.11: Heroin injection at baseline assessment

Variable	Intervention Group n=45 n (%)	Control Group n=45 n (%)	Total n=90 n (%)	p-value
Heroin injection				
Yes	16 (36%)	27 (60%)	43 (48%)	0.020
No	29 (64%)	18 (40%)	47 (52%)	

p-value derived from chi-square test

In order to assess level of drug injection, OTI scale score in drug use domain was used to gather information from the study participants. OTI scale score measured the behavior in the month prior to the day of interview. The intervals between days of drug use, and the amounts consumed on these days, were employed to estimate recent consumption. For baseline assessment, there were 48% of study participants (n=43) reported injecting heroin in the past month and only 39 participants responded to OTI questions (missing = 4). The OTI scale score for heroin was assessed among this group as shown in Table 4.10. It was found that there was no study participants in abstinent category. Almost half of them (46%) reported inject heroin more than once a day. More than half of the control group (56%) reported injecting heroin more than once a day while it was only 29% in the intervention group.

Table 4.12: Heroin consumption at baseline assessment

Variable	Intervention Group n=14 n (%)	Control Group n=25 n (%)	Total n=39 n (%)
Once a week or less	2 (14%)	1 (4%)	3 (8%)
More than once a week	6 (43%)	4 (16%)	10 (26%)
Once a day	2 (14%)	6 (24%)	8 (20%)
More than once a day or more	4 (29%)	14 (56%)	18 (46%)

Participants in both the intervention and the control groups dropped out from the study during the follow up assessments due to loss follow up, imprisonment and passed away. As a consequence, an effort has made to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage and responded to OTI scale score questions for heroin injection. Independent t-test was used to determine differences between the intervention and control group at baseline, 1-, 3- and 6-month follow up. At baseline assessment, it can be found that OTI scale score for the intervention group was less than the control group. The intervention group had OTI scale score for heroin injection at 1.18 and it was 1.83 for the control group. However, there was no significant difference between the groups as presented in Table 4.13.

Table 4.13: Comparison of OTI scale score for heroin injection between groups at baseline assessment

Assessment	n	Mean	SD	t-test
Baseline				-1.243
Intervention group	14	1.18	2.02	
Control group	25	1.83	1.41	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 1-month follow up assessment, OTI scale score for the control group was higher than the intervention group (mean OTI scale score 1.28 and 0.92 respectively). However, an analysis by using an independent t-test showed that there was no significant differences between the groups.

Table 4.14: Comparison of OTI scale score for heroin injection between groups at 1-month follow up

Assessment	n	Mean	SD	t-test
1-month follow up				-0.853
Intervention group	10	0.92	0.77	
Control group	17	1.28	1.20	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 3-month follow up assessment, there were only 10 participants from the intervention group and 14 participants from the control group respond to OTI scale score for heroin injection. It can be found that participants in the control group has almost 2 times higher OTI scale score than the intervention group (mean OTI scale score of 1.47 and 0.83 respectively). An independent t-test was used to examine difference between groups and it can be found that there was no significant difference between the groups at 3-month follow up assessment.

Table 4.15: Comparison of OTI scale score for heroin injection between groups at 3-month follow up

Assessment	n	Mean	SD	t-test
3-month follow up				-1.424
Intervention group	10	0.83	0.63	
Control group	14	1.47	1.26	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 6-month follow up assessment, only 18 study participants responded to OTI scale score for heroin injection. There were 10 participants from the intervention group and 8 participants from the control group. OTI scale score for the control group was 2.2 times higher than the intervention group (mean OTI scale score of 1.48 and 0.67 respectively). However, result from the analysis using independent t-test showed that there was no significant difference between the groups.

Table 4.16: Comparison of OTI scale score for heroin injection between groups at 6-month follow up

Assessment	n	Mean	SD	t-test
6-month follow up				-1.338
Intervention group	10	0.67	0.49	
Control group	8	1.48	1.75	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

In order to test the overall change in OTI scale score for heroin injection, repeated measures ANOVA was analyzed. It was found that OTI scale scores of four measurements, baseline, 1-, 3- and 6-month follow up, were not significantly difference

between the intervention and the control groups. For within subjects, there was not significant difference over four assessments. Output of repeated measures ANOVA analysis as shown in Table 4.17.

Table 4.17: Effectiveness of Triple-S intervention on OTI scale score for heroin injection at completed follow up assessment

Source of variation	SS	df	MS	F	p-value
Between subjects					
Group	4.41	1	4.41	0.84	0.374
Between subjects error	84.55	16	5.29		
Within subjects (s)					
Assessment	3.25	3	1.08	1.36	0.267
Assessment x Group	1.82	3	0.61	0.76	0.522
Within subjects error	38.21	48	0.80		

(s)=Sphericity Assumed, p-value derived from repeated measures ANOVA

In an effort to use OTI scale score for measurement of level of heroin injection, even the intervention group demonstrated lower scores than the control group, it was not statistical difference between the intervention and the control groups. This may reflect the small number of study participants who responded to the questions and high loss follow up rate. It may not have enough power to see difference between the groups.

4.2.3 OTI scale score for midazolam

At baseline assessment, most study participants (73%) reported midazolam injection in the past month. Study participants in the control group reported injecting midazolam more than the intervention group (87% and 67% respectively). A chi-square was used to determine the difference between the intervention and the control groups. It was found that there was no significant difference between study participants who reported midazolam injection in the intervention and the control group as presented in Table 4.18.

Table 4.18: Midazolam injection at baseline assessment

Variable	Intervention Group n=45 n (%)	Control Group n=45 n (%)	Total n=90 n (%)	p-value
Midazolam injection				
Yes	30 (67%)	36 (87%)	66 (73%)	0.153
No	15 (33%)	9 (13%)	24 (27%)	

p-value derived from chi-square test

In order to assess level of midazolam injection, OTI scale score in drug use domain was used to gather information from the study participants. At baseline assessment, there were 73% (n=66) of study participants reported midazolam injection in the past month and only 57 participants responded to OTI questions (missing = 9). It can be found that there was no study participants in abstinent category. More than one-third (35%) of study participants injected midazolam more than once a day. There were 41% of the intervention group reported inject midazolam more than once a day and it was 30% in the control group. Almost half of the control group (43%) reported midazolam injection once a day while it was only 18% in the intervention group. The OTI scale score for midazolam as shown in Table 4.19.

Table 4.19: Midazolam consumption at baseline assessment

Variable	Intervention Group n=27 n (%)	Control Group n=30 n (%)	Total n=57 n (%)
Once a week or less	3 (11%)	2 (7%)	5 (9%)
More than once a week	8 (30%)	6 (20%)	14 (25%)
Once a day	5 (18%)	13 (43%)	18 (31%)
More than once a day or more	11 (41%)	9 (30%)	20 (35%)

Participants in both the intervention and the control groups dropped out from the study during the follow up assessments. As a consequence, an effort has made to consider differences between the intervention and the control groups using the actual number of study participants who completed the follow up assessment at each stage and responded to OTI scale score for midazolam injection. Independent t-test was used to determine differences between the intervention and the control groups. At baseline assessment, it can be found that OTI scale score for midazolam injection was no statistically difference between the intervention and the control groups as presented in Table 4.20.

Table 4.20: Comparison of OTI scale score for midazolam injection between groups at baseline assessment

Assessment	n	Mean	SD	t-test
Baseline				-0.016
Intervention group	27	1.41	1.43	
Control group	30	1.42	1.13	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 1-month follow up assessment, OTI scale score for the control group was almost two times higher than the intervention group. An independent t-test was used in the analysis and it can be found that there was significant difference between the intervention and the control groups (t-test = -2.141, p-value<0.05).

Table 4.21: Comparison of OTI scale score for midazolam injection between groups at 1-month follow up

Assessment	n	Mean	SD	t-test
1-month follow up				-2.141*
Intervention group	17	0.78	0.75	
Control group	23	1.40	1.01	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 3-month follow up assessment, OTI scale score for the control group was more than three times higher than the intervention group (mean OTI scale score 1.84

and 0.57 respectively). Results of using an independent t-test can be found that there was significant difference between the groups (t-test = -3.938, p-value<0.001).

Table 4.22: Comparison of OTI scale score for midazolam injection between groups at 3-month follow up

Assessment	n	Mean	SD	t-test
3-month follow up				-3.938***
Intervention group	17	0.57	0.71	
Control group	20	1.84	1.17	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

A similar pattern was also shown at 6-month follow up assessment. OTI scale score for the control group was three times higher than the intervention group (mean OTI scale score 1.82 and 0.62 respectively) and there was significant difference between the groups (t-test = -3.159, p-value<0.01).

Table 4.23: Comparison of OTI scale score for midazolam injection between groups at 6-month follow up

Assessment	n	Mean	SD	t-test
6-month follow up				-3.159**
Intervention group	12	0.62	0.65	
Control group	15	1.82	1.37	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

In order to test the overall change in OTI scale score for midazolam injection, repeated measures ANOVA was performed. It was found that OTI scale score of four measurements, baseline, 1-, 3- and 6-month follow up, was not significantly difference between the intervention and the control groups. For within subjects, there was no significant different over four assessments. However, there was an interaction between two factors; group and assessment ($F(3,75) = 5.82$, p-value<0.01). Output of repeated measures ANOVA analysis as shown in Table 4.24.

Table 4.24: Effectiveness of Triple-S intervention on OTI scale score for midazolam injection at completed follow up assessment

Source of variation	SS	df	MS	F	p-value
Between subjects					
Group	12.40	1	12.40	2.99	0.096
Between subjects error	103.51	25	4.14		
Within subjects (s)					
Assessment	1.03	3	0.34	1.03	0.385
Assessment x Group	5.84	3	1.95	5.82	0.001
Within subjects error	25.07	75	0.34		

(s)=Sphericity Assumed, p-value derived from repeated measures ANOVA

A pairwise comparison was performed to consider differences between the intervention and the control group in each assessment as shown in Table 4.25. It was found that there were significant differences between the intervention and the control groups at 1-, 3- and 6-month follow up (p-value<0.05).

Table 4.25: Pairwise comparisons of the different assessments of OTI scale score for midazolam injection at completed follow up assessment

Assessment	Group (I)	Group (J)	Mean Difference (I-J)	p-value[a]	95% Confidence Interval[a]	
					Lower	Upper
Baseline	Intervention	Control	-0.274	0.544	-1.185	0.637
1-month follow up	Intervention	Control	-0.763	0.034	-1.464	-0.062
3-month follow up	Intervention	Control	-1.104	0.005	-1.857	-0.352
6-month follow up	Intervention	Control	-1.197	0.004	-1.970	-0.423

a. Adjustment for multiple comparisons: Bonferroni.

In an effort to use OTI scale score to measure level of midazolam injection, it was concluded that Triple-S intervention had an impact on improving OTI scale score for midazolam injection even only small number of study participants responded on the questions and high loss follow up rate. There were significant differences between the intervention and the control groups at 1-month (p-value<0.05), 3-month (p-value<0.001) and 6-month (p-value<0.01) follow up assessments.

4.2.4 Polydrug injection

Polydrug injection can lead to multiple adverse health consequences. Triple-S intervention was designed to reduce number of study participants who inject drugs more than one types. Polydrug injection was measured by using number of study participants who reported inject more than one type of drugs in the past month.

At baseline, there were 45 study participants in both the intervention and the control groups. Participants in both the intervention and the control groups dropped out from the study during the follow up assessments due to loss follow up, imprisonment and passed away. At 6-month follow up, there were only 31 study participants from the intervention group and 20 participants from the control group. As a consequence, it is important to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage.

A chi-square was used to determine the differences between the intervention and the control group at baseline, 1-, 3- and 6-month follow up after the intervention. At baseline assessment, there were 53% of study participants in the intervention group and 67% in the control group reported injecting more than one drugs in the past month, however, it was not statistical difference between groups as presented in Table 4.26.

Table 4.26: Comparison of polydrug injection between groups at baseline assessment

Assessment	n	%	Pearson Chi-square	p-value
Baseline			1.67	0.197
Intervention group	45	53%		
Control group	45	67%		

p-value derived from chi-square test

At 1-month follow up, polydrug injections in the control group was more than two times higher than the intervention group. Result from the analysis by using chi-square test showed that there was significantly difference between groups (χ^2 (1, n = 63) = 8.10, p-value<0.01).

Table 4.27: Comparison of polydrug injection between groups at 1-month follow up

Assessment	n	%	Pearson Chi-square	p-value
1-month follow up			8.10	0.004
Intervention group	35	29%		
Control group	28	70%		

p-value derived from chi-square test

At 3-month follow up assessment, polydrug injections was reported 23% in the intervention group and 54% in the control group. Result from the analysis by using chi-square test showed that there was significantly difference between groups (χ^2 (1, n = 59) = 6.09, p-value<0.01). Data can be presented as in Table 4.28.

Table 4.28: Comparison of polydrug injection between groups at 3-month follow up

Assessment	n	%	Pearson Chi-square	p-value
3-month follow up			6.09	0.005
Intervention group	34	23%		
Control group	25	54%		

p-value derived from chi-square test

At 6-month follow up assessment, proportion of polydrug injection in the intervention group was almost three times less than the control group (23% and 65% respectively). There was significant difference between the groups (χ^2 (1, n = 51) = 7.28, p-value<0.01). Comparison of polydrug injection between groups as shown in Table 4.29.

Table 4.29: Comparison of polydrug injection between groups at 6-month follow up

Assessment	n	%	Pearson Chi-square	p-value
6-month follow up			7.28	0.007
Intervention group	31	23%		
Control group	20	65%		

p-value derived from chi-square test

Descriptive analysis of polydrug injection was done. Considering polydrug injection in the intervention group, it was reduced from 53% at baseline assessment to 23% at 6-month follow up while it was not difference in the control group as shown in Table 4.30.

Table 4.30: Comparison of polydrug injection between groups

Assessment	Intervention group		Control group	
	n	n (%)	n	n (%)
Baseline	45	24 (53%)	45	30 (67%)
1-month follow up	35	10 (29%)	28	19 (70%)
3-month follow up	34	8 (23%)	25	13 (54%)
6-month follow up	31	7 (23%)	20	13 (65%)

At completed follow up, there were 31 participants in the intervention group and 20 participants in the control group. It was found that polydrug injection reduced from 58% at baseline assessment to 23% at 6-month follow up while it was not difference in the control group as shown in Table 4.31.

Table 4.31: Comparison of polydrug injection between groups at completed follow up assessment

Assessment	Intervention group n=31 n (%)	Control group n=20 n (%)
Baseline	18 (58%)	13 (65%)
1-month follow up	9 (29%)	12 (60%)
3-month follow up	7 (23%)	12 (60%)
6-month follow up	7 (23%)	13 (65%)

It was found that Triple-S intervention had effected on reducing number of study participants who reported injecting more than one type of drugs. It can be implied from the differences between the intervention and the control groups at 1-month (p-value<0.01), 3-month (p-value<0.01) and 6-month (p-value<0.01) follow up assessments.

4.2.5 Drug mixing

Data regarding pattern of drug injection was collected to consider their injecting behaviors whether they injected only one type of drug, injected more than one type of drugs but not mixing or mixing two or more type of drugs before injection. Drug mixing

can increase their overall drug effect and risk of drug overdose. Drug mixing was measured by using number of study participants who reported mixing more than one types of substances for each injection in the past month.

Participants in both the intervention and the control groups dropped out from the study during the follow up assessments from 90 participants at baseline assessment to 51 participants at 6-month follow up. Therefore, it is important to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage.

A chi square was used to determine the differences between the intervention and the control groups at baseline, 1-, 3- and 6-month follow up. At baseline assessment, there were 69% in the intervention group and 33% in the control group reported mixing drugs before injection. It was significant difference between the intervention and the control groups.

Table 4.32: Comparison of drug mixing between groups at baseline assessment

Assessment	n	%	Pearson Chi-square	p-value
Baseline			11.38	0.001
Intervention group	45	33%		
Control group	45	69%		

p-value derived from chi-square test

At 3-month follow up assessments, in the intervention group, number of study participants who reported mixing drugs were significantly lower than the control group (χ^2 (1, n = 63) = 18.59, p-value<0.001). There were 14% from the intervention group and 71% from the control group reported drug mixing as presented in Table 4.33.

Table 4.33: Comparison of drug mixing between groups at 1-month follow up

Assessment	n	%	Pearson Chi-square	p-value
1-month follow up			18.59	0.000
Intervention group	35	14%		
Control group	28	71%		

p-value derived from chi-square test

At 3-month follow up assessments, in the intervention group, number of study participants who reported mixing drugs were significantly lower than the control group (χ^2 (1, n = 59) = 17.19, p-value<0.001).

Table 4.34: Comparison of drug mixing between groups at 3-month follow up

Assessment	n	%	Pearson Chi-square	p-value
3-month follow up			17.19	0.000
Intervention group	34	6%		
Control group	25	60%		

p-value derived from chi-square test

At 6-month follow up, it was found that only 1 participant in the intervention group reported mixing drugs and it was 15 times lower than the control group. A chi-square was analyzed. The result showed that there was significant difference between the groups (χ^2 (1, n = 51) = 9.72, p-value<0.01).

Table 4.35: Comparison of drug mixing between groups at 6-month follow up

Assessment	n	%	Pearson Chi-square	p-value
6-month follow up			9.72	0.002
Intervention group	31	3%		
Control group	20	45%		

p-value derived from chi-square test

At baseline assessment, in the intervention group, study participants reported drug mixing 33% and it was reduced to 3% at 6-month follow up assessment. It was also reduced in the control group, from 69% at baseline assessment to 45% at 6-month follow up assessment.

Table 4.36: Comparison of drug mixing between groups

Assessment	Intervention group		Control group	
	n	n (%)	n	n (%)
Baseline	45	15 (33%)	45	31 (69%)
1-month follow up	35	5 (14%)	28	20 (71%)
3-month follow up	34	2 (6%)	25	15 (60%)
6-month follow up	31	1 (3%)	20	9 (45%)

At completed follow up, there were 31 participants in the intervention group and 20 participants in the control group. It was found that drug mixing reduced from 36% at baseline assessment to 3% at 6-month follow up as shown in Table 4.37.

Table 4.37: Comparison of drug mixing between groups at completed follow up assessment

Assessment	Intervention group n=31 n (%)	Control group n=20 n (%)
Baseline	11 (36%)	13 (65%)
1-month follow up	4 (13%)	13 (65%)
3-month follow up	2 (7%)	11 (55%)
6-month follow up	1 (3%)	9 (45%)

It was found that Triple-S intervention had effected on reducing number of study participants who reported mixing drugs. Even there was significance difference between the intervention and the control groups at baseline assessment, it can be implied from the differences between the intervention and the control groups at 1-month (p-value<0.01), 3-month (p-value<0.001) and 6-month (p-value<0.01) follow assessment and changes over time in the intervention group.

4.2.6 Injection at groin

An important component of harm reduction program is to inject into a vein in low risk areas such as arm and hand. Injecting into other areas such as groin, legs, feet and neck, are high risk that can cause serious health problems. Therefore, in this study, injection at the groin was observed to plan for reducing unsafe injection behavior. It was measured by using number of study participants who reported injection at the groin in the past month.

Study participants in both intervention and the control groups dropped out from the study during the follow up assessments, therefore, an effort has made to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage.

A chi square was used to determine the differences between the intervention and the control group at baseline, 1-, 3- and 6-month follow up. At baseline assessment, there were 44% in the intervention group and 38% in the control group reported

injection at the groin. It was not significant difference between the intervention and the control groups.

Table 4.38: Comparison of injection at groin between groups at baseline assessment

Assessment	n	%	Pearson Chi-square	p-value
Baseline			0.73	0.393
Intervention group	45	44%		
Control group	45	38%		

p-value derived from chi-square test

At 1-month follow up, there were 35 participants from the intervention group and 28 participants from the control group completed assessments. Among this group, there were 37% from the intervention group and 39% from the control group report injection at the groin. There was no significant difference between two groups.

Table 4.39: Comparison of injection at groin between groups at 1-month follow up

Assessment	n	%	Pearson Chi-square	p-value
1-month follow up			0.14	0.708
Intervention group	35	37%		
Control group	28	39%		

p-value derived from chi-square test

The similar pattern was found at 3-month follow up assessment. Study participants in the intervention and the control groups reported injection at the groin not statistically difference. Data can be presented as in Table 4.40.

Table 4.40: Comparison of injection at groin between groups at 3-month follow up

Assessment	n	%	Pearson Chi-square	p-value
3-month follow up			0.33	0.565
Intervention group	34	35%		
Control group	25	40%		

p-value derived from chi-square test

Number of study participants in the intervention group reported injection at the groin were decreasing over time, from 44% at baseline measurement to 36% at 6-month follow up, however, There was no significant difference between the intervention and the control groups.

Table 4.41: Comparison of injection at groin between groups at 6-month follow up

Assessment	n	%	Pearson Chi-square	p-value
6-month follow up			0.11	0.745
Intervention group	31	36%		
Control group	20	45%		

p-value derived from chi-square test

At baseline assessment, in the intervention group, study participants reported injection at groin 44% and it was reduced to 36% at 6-month follow up assessment. It was increased in the control group, from 38% at baseline assessment to 45% at 6-month follow up assessment as presented in Table 4.42.

Table 4.42: Comparison of injection at groin between groups

Assessment	Intervention group		Control group	
	n	n (%)	n	n (%)
Baseline	45	20 (44%)	45	17 (38%)
1-month follow up	35	13 (37%)	28	11 (39%)
3-month follow up	34	12 (35%)	25	10 (40%)
6-month follow up	31	11 (36%)	20	9 (45%)

At completed follow up, there were 31 participants in the intervention group and 20 participants in the control group. A descriptive analysis showed that injection at groin was not improve over time for study participants who completed follow up assessments.

Table 4.43: Comparison of injection at groin between groups at completed follow up assessment

Assessment	Intervention group n=31 n (%)	Control group n=20 n (%)
Baseline	9 (29%)	7 (35%)
1-month follow up	10 (32%)	6 (30%)
3-month follow up	10 (32%)	6 (30%)
6-month follow up	11 (36%)	9 (45%)

Inject into high risk areas can cause serious health problems. Triple-S intervention has no effect on reducing number of injection at groin. There may be other factors that associated with this risk behavior.

4.2.7 Injection site rotation

Harm reduction practices suggested that IDU should rotate their injection site every time to protect their veins. Therefore, data regarding injection site rotation was collected in this study. This outcome was measured by using number of study participants who reported rotating injection site every time when inject drugs in the past

month. As participants in both the intervention and the control groups dropped out from the study during the follow up assessments due to loss follow up, imprisonment and passed away, an effort has made to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage.

At baseline assessment, there were 71% in the intervention group and 42% in the control group reported injection site rotation every times when inject drugs in the past month. It was significant difference between the intervention and the control groups (χ^2 (1, n = 90) = 7.65, p-value<0.01).

Table 4.44: Comparison of injection site rotation between groups at baseline assessment

Assessment	n	%	Pearson Chi-square	p-value
Baseline			7.65	0.006
Intervention group	45	71%		
Control group	45	42%		

p-value derived from chi-square test

At 1-month follow, there were equal proportion of study participants (57%) in the intervention and the control groups reported injection site rotation every times when inject drugs in the past month. There was no significant difference between the intervention and the control groups.

Table 4.45: Comparison of injection site rotation between groups at 1-month follow up

Assessment	n	%	Pearson Chi-square	p-value
1-month follow up			0.05	1.000
Intervention group	35	57%		
Control group	28	57%		

p-value derived from chi-square test

At 3-month follow, there were 47% in the intervention group and 76% in the control group reported injection site rotation every times when inject drugs in the past month. A chi-square was analyzed and it was presented in Table 4.46. There was significant difference between the intervention and the control groups (χ^2 (1, n = 59) = 4.12, p-value<0.05).

Table 4.46: Comparison of injection site rotation between groups at 3-month follow up

Assessment	n	%	Pearson Chi-square	p-value
3-month follow up			4.12	0.042
Intervention group	34	47%		
Control group	25	76%		

p-value derived from chi-square test

At 6-month follow up assessment, there were 58% in the intervention group and 70% in the control group reported injection site rotation every times when inject drugs in the past month. There was no significant difference between the intervention and the control groups.

Table 4.47: Comparison of injection site rotation between groups at 6-month follow up

Assessment	n	%	Pearson Chi-square	p-value
6-month follow up			0.42	0.518
Intervention group	31	58%		
Control group	20	70%		

p-value derived from chi-square test

At baseline assessment, in the intervention group, study participants reported injection site rotation 71% and it was reduced to 58% at 6-month follow up assessment. It was increased in the control group, from 42% at baseline assessment to 70% at 6-month follow up assessment as presented in Table 4.48.

Table 4.48: Comparison of injection site rotation between groups

Assessment	Intervention group		Control group	
	n	n (%)	n	n (%)
Baseline	45	32 (71%)	45	19 (42%)
1-month follow up	35	20 (57%)	28	16 (57%)
3-month follow up	34	16 (47%)	25	19 (76%)
6-month follow up	31	18 (58%)	20	14 (70%)

At completed follow up, there were 31 participants in the intervention group and 20 participants in the control group. A descriptive analysis showed that injection at groin was not improve over time for study participants who completed follow up assessments in the intervention group.

Table 4.49: Comparison of injection site rotation between groups at completed follow up assessment

Assessment	Intervention group n=31 n (%)	Control group n=20 n (%)
Baseline	23 (74%)	13 (65%)
1-month follow up	19 (61%)	14 (70%)
3-month follow up	15 (48%)	16 (80%)
6-month follow up	18 (58%)	14 (70%)

Triple-S intervention has no effect on increasing number of study participants in the intervention group to rotate their injection site every time. There may be other factors that associated with this risk behavior such as vein problems. A further investigate in this behavior and improvement in the intervention to change this behavior should be done.

4.2.8 Harm reduction self-efficacy in withdrawal condition

In this study, harm reduction self-efficacy was measured in three high risk situations; withdrawal, negative emotions and social pressure condition. This study use HRSEQ to measure harm reduction self-efficacy. It is a tool to gain understanding of IDU's confidence to utilize harm reduction interventions (Phillips 2005). Harm reduction self-efficacy was assessed by using scales construct. The 15 items harm reduction coping skills using 10-point Likert scale were measured in each situation resulting total 45 items.

Participants in both the intervention and the control groups dropped out from the study during the follow up assessments due to loss follow up, imprisonment and passed away. As a consequence, an effort has made to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage.

Independent t-test was performed to determine the mean difference between the intervention and control groups at baseline, 1-, 3- and 6-month follow up after the

intervention. At baseline assessment, there was no statistical difference between the groups as presented in Table 4.50.

Table 4.50: Comparison of harm reduction self-efficacy in withdrawal condition between groups at baseline assessment

Assessment	n	Mean	SD	t-test
Baseline				0.084
Intervention group	45	5.54	1.63	
Control group	45	5.52	1.37	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 1-month follow up, it was found that mean score of the intervention group was higher than the control group. The intervention group had mean score of harm reduction self-efficacy in withdrawal condition of 5.96 and it was 5.38 in the control group. Results from the analysis using an independent t-test can be found that there was no statistical difference between the intervention and the control group as presented in Table 4.51.

Table 4.51: Comparison of harm reduction self-efficacy in withdrawal condition between groups at 1-month follow up assessment

Assessment	n	Mean	SD	t-test
1-month follow up				1.692
Intervention group	35	5.96	1.48	
Control group	28	5.38	1.34	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 3-month follow up assessment, harm reduction self-efficacy in withdrawal condition in the intervention group was higher than the control group (mean 6.17 and 5.33 respectively). An independent t-test was used to examine difference between the intervention and the control groups and it was found that there was significant difference between the intervention and the control groups (t-test = 2.442, p-value<0.05).

Table 4.52: Comparison of harm reduction self-efficacy in withdrawal condition between groups at 3-month follow up assessment

Assessment	n	Mean	SD	t-test
3-month follow up				2.442*
Intervention group	34	6.17	1.32	
Control group	25	5.33	1.28	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

In the intervention group, mean score of harm reduction self-efficacy in withdrawal condition was improved from 5.54 at baseline assessment to 6.29 at 6-month follow up and it was higher than the control group. Results from using an independent t-test showed that there was significance difference between the intervention and the control groups (t-test = 2.701, $p<0.01$).

Table 4.53: Comparison of harm reduction self-efficacy in withdrawal condition between groups at 6-month follow up assessment

Assessment	n	Mean	SD	t-test
6-month follow up				2.701**
Intervention group	31	6.29	1.12	
Control group	20	5.35	1.35	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

In order to test the overall change for harm reduction self-efficacy in withdrawal condition, repeated measures ANOVA was performed. It was found that harm reduction self-efficacy in withdrawal condition of four measurements, baseline, 1-, 3- and 6-month follow up, were significantly difference between the intervention and the control groups ($F(1,49) =5.06$, p-value = 0.029). For within subjects, there was no significant different over four assessments. There was no interaction between group and assessment. Output of repeated measures ANOVA analysis as shown in Table 4.54.

Table 4.54: Effectiveness of Triple-S intervention on harm reduction self-efficacy in withdrawal condition at completed follow up assessment

Source of variation	SS	df	MS	F	p-value
Between subjects					
Group	27.73	1	27.73	5.06	0.029
Between subjects error	268.27	49	5.48		
Within subjects (s)					
Assessment	1.24	3	0.42	0.95	0.420
Assessment x Group	3.34	3	1.11	2.54	0.059
Within subjects error	64.450	147	0.438		

(s)=Sphericity Assumed, p-value using repeated measures ANOVA

Withdrawal is a complex condition and there are many factors associated with IDU's behaviors when having the withdrawal symptoms. Triple-S intervention had effect on improving harm reduction self-efficacy in withdrawal condition. It was found that study participants in the intervention group had higher scores than the control group at 3-month (p-value<0.05) and 6-month (p-value<0.01) follow up assessment.

4.2.9 Harm reduction self-efficacy in negative emotions condition

For harm reduction self-efficacy in negative emotions condition, independent t-test was used to determine the mean differences between the intervention and the control group at baseline, 1-, 3- and 6-month follow up after the intervention. As participants dropped out from the study during the follow up assessments due to many reasons, an effort has made to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage.

At baseline assessment, it was found that mean score of the intervention group was higher than the control group (mean 5.86 and 5.69 respectively). An independent t-test was used to determine difference between the intervention and the control group in harm reduction self-efficacy in negative emotions condition. It was found that there was no statistical difference between the groups as presented in Table 4.55.

Table 4.55: Comparison of harm reduction self-efficacy in negative emotions condition between groups at baseline assessment

Assessment	n	Mean	SD	t-test
Baseline				0.521
Intervention group	45	5.86	1.69	
Control group	45	5.69	1.41	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 1-month follow up, it was found that mean score of the intervention group was also higher than the control group (mean 6.32 and 5.74 respectively), however, there was no statistical difference between the groups as presented in Table 4.56.

Table 4.56: Comparison of harm reduction self-efficacy in negative emotions condition between groups at 1-month follow up assessment

Assessment	n	Mean	SD	t-test
1-month follow up				1.650
Intervention group	35	6.32	1.39	
Control group	28	5.74	1.37	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 3-month follow up assessment, results from the analysis using an independent t-test showed that there was significant difference between the intervention and the control groups (t-test = 2.780, p-value<0.01). In the intervention group, mean score of harm reduction self-efficacy in negative emotions condition was 6.49 and it was 5.58 in the control group.

Table 4.57: Comparison of harm reduction self-efficacy in negative emotions condition between groups at 3-month follow up assessment

Assessment	n	Mean	SD	t-test
3-month follow up				
Intervention group	34	6.49	1.19	2.780**
Control group	25	5.58	1.33	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 6-month follow up assessment, there was significant difference between the intervention and the control groups (t-test = 3.690, p-value<0.01). In the intervention group, mean score of harm reduction self-efficacy in negative emotions condition was improved from 5.86 at baseline assessment to 6.63 at 6-month follow up. It was 5.42 for the control group at 6-month follow up assessment.

Table 4.58: Comparison of harm reduction self-efficacy in negative emotions condition between groups at 6-month follow up assessment

Assessment	n	Mean	SD	t-test
6-month follow up				3.690**
Intervention group	31	6.63	1.00	
Control group	20	5.42	1.34	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At completed follow up assessments, there were 31 study participants in the intervention group and 20 study participants in the control group. Repeated measures ANOVA was performed to test the overall change for harm reduction self-efficacy in negative emotions condition. It was found that harm reduction self-efficacy in negative emotions condition of four measurements, baseline, 1-, 3- and 6-month follow up, were significantly difference between the intervention and the control group (F(1,49) =7.15, p-value<0.05). For within subjects, there was no significant difference over four assessments, however, there was an interaction between two factors; group and assessment (F(3,147) = 4.79, p-value<0.01). Output of repeated measures ANOVA analysis as shown in Table 4.59.

Table 4.59: Effectiveness of Triple-S intervention on harm reduction self-efficacy in negative emotions condition at completed follow up assessment

Source of variation	SS	df	MS	F	p-value
Between subjects					
Group	42.27	1	42.27	7.15	0.010
Between subjects error	289.58	49	5.91		
Within subjects (s)					
Assessment	0.54	3	0.18	0.56	0.643
Assessment x Group	4.67	3	1.56	4.79	0.003
Within subjects error	47.70	147	0.32		

(s)=Sphericity Assumed, p-value using repeated measures ANOVA

A pairwise comparison was performed to consider differences between the intervention and the control group in each assessment as shown in Table 4.60. It was found that there were significant differences between the intervention and the control groups at 1-, 3- and 6-month follow up assessment.

Table 4.60: Pairwise comparisons of the different assessments of harm reduction self-efficacy in negative emotions condition at completed follow up assessment

Assessment	Group (I)	Group (J)	Mean Difference (I-J)	p-value[a]	95% Confidence Interval[a]	
					Lower	Upper
Baseline	Intervention	Control	0.415	0.350	-0.469	1.300
1-month follow up	Intervention	Control	0.979	0.013	0.218	1.740
3-month follow up	Intervention	Control	1.124	0.002	0.424	1.823
6-month follow up	Intervention	Control	1.211	0.001	0.552	1.871

a. Adjustment for multiple comparisons: Bonferroni.

Triple-S intervention had effect on improving harm reduction self-efficacy in negative emotions condition. It was found that study participants in the intervention

group had higher harm reduction self-efficacy mean scores than the control group at 3-month (p-value<0.01) and 6-month (p-value<0.01) follow up assessment.

4.2.10 Harm reduction self-efficacy in social pressure condition

For harm reduction self-efficacy in social pressure condition, independent t-test was used to determine the mean differences between the intervention and the control group at baseline, 1-, 3- and 6-month follow up after the intervention. As participants dropped out from the study during the follow up assessments due to many reasons, an effort has made to consider differences between the intervention and the control groups of the actual number of study participants who completed the follow up assessment at each stage.

At baseline assessment, it was found that mean score of the intervention group was higher than the control group (mean 6.25 and 5.76 respectively). An independent t-test was used to determine difference between the intervention and the control group in harm reduction self-efficacy in social pressure condition and it was found that there was no statistical difference between the groups as presented in Table 4.61.

Table 4.61: Comparison of harm reduction self-efficacy in social pressure condition between groups at baseline assessment

Assessment	n	Mean	SD	t-test
Baseline				1.475
Intervention group	45	6.25	1.80	
Control group	45	5.76	1.37	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 1-month follow up assessment, it was found that mean score of the intervention group was also higher than the control group (mean 6.72 and 6.02 respectively). An independent t-test was used to determine difference between the intervention and the control group and it was found that there was no statistical difference between the groups as presented in table 4.62.

Table 4.62: Comparison of harm reduction self-efficacy in social pressure condition between groups at 1-month follow up assessment

Assessment	n	Mean	SD	t-test
1-month follow up				1.884
Intervention group	35	6.72	1.39	
Control group	28	6.02	1.52	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 3-month follow up assessment, results from the analysis using an independent t-test showed that there was significant difference between the intervention and the control groups (t-test = 3.214, p-value<0.01). In the intervention group, mean score of harm reduction self-efficacy in social pressure condition was 7.14 and it was 5.93 in the control group.

Table 4.63: Comparison of harm reduction self-efficacy in social pressure condition between groups at 3-month follow up assessment

Assessment	n	Mean	SD	t-test
3-month follow up				3.214**
Intervention group	34	7.14	1.27	
Control group	25	5.93	1.64	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At 6-month follow up assessment, there was significant difference between the intervention and the control groups (t-test = 2.942, p-value<0.01). In the intervention group, mean score of harm reduction self-efficacy in social pressure condition was improved from 6.25 at baseline assessment to 7.27 at 6-month follow up.

Table 4.64: Comparison of harm reduction self-efficacy in social pressure condition between groups at 6-month follow up assessment

Assessment	n	Mean	SD	t-test
6-month follow up				2.942**
Intervention group	31	7.27	1.11	
Control group	20	6.06	1.85	

* < .05 p-value, ** < .01 p-value, *** < .001 p-value, p-value derived from independent t-test

At completed follow up assessments, there were 31 study participants in the intervention group and 20 study participants in the control group. Repeated measures ANOVA was performed to test the overall change for harm reduction self-efficacy in social pressure condition. It was found that harm reduction self-efficacy in social pressure condition of four measurements, baseline, 1-, 3- and 6-month follow up, were significantly difference between the intervention and the control groups ($F(1,49) = 7.41$, p-value<0.01). For within subjects, there was significant different over four assessments ($F(3,147) = 8.58$, p-value<0.001) and there was an effect on the Triple-S intervention over four assessments and the group ($F(3,147) = 3.55$, p-value<0.05). Output of repeated measures ANOVA analysis as shown in Table 4.65.

Table 4.65: Effectiveness of Triple-S intervention on harm reduction self-efficacy in social pressure condition at completed follow up assessment

Source of variation	SS	df	MS	F	p-value
Between subjects					
Group	52.50	1	52.50	7.41	0.009
Between subjects error	347.24	49	7.09		
Within subjects (s)					
Assessment	10.97	3	3.66	8.58	0.000
Assessment x Group	4.54	3	1.51	3.55	0.016
Within subjects error	62.61	147	0.43		

(s)=Sphericity Assumed, p-value using repeated measures ANOVA

A pairwise comparison was performed to consider differences between the intervention and the control groups in each assessment as shown in Table 4.66. It was found that there were significant differences between the intervention and the control groups at 1-, 3- and 6-month follow up assessments.

Table 4.66: Pairwise comparisons of the different assessments of harm reduction self-efficacy in social pressure condition at completed follow up assessment

Assessment	Group (I)	Group (J)	Mean Difference (I-J)	p-value[a]	95% Confidence Interval[a]	
					Lower	Upper
Baseline	Intervention	Control	0.576	0.191	-0.298	1.450
1-month follow up	Intervention	Control	0.974	0.019	0.167	1.782
3-month follow up	Intervention	Control	1.391	0.001	0.570	2.212
6-month follow up	Intervention	Control	1.215	0.005	0.385	2.045

a. Adjustment for multiple comparisons: Bonferroni.

Study participants in the intervention group had higher scores than the control group. Therefore, Triple-S intervention had an impact on improving harm reduction self-efficacy in social pressure condition compare to the control group at 3-month (p-value<0.01) and 6-month (p-value<0.01) follow up assessment.

4.3 The Triple-S intervention assessment

The Triple-S intervention implemented in this study was designed grounded in Social Cognitive Learning Theory and Transtheoretical Model. The effectiveness of the intervention was analyzed and presented in 3 main outcomes, level of drug injection, drug injection behaviors and harm reduction self-efficacy. It can be found that the intervention was effective in reducing rate of drug injection at 1-, 3- and 6-month follow up compare to the control group. It can decrease number of study participants reported polydrug injection and drug mixing. The intervention also improved harm reduction self-efficacy in three high risk conditions in the intervention group at 3- and 6-month follow up compare to the control group. In order to better understand the process of behavior change, data was analyzed to examine stages of change of study participants in the intervention group. The assessment used during the intervention was a version of SOCRATES for drug users which correspond to monitor and evaluate effectiveness of the intervention process and used to apply the intervention as appropriate. The

intervention assessment was done three times; pre-intervention, before study participants attend the Start I session; mid-intervention, before attending Smart II session; and post-intervention, after completing Strong II session. As study participants dropped out from the study, the sample size for each assessments were 45 for pre-intervention, 39 for mid-intervention and 36 for post-intervention.

SOCRATES has three scale scores, including Recognition, Ambivalence, and Taking Steps, which correspond to the appropriate stages of change. The analysis of SOCRATES was done by using scoring sheet as shown in Appendix G (McNicholas 2004). Descriptive analysis of scores can be presented as following results;

The Recognition scale examines whether study participants recognize problems related to their drug use or if they deny that their use is causing any problems to their life. High scorers directly acknowledge that they are having problems related to their drug use, tending to express a desire for change and to perceive that harm will continue if they do not change. Low scorers deny that drug use is causing serious problems and do not express a desire for change. In this study, it was found that at pre-intervention, study participants were in very low score (mean 27.11). They may be unaware that a problem exists, that they had to make changes, and that they may need help. At mid-intervention, the score increased to 28.69, however, it was still very low. At post-intervention, it was improved to 29.32. It can be interpreted that the Triple-S intervention can improve the study participants in term of increasing their recognition from very low to low score.

Table 4.67 SOCRATES in recognition score among the study participants in the intervention group

Scale score	n	Mean	SD
Recognition			
Pre-intervention	45	27.11	4.93
Mid-intervention	39	28.69	2.35
Post-intervention	36	29.32	2.48

The Ambivalence Scale consider whether drug users are in the pre contemplation or contemplation stage, and examines ambivalence to change, including whether they wonder if they are in control of their drug use. High scorers say that they sometimes wonder if they are in control of their drug use and are hurting other individuals, and/or are drug addict. A high score reflects some openness to reflection, as might be particularly expected in the contemplation stage of change. Low scorers say that they do not wonder whether they are in control, are hurting others, or are drug addict. In this study, it was found that at pre-intervention, study participants were in low score (mean 13.95) and it was improved to 14.21 at mid-intervention and medium score (mean 15.35) at post-intervention. When considering this score with recognition score, it can be interpreted that study participants have started to realize that drug using is causing problems to their life. However, they may not fully accept it.

Table 4.68 SOCRATES in ambivalence score among the study participants in the intervention group

Scale score	n	Mean	SD
Ambivalence			
Pre-intervention	45	13.95	2.99
Mid-intervention	39	14.21	2.09
Post-intervention	36	15.35	2.20

The Taking Steps subscale looks at whether study participants are taking any steps to change their drug use. High scorers report that they are already doing things to make a positive change in their drug use, and may have experienced some success in this regard. Low scorers report that they are not currently doing things to change their behavior and have not made such changes recently. In this study, it was found that at pre-intervention, study participants were in low score (mean 30.23) and it was improved to 31.75 at mid-intervention and medium score (mean 32.14) at post-intervention.

Table 4.69 SOCRATES in taking steps score among the study participants in the intervention group

Scale score	n	Mean	SD
Taking Steps			
Pre-intervention	45	30.23	5.01
Mid-intervention	39	31.75	3.55
Post-intervention	36	32.14	3.95

Analysis by using SOCRATES was done and it can be found that the Triple-S intervention can move study participants further the process of stages of change, however, changing behaviors of IDU who injected drugs for a long time is a complex task. There may be other factors to be considered such as environmental, social and psychological factors.

This chapter presented descriptive findings of the demographic characteristics of the IDU and effectiveness of the Triple-S intervention which were assessed by the differences in level of drug injection, drug injection behaviors and harm reduction self-efficacy of IDU who completed the Triple-S intervention compared to the control group. Findings and effectiveness of Triple-S intervention was discussed in the next chapter.

CHAPTER V

DISCUSSION

This study aimed to examine the effectiveness of the Triple-S intervention that implemented with IDU in terms of level of drug injection, drug injection behaviors, and harm reduction self-efficacy. This chapter explained the study findings from the research questions and generated hypothesis. This discussion part is mainly depended on the evidence based findings and theoretical support on behavior change theory and harm reduction. Conclusion has been mentioned in the light of research findings from the interventional study and recommendations with limitation have also been discussed for the future researchers, further relevant activities and recommendations in the field of injecting drug use and harm reduction.

5.1 Summary of research findings

5.1.1 Level of drug injection

Level of drug injection was analyzed by using two measurements which were rate of drug injection and OTI scale score. Rate of drug injection was measured by using number of drugs injection per week. Data was analyzed from study participants at baseline, 1-, 3- and 6- month follow up assessments by using independent t-test and repeated measured ANOVA. It was found that rate of drug injection differed significantly between the intervention and the control groups at 1-month (p-value<0.01), 3-month (p-value<0.01) and 6-month (p-value<0.001). For within subjects, there was significant difference at baseline, 1-, 3- and 6-month follow up ($F(3,147) = 4.51$, p-value<0.01).

OTI scale score in drug use domain was used to gather information from the study participants. OTI scale score measured the behavior in the month prior to the day of interview. The intervals between days of drug use, and the amounts consumed on these days, were employed to estimate recent consumption. For heroin injection, it was found that OTI scale score of four measurements, baseline, 1-, 3- and 6-month follow

up, was no significantly difference between the intervention and the control groups. For within subjects, there was no significant difference.

OTI scale score was also used for midazolam injection. It was found that OTI scale scores were significantly difference between the intervention and the control groups at 1-month (p-value<0.05), 3-month (p-value<0.001) and 6-month (p-value<0.01). For within group, there was not significant difference over four assessments.

5.1.2 Drug injection behaviors

In this study, drug injection behaviors related to harm reduction were measured in term of polydrug injection, drug mixing, injection at the groin and injection site rotation. The effectiveness of the intervention was assessed by the difference in drug injection behaviors of study participants who completed the Triple-S intervention compared to the control group at baseline, and follow up (1-, 3- and 6-month).

Triple-S intervention aim to reduce number of study participants who inject drugs more than one types. Polydrug injection was measured by using number of study participants who reported inject more than one type of drugs in the past month. Data was analyzed from study participants who completed each assessments which were. A chi-square was used to determine the differences between the intervention and the control groups at baseline and 1-, 3- and 6-month follow up after the intervention. There were statistically significant difference between the intervention and the control groups at 1-month (p-value<0.01), 3-month (p-value<0.01) and 6-month (p-value<0.01) follow ups.

Drug mixing was measured by using number of study participants who reported mixing more than one types of substances for each injection in the past month. A chi square was used to determine the differences between the intervention and the control group at baseline, 1-, 3- and 6-month follow up. There were significant difference at baseline (p-value<0.01), 1-month (p-value<0.001), 3-month (p-value<0.001) and 6-month (p-value<0.01) follow up.

In this study, injection at the groin was measured by using number of study participants who reported this behavior in the past month. A chi square was used to determine the differences between the intervention and the control groups. There was no significant difference at baseline, 1-, 3- and 6- month follow up.

Data regarding injection site rotation was collected in this study. This outcome was measured by using number of study participants who reported rotating injection site every time when inject drugs in the past month. A chi square was used to determine the differences between the intervention and the control groups at baseline, 1-, 3- and 6-month. There was no significant difference at 1-, and 6-month follow up between the intervention and the control groups. There was statistically difference at baseline and 3-month follow up, study participants in the control group reported higher proportion of injection site rotation.

5.1.3 Harm reduction self-efficacy

In this study, harm reduction self-efficacy was measured in three high risk situations; withdrawal, negative emotions and social pressure condition. Data was analyzed by using an independent t-test and repeated measured ANOVA.

Harm reduction self-efficacy in withdrawal condition of 3- and 6-month follow up were significantly difference between the intervention and the control group (3-month follow up, p-value<0.05; 6-month follow up, p-value<0.01). For within subjects, there was no significant difference between assessments.

Harm reduction self-efficacy in negative emotions condition of 3- and 6-month follow up measurements were significantly difference between the intervention and the control groups (3-month follow up, p-value<0.01; 6-month follow up, p-value<0.01). For within subjects, there was no significant different between assessment.

Harm reduction self-efficacy in social pressure condition at 3- and 6-month follow up assessments were significantly difference between the intervention and the control groups (3-month follow up, p-value<0.01; 6-month follow up, p-value<0.01). For within subjects, there was significant different over four assessments (p-value<0.001).

Findings suggest that Triple-S intervention can significantly reduce the rate of drug injection and improve safer injecting behavior, as well as increase harm reduction self-efficacy in high risk conditions. Self-efficacy is an important factor towards drug use behavior change and other treatment outcomes. The results of the present study may be taken to suggest the importance of behavior change intervention implemented with IDU. Triple-S intervention can be applied to cover other harm reduction behaviors and further improve harm reduction self-efficacy.

5.2 Discussion

5.2.1 Demographic characteristics and drug injection practices

Among the most problematic drug users are those who inject drugs and injecting drug use is the main cause of health problems among drug users (UNODC 2011). In Thailand, an estimated of the total number of IDU was 40,300 (Aramrattana and et al 2011) and in Bangkok, the IDU population was estimated to be around 4,200 (Johnston and et al 2012). Drug use has been noted in the past decades and Thai Government has many strategies to deal with drug problems in the country, however, high rates of drug use continue, and Thailand has been facing with an epidemic of HIV among IDU (Assanangkornchai, Aramrattana et al. 2008, Hayashi, Ti et al. 2013). Not only HIV infection, unsafe behaviors among IDU can also cause many blood-borne viruses infection including hepatitis B and C and other health-related complications including venous blockages that may lead to amputation and deep vein thrombosis which can cause serious health problems (WHO 2010, Hope, Scott et al. 2015).

Over the past decade, there has been an increasing concern of society in preventing and controlling drug use. Drug use patterns among IDU has been changed in terms of drug of choice and injecting patterns (Kerr, Kiatying-Angsulee et al. 2010, Hayashi, Ti et al. 2013). In order to better understand this target population, data in this study was analyzed to consider socio demographic profiles and drug use patterns among study participants. In this study, most of study participants were male and around one-tenth were female. It was consistent with a surveillance conducted in Thailand as male are a majority of IDU population (Pansuwan, Wisawakam et al. 2012). Mean age of study participants was 41 years old. Two-third of study participants completed nine

years of basic education or higher. More than half of study participants had been employed, either a full time or part time job. Average monthly income was 5,990 Thai Baht (180 USD). Demographic characteristics of participants in this study were consistent with studies conducted with IDU in Thailand (Kerr, Hayashi et al. 2010, Pansuwan, Wisawakam et al. 2012).

Regarding injecting behaviors, in this study, participants had been injecting drugs for an average of 20 years. IDU that have used drugs for an extended period of time face complex health and social situations. Their median of drugs injections were 9 times per week. Participants reported having injected the following drugs in the month prior to the questionnaire: midazolam (73%), heroin (48%), and methamphetamines (31%). More than half of participants reported using more than one type of substance and mixing more than one drug for each injection. Most participants (73%) reported midazolam injection had taken the drug in combination with heroin (52%), methamphetamines (21%), methadone (11%), and crystal-methamphetamines (6%).

Midazolam injections in Bangkok have increased over the past years. There were 73% of study participants reported midazolam injection. Reported use of midazolam injections in this study was higher than in previous studies. A study in 2000 found that 30% of IDU reported midazolam injections in the previous six months (Griensvan, Pitisuttithum et al. 2005). A study in 2010 reported 68% of IDU in Bangkok used midazolam with 57% reporting daily midazolam injections (Kerr, Kiatying-Angsulee et al. 2010). Several studies conducted in the past few years have indicated an increasing amount of midazolam injections among the IDU population in Thailand (Kiatying-Angsulee, Kulsomboon et al. 2004, Kerr, Kiatying-Angsulee et al. 2010, Hayashi, Ti et al. 2013). Midazolam, the highest proportion of drug injection reported in this study, also known by its tradename Dormicum, causes sleepiness and relaxation and is prescribed in tablet form. Midazolam is also known to induce amnesia, possibly affecting IDU's recall following injections. This side effect may increase the likelihood risky behaviors among IDU like sharing injection equipment or other unsafe practices (Griensvan, Pitisuttithum et al. 2005). Health-related complications related to intravenous use of midazolam include venous blockages that may lead to amputation (Hope, Scott et al. 2015). The reasons of using midazolam include: similar effect to

heroin; its affordability compared to heroin; and its legality (Kerr, Kiatying-Angsulee et al. 2010). Polydrug injection is a concern as it can lead to multiple adverse health consequences and increased risk of drug overdose (Darke 2003, Darke and Hall 2003). Most participants in this study reported ever been in MMT, however, they discontinued the treatment for a period of time while still injecting drugs. It is consistent with a study conducted with IDU in Bangkok that accessing MMT was positively associated with frequent midazolam injection (Fairbairn and et al 2011). This may indicate a challenging situation of MMT in Thailand.

In this study, around half of study participants reported injecting drugs at the groin. The rate of injections at the groin in this study was higher than in previous study. In 2011, 34% of IDU in Bangkok reported injections at the groin (Ti, Hayashi et al. 2014). While the groin is rarely the initial site for injection, there was a clear progression in injection at the groin after 10 years of injecting (Darke, Ross et al. 2001). An important component of harm reduction program is to inject into a vein in low risk areas such as arm and hand. Injecting into other areas such as groin, legs, feet and neck, are high risk that can cause serious health problems. The risks of infection associated with injecting drug use are include soft tissue infection, abscess formation and transient bacteremia (Mackenzie, Laing et al. 2000). Groin injection become an emerging health concern among IDU (Maliphant and Scott 2005). This behavior has been identified as an increasing trend among IDU, including in Thailand (Senbanjo and Strang 2011). Injections at the groin are associated with many health-related risks, including deep vein thrombosis which can cause serious health problems (UNODC 2012). Studies have indicated reasons of groin injection which include convenient and speedy injection and it became acceptable risk (Rhodes, Stoneman et al. 2006, Rhodes, Briggs et al. 2007). Groin injections were also used when no other injection sites were perceived to be accessible (Maliphant and Scott 2005). As midazolam is often used instead of heroin as it is cheaper, availability and have similar effects, this study also reported high rates of midazolam injection (Kiatying-Angsulee, Yampayak et al. 2004). Midazolam is highly acidic and can be damaging to veins, therefore, midazolam injection may predict future groin injecting as they may face difficulty to accessing other veins at safer area such as arm and hand (Coffin, Coffin et al. 2012). As a consequence, they chose to inject at

groin. Moreover, groin injections were also associated with experiences of non-fatal drug overdoses. In this study, around one-third of study participants reported having experienced a non-fatal drug overdose. It is consistent with another study conducted in Thailand reported that 30% of participants had experienced an overdose (Milloy, Fairbairn et al. 2010). Drug overdose is the primary cause of morbidity and mortality among IDU in many countries (Bargagli, Hickman et al. 2005). There are many factors that caused the risk of overdose such as parenteral route of administration and polydrug use (Milloy, Fairbairn et al. 2010, Arribas-Ibar, Sánchez-Niubò et al. 2014). Another study indicated associations between non-fatal drug overdose and younger age, unemployment, rate of drug injection and history of drug treatment (Bergenstrom, Quan et al. 2008).

In this study, there were 31% of study participants reported methamphetamine injection. This result was not different with many studies that reported methamphetamine injection among this vulnerable population range from 3 – 34%. (Wattana, van Griensven et al. 2007, Werb, Hayashi et al. 2009). Methamphetamine injection was reported differently in each region; 15% in the northern part and 3% in the southern part of the country (Perngmark, Celentano et al. 2003, Quan, Vongchak et al. 2007). In Bangkok, a study found that 49% of people who inject drug had injected methamphetamine and 34% of them reported at least daily injection (Wattana, van Griensven et al. 2007, Werb, Hayashi et al. 2009). Globally, methamphetamine use has increased continuously and effected health and social challenges. Recently, Southeast Asia have reported a spread of methamphetamine use and the number of people requiring treatment is also increasing (UNODC 2015). In Thailand, Methamphetamine locally known as Yaba is usually found in crystal and pill forms (Colfax, Santos et al. 2010). Many factors related to injection initiation include less time spending when injecting occurred, social acceptability and association with current injectors (Harocopos, Goldsamt et al. 2009, Degenhardt, Mathers et al. 2010). Methamphetamine injection provide higher peak effects than other route of administration, and increase risk of dependence (Volkow, Fowler et al. 2007). Methamphetamine injectors may be more likely to engage in risky injecting practices than those injecting other drugs (Degenhardt, Mathers et al. 2010). Methamphetamine can also increase the risk of

heroin overdose, as the effects of heroin might be dulled by the methamphetamine effects and more heroin could be used than intended (Jenner and Lee 2008). In Thailand, smoking is an important route of administration and methamphetamine users were found to be a much younger and different population from other drugs (Degenhardt, Mathers et al. 2007). Another study conducted in Thailand reported that methamphetamine injection was independently associated with syringe sharing (Hayashi, Wood et al. 2011). This group was highly unlikely to have accessed treatment (Wattana, van Griensven et al. 2007). High rates of methamphetamine use also associated with sexually transmitted infections (Colfax, Santos et al. 2010). A study reported that injecting methamphetamine was associated with more frequent use patterns, treatment demand, higher levels of risky behavior and other health and psychiatric consequences (McKetin, Ross et al. 2008).

This study presented information regarding socio demographic data and drug injecting behaviors among IDU in Bangkok. Data could be used to further develop an intervention to reduce unsafe injecting behaviors.

5.2.2 Level of drug injection

In this study, the Triple-S intervention was designed grounded in Social Cognitive Learning Theory and Transtheoretical Model. The intervention focuses on enhancing participants' motivation to adopt safer behavior and reduce their drug injection through a process of observation, positive reinforcement, practicing, and sustaining behavior change. This study used quasi-experimental designed to test effectiveness of the Triple-S intervention. There were 125 IDU screened and 91 respondents were eligible to attend the study, however, one respondent passed away. Therefore, there were 90 eligible participants in this study. They were assigned to the intervention and the control groups by study sites. Data at baseline assessment was tested and it was found that there was no statistically difference in all demographic characteristics between the intervention and the control groups. There were only 51 participants completed the baseline, 1-, 3- and 6-month follow up assessments. The loss follow up rate was 31% in the intervention group and 56% in the control group due to imprisonment, died, unavailable and unreachable. Of participants completed the

baseline, 1-, 3- and 6-month follow up assessments, there were 31 participants from the intervention group who completed six sessions of Triple-S intervention and all assessment and 20 participants from the control group who completed all assessments. The effectiveness of the intervention was assessed by the difference in level of drug injection, drug injection behaviors and harm reduction self-efficacy of study participants who completed the Triple-S intervention compared to the control group at baseline, and follow up assessment (1-, 3- and 6-month).

Level of drug injection was measured by rate of drug injection and OTI scale score for heroin and midazolam injection. An independent t-test was performed to test changes in rate of injection and it was found that rate of drug injection at 1-, 3- and 6-month follow up, differed significantly between the intervention and the control groups. It can be concluded that Triple-S intervention had an impacted on reducing rate of drug injection. In an effort to use OTI scale score for measurement level of heroin injection, even the intervention group demonstrated lower scores than the control group, it was not statistical difference for those completed all four assessments. This may reflect the small number of study participants who responded to the questions and high loss follow up rate. It may not have enough power to see the difference between groups. For OTI scale score of midazolam injection, it differed significantly between the intervention and the control groups. Therefore, it can be concluded that Triple-S intervention impacted on reducing level of drug injection. It can be added that reducing rate of injection may be a consequence of reduce number of polydrug injection. There were 58% of study participants in the intervention group reported polydrug injection at baseline assessment and it was decreased to 23% at 6-month follow up assessment. At baseline assessment, participants reported having injected midazolam, heroin, and methamphetamines. The intervention focused on improving knowledge of drug categories; stimulants, depressants and hallucinogens and discussed about effects when using drugs in different categories together. Moreover, a strategies to prevent drug overdose by not injecting drug in combination was also encouraged. This type of intervention implemented with IDU in difference context was found to be effective in reducing rate of injection (Marlatt, Baer et al. 1995). This included intervention grounded in Cognitive Behavioral Therapy (Baker, Lee et al. 2004), Motivational

Interviewing (Roberts, Annett et al. 2011), and Motivational Enhancement Therapy (Smedslund and et al 2011).

5.2.3 Drug injection behaviors

In term of drug injection-related behaviors, in this study, four behaviors were defined and analyzed to measure effectiveness of Triple-S intervention which were polydrug injection, drug mixing, injection at groin and injection site rotation. It was positive to report that needle and syringe sharing behavior was not considered in this study as there was only 3% of study participants reported sharing needle at baseline assessment. This may be a consequence of the distribution of clean injecting equipment by peer educators at the drop-in centers and a voucher scheme through pharmacies as part of other harm reduction program (PSI 2014).

Polydrug injection can lead to multiple adverse health consequences. In this study, more than half of study participants reported polydrug injection. They reported having injected midazolam, heroin, methamphetamines and other drugs. Another study also indicated that almost two-third of IDU in Bangkok used drugs in combination with other drugs, including midazolam, heroin, methamphetamine and alcohol (Kerr, Kiatying-Angsulee et al. 2010). Using more than one drug and drug accessibility can make it hard to make safe decisions about how much to take of each drug, therefore, it increased risk of drug overdose (Bazazi, Zelenev et al. 2015, Lake, Hayashi et al. 2015, Mars, Fessel et al. 2015). It was found that the intervention was effective in term of reducing number of polydrug injection among study participants. The intervention group reduced number of polydrug injection significantly overtime and compared to the control group (p-value<0.01). It can be interpreted that reduction of drugs injections in the intervention group may accompanied by reducing the types of drugs being injected. The Triple-S intervention focused on improving knowledge about effect of using drugs in different categories together. Linkage to individual's life goal was discussed while considering number of drugs that study participants injected. Moreover, it also strengthened that polydrug injection increase risk of drug overdose. As polydrug injection was found to have relationships with midazolam injection and it was found that midazolam injectors had injected the drug in combination with heroin,

methamphetamines, methadone, and crystal-methamphetamines, a further improvement of the intervention could be done to target IDU who inject these drugs in combination.

Regarding effectiveness of Triple-S intervention on reducing number of participants who reported mixing drugs, even there was significance difference between the intervention and the control groups at baseline assessment, it can be implied from the differences between the intervention and the control groups at follow up assessments and changes over time in the intervention group that the intervention was effective in reducing number of drug mixing in the intervention group (p-value<0.01). It may be a consequence of the Triple-S intervention that focused on improving knowledge about effect of using drugs in different categories together. This behavior can be considered together with reducing rate of drug injection and polydrug injection. Drug mixing can also increase their overall drug effect and risk of drug overdose (Gilbert, Primbetova et al. 2013). Mixing drugs increased overdose risks because each drug has different mechanisms in the body to create sedation. These mechanisms represent overlapping protections from the brain and respiratory system shutting down which diminished when mixing drugs (Harm Reduction Coalition 2012).

In term of injection at the groin, at baseline assessment, it was found that almost half of study participants reported injection at the groin and it was not significance difference between the intervention and the control groups. Unexpectedly, it was not significance difference between groups at follow up assessments. This may explained that a majority of study participants reported midazolam injection and they had injected drugs for 20 years. As a result, their veins may damage and it is difficult to accessing other veins. This may explain that there are other factors related to these behaviors, including difficulty to find a vein leading to injections at the groin (Hope, Scott et al. 2015). A previous study reported that many IDU who inject midazolam have turned to groin injections (Ti, Hayashi et al. 2014). Injection at groin is considered to be a high risk behavior that can cause serious health problems (UNODC 2012). Groin injection become an emerging health concern among IDU (Maliphant and Scott 2005). It was also documented that groin injections were used when no other injection sites were perceived to be accessible (Maliphant and Scott 2005). Changing this behavior may be

a complex task, however, harm reduction knowledge to be a guide for injection at groin should be developed in order to reduce their unsafe behaviors.

Harm reduction practices suggested that IDU should rotate their injection site every time to protect their veins and avoid infection (Harm Reduction Coalition 2011). According to WHO, alternating and rotating the injecting site will reduce scarring (WHO 2009). At baseline assessment, it was positive to consider that more than half of study participants reported injection site rotation every time in the past month. However, it was not improved after participating in the intervention. While injection site rotation was not impacted by the intervention, it was positive to consider that most study participants already practiced this behavior. Changing this behavior is related to the accessible of other veins. As mentioned earlier that almost half of the study participants inject at the groin. It can be implied that their veins at other safer site such as arm and hand are not accessible. However, it is important to encourage them to rotate their injection site every time to protect their veins and avoid other health consequences.

5.2.4 Harm reduction self-efficacy

Many studies have shown that self-efficacy is a predictor of treatment outcomes and plays an important role in stopping drug use and preventing relapse (Kaddena and Litt 2011). While many drug users do not initially wish to stop, harm reduction approach is embraced to reduce the harms associated with drug use and implied to the treatment of drug users in terms of matching with their needs and applying more appropriate therapy format (Tatarsky 2003). Harm reduction approaches aim to prevent the spread of infections, reduce the risk of overdose and decrease the negative effects of drug use (NPNU Initiative 2007, Wilsona and et al 2015). In order to reduce harms associated with injecting drugs, especially in high-risk situations, harm reduction self-efficacy could be improved to build IDU's belief in their ability to change their behaviors as shown in Figure 5.1 (Phillips 2005, Rácz, Gyarmathy et al. 2007, Wagner, Unger et al. 2011, Abdollahi, Taghizadeh et al. 2014, Ashrafioun, Kraus et al. 2014, Lopes, Prieto et al. 2014). The assessment of self-efficacy continues to be a challenge, especially considering the context-specific nature of the construct. Although many self-report instruments have been developed to measure past and current self-efficacy in

relation to drug use, these measures are limited to assessing self-efficacy within a specific condition (Witkiewitz and Marlatt 2004). Three high risk conditions: withdrawal, negative emotions and social pressure were found to have influence on self-efficacy to practice harm reduction behaviors (Phillips 2005). Harm reduction self-efficacy questionnaire was used for measurement of drug users' perceived confidence in their ability to utilize specific harm reduction strategies in high-risk situations.

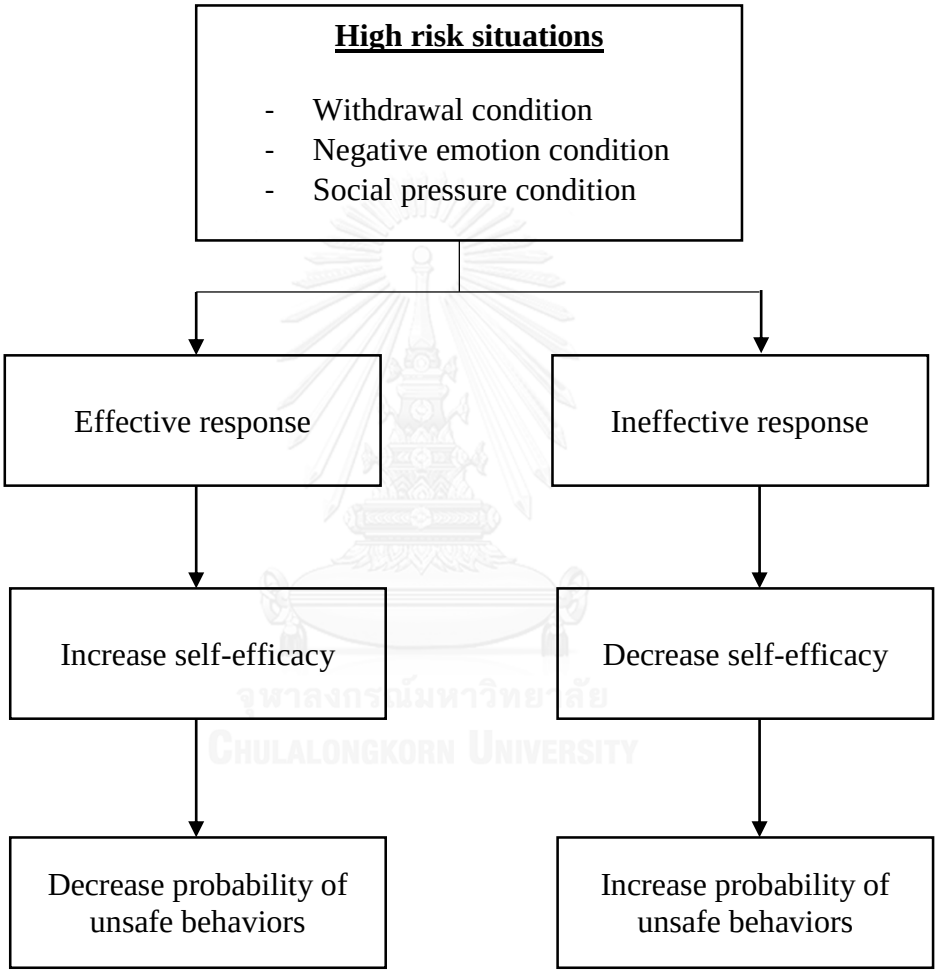

Figure 5.1: Safer behaviors process under high risk situations

Drug withdrawal is a substance-specific syndrome due to the cessation or reduction of heavy and prolonged drug use (Gowing, Ali et al. 2014). In this study, it was found that the intervention had effect on improving harm reduction self-efficacy compared to the control group at 3- and 6-month follow up assessments. The intervention strengthened the possible solutions that study participants could apply

when withdrawal. However, withdrawal is a complex condition and there may be other factors associated with IDU's behaviors when having the withdrawal symptoms. The severity of symptoms depends on the particular opiate used, the dose and duration of use. Withdrawal symptoms from opiates are including anxiety, yawning, rhinorrhoea, lacrimation, diaphoresis, shaking, chills and piloerection, anorexia, nausea, vomiting and abdominal cramps begin 6 to 12 hours after the abrupt discontinuation of heroin or morphine (Hodding, Jann et al. 1980). During the severity of withdrawal symptom, IDU are more likely to have risky injection behaviors and overcoming withdrawal becomes a challenging priority (Mateu-Gelabert, Friedman et al. 2010). A strategy need to be developed to further improve their harm reduction self-efficacy to navigate these difficulties during withdrawal and manage to inject safely.

Negative emotions condition is a high-frequency events that most drug users will encounter (Larimer, Palmer et al. 1999). It was found that the intervention group could significantly improve harm reduction self-efficacy in negative emotional conditions compare to the control group at 3- and 6-month follow up assessments. It is considered to be an important step as studies found that negative emotions including stress and anxiety play a key role in drug dependence (Drapela 2006, Wang and Chen 2015). Negative emotional states, such as anger, anxiety, depression, frustration, and boredom are also associated with drug use (Witkiewitz and Marlatt 2004). A recent study also found direct relation between the acute heroin effects on stress-related emotions (Schmidt, Borgwardt et al. 2014). A study reported that this type of situation is high risk for IDU that might threaten a goal to use drugs more safely (Phillips 2005). It reinforced safer injecting practices that study participants could apply when having negative emotions.

It was found that the intervention group indicated an increase in harm reduction self-efficacy in social pressure condition compare to the control group at 3- and 6-month follow up. Social pressure contributed to more than 20 percent of relapse episodes. (Larimer, Palmer et al. 1999). Peer pressure was cited as the major reason for drug use among IDU (Samo, Agha et al. 2016). Regarding social pressure condition, study participants respond when imagine that they were with another person and about to use the drugs unsafely. Triple-S intervention aim to improve harm reduction self-

efficacy in social pressure condition by discussing challenges that may occur and possible solutions that they could apply to practice safe injection behaviors. However, there may be other factors related to this condition including social network characteristics such as family member and injections with the sexual partner have been associated with unsafe injection behaviors (Gupta, Ambekar et al. 2014).

It can be found that the Triple-S intervention was effective in term of improving harm reduction self-efficacy in three high risk conditions at 3- and 6-month follow up compare to the control group. The intervention was designed grounded in Social Cognitive Learning Theory and Transtheoretical Model which results in foster behavior change and improve self-efficacy. It can be added that during the intervention process, homework was assigned to study participants to review their own behaviors and changed their cognitive recognition. However, as high loss follow up in this study, data had to be interpreted with caution in the within group. SOCRATES was also analyzed including recognition, ambivalence, and taking Steps, which correspond to the appropriate stages of change. It can be found that the Triple-S intervention can move study participants further the process of stages of change, however, changing behaviors of IDU who injected drugs for a long time is a complicated task. There may be other factors to be considered such as environmental, social and psychological factors. It was proven that the intervention has effect on their behavior change. Even there was a positive impact from Triple-S intervention on changing drug use behaviors and improving harm reduction self-efficacy in high risk conditions, an effort should be made on applying the intervention for further improvement. When comparing three high risk conditions, it was found that study participants reported lower harm reduction self-efficacy when imagining themselves in withdrawal, compared to a negative emotion condition and a social situation where others are using unsafely. This reflect that withdrawal is a complex condition and there may be other factors associated with IDU's behaviors when having the withdrawal symptoms. Consistent with other studies, the results suggest that self-efficacy is an important factor towards drug use behavior change and other treatment outcomes (Dolan, Martin et al. 2008, Hayaki and et al 2011, Caviness and et al 2013).

5.3 Limitation of the study

First, due to the illegal nature and the rarity of injection drug use, barriers in the recruitment of the sample group were found. This study aimed to test the effectiveness of Triple-S intervention, therefore, measures were taken to prevent bias by screening out those who were in any type of treatment. These measures contributed to the difficulty in recruitment and small sample size as around half of IDU in Bangkok reported to be receiving treatment (Fairbairn and et al 2011). The study sample was selected by using snow ball sampling with a small sample size and as such may not be representative of the IDU population in Bangkok. Second, the study could not randomize individual IDU to the study. Instead, IDU were assigned to groups depending on site location. Efforts were made to consider the demographic characteristics of both groups in the sampling process for comparison reason. Third, Even though interviewers were trained to build relationships and gain trust from IDU before conducting interviews, findings were based on self-reported data that may have been influenced by social desirability. Focusing on drug injection behavior over the 30 days prior to the interview minimized recall error. Most IDU reported not sharing needles and syringes in the past 30 days. This may be the result of improved needle and syringe programs in Thailand. These findings should be followed up to reduce risks to IDU in Thailand. Finally, due to the nature of IDUs, they are hard to reach and marginalized population, it was difficult to reach and conducted follow up assessments with them. Some of them passed away during the study period. Four of them were imprisonment. Most of them could not be reach to make an appointment and they were not at the venue where conducting the baseline assessment. Some peer educators from the drop-in centers who provided support during the recruitment period could not be contacted. Therefore, it was difficult to reach them and conduct follow up assessments, especially with the control group. As a result, there was a loss follow up rate of 31% in the intervention group and 56% in the control group. This also affect the analysis of this study to test effectiveness of the Triple-S Intervention with small sample size. It was impossible to conduct sub-group analysis.

5.4 Recommendation

The recommendations from the findings were presented in terms of implementation of Triple-S intervention, improvement of health services for IDU and future research suggestion;

5.4.1 Triple-S intervention implementation

The results of the present study may be taken to suggest the importance of behavior change intervention implemented with IDU. The recommendations for implementation of Triple-S intervention and improvement are as follow;

- Triple-S intervention could be implemented with IDU in order to reduce their rate of drug injeciton, reduce their unsafe injecting behaviors and improve their harm reduction self-efficacy. It should be integrated with services provided by drop-in centers where IDU can be reached voluntarily. Gaining trust before implementing the intervention is an important role to help in the change process.
- Efforts should be made to further reach out to this population and providing harm reduction program especially knowledge on health consequences of unsafe injection such as polydrug injection, mixing drugs, injection at the groin and injection site rotation.
- Triple-S intervention could be applied to implement with IDU in other context. It needs to integrate social, structural, and environmental context of behavior into applying the intervention.
- Triple-S intervention can be further developed to cover other harm reduction behaviors and improve harm reduction self-efficacy.
- Follow up mechanisms of study participants should be improved in order to reduce loss follow up rate. It could be done by gaining trust from them and ask for more contact information such as contact number of their family members. It is important to monitor behavior change over time. A follow up session to refresh harm reduction knowledge may support them to better maintain their behavior change.

5.4.2 Improvement of health and harm reduction services for IDU

The results of this study may be taken to suggest the improvement of health and harm reduction services for IDU as follow;

- Harm reduction programs in different contexts may provide a range of services that include the provision of injection equipment, education and information on reduction of drug-related harms, overdose prevention, referral to drug treatment, medical care and legal and social services.
- Harm reduction strategies should include a focus on reducing unsafe midazolam injection behavior by discouraging repeated injections at the same site and not mixing drugs. In Thailand, midazolam is easily accessible from private clinics or hospitals. There might be a need for advocacy work aimed at making midazolam more difficult to acquire.
- Almost half of study participants reported injection at the groin. This may be a result of midazolam injection that damage their veins. Injection at the groin can cause serious health problems. The risks of infection associated with injecting drug use are include soft tissue infection, abscess formation and transient bacteremia. Knowledge of safer injection should be provided to IDU regarding how to protect their vein.
- Withdrawal symptoms is a complex condition and there may be other factors associated with IDU's behaviors when having the withdrawal symptoms. It is also a condition that lower harm reduction self-efficacy. In Thailand, data regarding prevalence of withdrawal cases is limited, however, withdrawal treatment should be in place to support IDU with this symptom or encourage them to receive methadone maintenance treatment.
- As methadone maintenance treatment is an effective treatment for opioid drug dependence. Accessible to the treatment and maintain them is a priority. Follow up mechanisms should also be established for IDU who had been in drug treatment programs as in this study, a majority of study participants had ever been in drug treatment, while they discontinued and still injecting drugs.
- Drug overdose is currently the leading cause of death among drug users. From this study, almost one-third of study participants reported having experienced a

non-fatal drug overdose. Results may be taken to suggest the overdose prevention intervention in order to minimize risk among IDU.

- Drug use is illegal in Thailand, therefore, a majority of study participants reported having been in prison as a result of drug related charges. Harm reduction program could be implemented in prison to provide knowledge to this population as it is an opportunity to reach them. Methadone maintenance treatment could also be considered to provide in prison.

5.4.3 Future research

Other studies could be done to confirm the result of this study and provide more information and insight to better inform harm reduction program as follow;

- A similar study with larger sample size of IDU could be done to confirm effectiveness of the Triple-S intervention. It could also be implemented and tested in difference context such as in other geographic area. The intervention could also be applied to difference target group such as drug user.
- A study to provide prevalence of drug withdrawal cases could be done as there is a knowledge gap in Thailand regarding number of withdrawal cases among IDU, their symptoms and unsafe behaviors during drug withdrawal. An approach to manage when having withdrawal symptom could be developed to better understand this condition and provide more targeted intervention.
- A study to understand factors associated with drug overdose and an approach to prevent it should be done. The results will benefit the harm reduction program to promote safer drug use behaviors among IDU.
- A study to understand midazolam injection behavior and injection at the groin could also be done to better understand the situation and provide more targeted approach.

REFERENCES

Abdollahi, Z., et al. (2014). "Relationship between Addiction Relapse and Self-Efficacy Rates in Injection Drug Users Referred to Maintenance Therapy Center of Sari." Global Journal of Health Science **6**(3).

AMFAR (2015). Interventions to Prevent and Treat HIV Among People Who Inject Drugs.

Aramrattana, A. and et al (2011). Using the Multiplier Method to Estimate the Population Size of Injecting Drug Users (IDUs) in Thailand, 2009. The 10th International Congress on AIDS in Asia and the Pacific Busan, Republic of Korea.

Arribas-Ibar, E., et al. (2014). "Coverage of overdose prevention programs for opiate users and injectors: a cross-sectional study." Harm Reduction Journal: 11:33.

Ashrafioun, L., et al. (2014). "Evaluation of self-efficacy to use harm reduction strategies among marijuana-using university students." Drug and Alcohol Dependence **140**.

Assanangkornchai, S., et al. (2008). "Current situation of substance-related problems in Thailand." Journal of the Psychiatric Association of Thailand **53**: 24-36.

Baker, A., et al. (2001). "Randomized controlled trial of brief cognitive-behavioural interventions among regular users of amphetamine." Addiction **96**: 1279–1287.

Baker, A., et al. (2004). "Brief cognitive behavioural interventions for regular amphetamine users: a step in the right direction." Addiction **100**: 367–378.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change.

Bandura, A. (1989). "Social cognitive theory " Annals of child development Vol. 6. Six theories of child development **6**: 1-60.

Bandura, A. (1991). "Social cognitive theory of self-regulation. ." Organizational Behavior and Human Decision Processes **50**: 248-287.

Bargagli, A. M., et al. (2005). "Drug-related mortality and its impact on adult mortality in eight European countries." The European Journal of Public Health: 198-202.

Bazazi, A., et al. (2015). "High prevalence of non-fatal overdose among people who inject drugs in Malaysia: Correlates of overdose and implications for overdose prevention from a cross-sectional study." Int J Drug Policy **26**(7): 675-681.

Bergenstrom, A., et al. (2008). "A cross-sectional study on prevalence of non-fatal drug overdose and associated risk characteristics among out-of-treatment injecting drug users in North Vietnam." Subst Use Misuse **43**(1): 73-84.

Bridge, J., et al. (2015). "The Global Fund to Fight AIDS, Tuberculosis and Malaria's investments in harm reduction through the rounds-based funding model (2002–2014)." International Journal of Drug Policy

Canadian HIV/AIDS Legal Network (2009). Compulsory Drug Treatment in Thailand: Observations on the Narcotic Addict Rehabilitation Act B.E. 2545 (2002), Canadian HIV/AIDS Legal Network.

Carney, T. and B. Myers (2012). "Effectiveness of early interventions for substance using adolescents: findings from a systematic review and meta-analysis." Substance Abuse Treatment, Prevention, and Policy **7**(25).

Caviness, C. M. and et al (2013). "Self-Efficacy and Motivation to Quit Marijuana Use among Young Women." The American Journal on Addictions(22): 373–380.

Chan, Y. H. (2003). "Randomised Controlled Trials (RCTs) – Sample Size: The Magic Number? ." Singapore Med J **44**(4): 172-174.

Coffin, P. O., et al. (2012). "Prevalence and Characteristics of Femoral Injection among Seattle-Area Injection Drug Users." J Urban Health **89**(2): 365-372.

Cohen, J. (1992). "A Power Primer." Psychological Bulletin **112**(1): 155-159.

Colfax, G., et al. (2010). "Amphetamine-group substances and HIV." Lancet **376**: 458-474.

Darke, S. (2003). "Polydrug use and overdose: overthrowing old myths." Addiction **98**(6): 711.

Darke, S. and W. Hall (2003). "Heroin overdose: research and evidence-based intervention." J Urban Health **80**(2): 189-200.

Darke, S., et al. (2001). "Physical injecting sites among injecting drug users in Sydney, Australia." Drug and Alcohol Dependence **62**: 77-82.

Darke, S., et al. (1991). The Opiate Treatment Index (OTI) Manual. NSW, Australia, National Drug and Alcohol Research Centre, University of New South Wales.

Degenhardt, L., et al. (2007). The global epidemiology of methamphetamine injection: A review of the evidence on use and associations with HIV and other harm National Drug and Alcohol Research Centre, University of New South Wales

Degenhardt, L., et al. (2010). "Meth/amphetamine use and associated HIV: Implications for global policy and public health." Int J Drug Policy **21**(5): 347-358.

Dolan, S. L., et al. (2008). "Self-efficacy for cocaine abstinence: pretreatment correlates and relationship to outcomes." Addictive Behaviors(33): 675–688.

Drapela, L. A. (2006). "The Effect of Negative Emotion on Licit and Illicit Drug Use Among High School Dropouts: An Empirical Test of General Strain Theory." Journal of Youth and Adolescence **35**(5): 755-770.

Dutra, L., et al. (2008). "A meta-analytic review of psychosocial interventions for substance use disorders." Am J Psychiatry **165**(2).

EMCDDA (2010). Trends in injecting drug use in Europe. European Monitoring Centre for Drugs and Drug Addiction, EMCDDA.

EMCDDA (2014). Perspectives on drugs: injection of synthetic cathinones. Perspectives on Drugs Series.

Ettorre, E. (2004). "Revisioning women and drug use: gender sensitivity, embodiment and reducing harm." International Journal of Drug Policy **15**: 327-335.

Fairbairn, N. and et al (2011). "Factors associated with methadone treatment among injection drug users in Bangkok, Thailand." Journal of Substance Abuse Treatment.

French, J., et al. (2009). Social Marketing and Public Health Theory and Practice, OUP UK.

Gilbert, L., et al. (2013). "Redressing the Epidemics of Opioid Overdose and HIV among People who Inject Drugs in Central Asia: The Need for a Syndemic Approach." Drug Alcohol Depend **132**.

Gowing, L., et al. (2014). National Guidelines for Medication-Assisted Treatment of Opioid Dependence, The National Drug Strategy

Gowing, L. R., et al. (2005). "BRIEF REPORT: Methadone Treatment of Injecting Opioid Users for Prevention of HIV Infection " J GEN INTERN MED 2006 **21**: 193-195.

Griensvan, V., et al. (2005). "Trends in the injection of midazolam and other drugs and needle sharing among injection drug users enrolled in the AIDSVAX B/E HIV-1 vaccine trial in Bangkok, Thailand " International J Drug Policy **15**: 171-175.

Gupta, S. K., et al. (2014). "Psychosocial factors associated with HIV-related high-risk injection behavior among people who inject drugs." Journal of Mental Health and Human Behavior **19**: 62-68.

Handanagica, S., et al. (2016). "HIV and hepatitis C prevalence, and related risk behaviours among people who inject drugs in three cities in Croatia: Findings from respondent-driven sampling surveys." International Journal of Drug Policy **32**: 57-63.

Harm Reduction Coalition (2011). A Safety Manual for Injection Drug Users.

Harm Reduction Coalition (2012). Guide To Developing and Managing Overdose Prevention and Take-Home, Naloxone Projects, Harm Reduction Coalition.

Harocopos, A., et al. (2009). "New injectors and the social context of injection initiation." International Journal of Drug Policy **20**: 317 - 323.

Hayaki, J. and et al (2011). "Expectancies and self-efficacy mediate the effects of impulsivity on marijuana use outcomes: an application of the acquired preparedness model." Addiction Behaviors(36): 389-396.

Hayashi, K., et al. (2013). "Drug-related harm among people who inject drugs in Thailand: summary findings from the Mitsampan Community Research Project." Harm Reduction Journal (10).

Hayashi, K., et al. (2011). "Methamphetamine injection and syringe sharing among a community-recruited sample of injection drug users in Bangkok, Thailand." Drug Alcohol Depend **1**(115).

Hilton, B., et al. (2001). "Harm reduction theories and strategies for control of human immunodeficiency virus: a review of the literature." J Adv Nurs **33**(3): 357-370.

Hodding, G. C., et al. (1980). "Drug Withdrawal Syndromes - A Literature Review." West J Med **133**: 383-391.

Hope, V. D., et al. (2015). "Going into the groin: Injection into the femoral vein among people who inject drugs in three urban areas of England." Drug and Alcohol Dependence (152): 239–245.

Human Rights Watch (2007). Deadly Denial: Barriers to HIV/AIDS Treatment for People Who Use Drugs in Thailand.

Hunt, N. (2010). A review of the evidence-base for harm reduction approaches to drug use Forward Thinking on Drugs.

Ibrahim, F. and N. Kumar (2009). " Factors Effecting Drug Relapse in Malaysia: An Empirical Evidence." Asian Social Science **5**(12).

IHRA (2010). What is Harm Reduction? A position statement from the International Harm Reduction Association. London, United Kingdom.

INCB (2006). Report of the International Narcotics Control Board for 2005. UNITED NATIONS, New York, INCB.

Jenner, L. and N. Lee (2008). Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers, Australian Government Department of Health and Ageing, Canberra.

Johnston, L. G. and et al (2012). "Incorporating the Service Multiplier Method in Respondent-Driven Sampling Surveys to Estimate the Size of Hidden and Hard-to-Reach Populations: Case Studies From Around the World." Sexually transmitted diseases **4**(40): 304-310.

Kaddena, R. M. and M. D. Litt (2011). "The Role of Self-Efficacy in the Treatment of Substance Use Disorders." Addiction Behaviors **36**(12): 1120–1126.

Kerr, T., et al. (2010). "Expanding the reach of harm reduction in Thailand: experiences with a drug user-run drop-in centre." Int J Drug Policy **21**(3): 255-258.

Kerr, T., et al. (2010). "High rates of midazolam injection among drug users in Bangkok, Thailand." Harm Reduction Journal **7**(7).

Kiatying-Angsulee, N., et al. (2004). Midazolam use in injecting drug users (IDUs) in Bangkok: Preliminary result of a qualitative study. 15th International AIDS Conference: . Bangkok, Thailand.

Kiatying-Angsulee, N., et al. (2004). Geographical distribution of midazolam tablets in Thailand: Implications for policy interventions on HIV transmission in injection drug users (IDUs). . World Conference of Epidemiology.

Lake, S., et al. (2015). "The effect of prescription opioid injection on the risk of non-fatal overdose among people who inject drugs." Drug Alcohol Depend **156**(297-303).

Lankenau, S. E., et al. (2010). "The first injection event: Differences among heroin, methamphetamine, cocaine, and ketamine initiates." J Drug Issues **40**(2): 241-262.

Larimer, M. E., et al. (1999). "Relapse Prevention An Overview of Marlatt's Cognitive-Behavioral Model." Alcohol Research & Health **23**(2).

Levine, H. G. (2003). "Global drug prohibition: its uses and crises." International Journal of Drug Policy **14**: 145-153.

Logan, D. E. and G. A. Marlatt (2010). "Harm Reduction Therapy: A Practice-Friendly Review of Research." J Clin Psychol **66**(2): 201-214.

Lopes, P., et al. (2014). "A Rasch analysis of the harm reduction self-efficacy questionnaire in Portugal." Addict Behav **39**(10): 1500-1503.

Lunenburg, F. C. (2011). "Self-Efficacy in the Workplace: Implications for Motivation and Performance." International Journal of Management, Business, and Administration Volume 14 **14**(1).

Mackenzie, A., et al. (2000). "High prevalence of iliofemoral venous thrombosis with severe groin infection among injecting drug users in North East Scotland: successful use of low molecular weight heparin with antibiotics." Postgrad Med J **76**(899): 561-565.

Maliphant, J. and J. Scott (2005). "Use of the femoral vein ('groin injecting') by a sample of needle exchange clients in Bristol, UK." Harm Reduction Journal.

Marlatt, G. A., et al. (1995). Self-efficacy and addictive behavior.

Marques, A. C. and M. L. Formigoni (2001). "Comparison of individual and group cognitive-behavioral therapy for alcohol and/or drug-dependent patients." Addiction **96**(835-846).

Mars, S., et al. (2015). "Heroin-related overdose: The unexplored influences of markets, marketing and source-types in the United States." Soc Sci Med **140**: 44-53.

Mateu-Gelabert, P., et al. (2010). "Strategies to Avoid Opiate Withdrawal: Implications for HCV and HIV Risks." Int J Drug Policy **21**(3): 179–185.

Mathers, B. M., et al. (2008). "Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review." The Lancet **372**(9651): 1733-1745.

McHugh, R. K., et al. (2010). "Cognitive-Behavioral Therapy for Substance Use Disorders. ." Psychiatr Clin North Am **33**(3): 511–525.

McKetin, R., et al. (2008). "Characteristics and harms associated with injecting versus smoking methamphetamine among methamphetamine treatment entrants." Drug Alcohol Rev **27**(3): 277-285.

McNicholas, L. (2004). Clinical Guidelines for the Use of Buprenorphine in the Treatment of Opioid Addiction, Substance Abuse and Mental Health Services Administration (US).

Meesit, C. and A. Chapchai (2012). Drug policy and law in Thailand to response to HIV challenges. Thailand, PSI/Thailand and Foundation for AIDS Rights.

Meichenbaum, D. (1984). "Teaching thinking: A cognitive- behavioral perspective." Thinking and learning skills (Vol. 2): Research and Open Questions **2**: 407-426.

Milloy, M.-J., et al. (2010). "Overdose experiences among injection drug users in Bangkok, Thailand." Harm Reduction Journal **7**(9).

Morris, M. D., et al. (2011). "“Injection First”: A Unique Group of Injection Drug Users in Tijuana, Mexico." The American Journal on Addictions **21**: 23 - 30.

Niaura, R. (2000). "Cognitive social learning and related perspectives on drug craving." Addiction **95**: S155–S163.

NPNU Initiative (2007). Working with people who use drugs: A harm reduction approach, Non Prescription Needle Use Initiative.

Nyamathi, A., et al. (1999). "Perceived Factors Influencing the Initiation of Drug and Alcohol Use Among Homeless Women and Reported Consequences of Use." Women & Health **29**(2): 99-114.

O'Neill, K., et al. (1996). "Evaluation of a cognitive-behavioural intervention for pregnant injecting drug users at risk of HIV infection." Addiction **91**(8): 1115-1125.

ONCB (2001). Report on a decade of struggle to control narcotics in Thailand Office of the Narcotics Control Board.

ONEC (1999). National Education Act of B.E. 2542 (1999), Office of the National Education Commission, Office of the Prime Minister, Thailand.

Pansuwan, N., et al. (2012). The 2012 Integrated Behavior and Biological Surveillance (IBBS) of HIV, Sexually Transmitted Infections and Associated Risk Behaviors.

Perngmark, P., et al. (2003). "Risk factors for HIV infection among drug injectors in southern Thailand. ." Drug and Alcohol Dependence **71**: 229-238.

Phillips, K. T. (2005). "Applying the relapse model to harm reduction: The development and evaluation of the harm reduction self-efficacy questionnaire." Graduate College of Bowling Green State University.

Prochaska, J. O. (2005). The transtheoretical approach. Handbook of psychotherapy integration. , Oxford University Press.

Prochaska, J. O. and W. F. Velicer (1997). "The Transtheoretical Model of Health Behavior Change." American Journal of Health Promotion **12**(1).

PSI (2008). HIV/AIDS TRaC among Injecting Drug Users Third Round, Population Services International.

PSI (2014). "Cross-Sector Programs Enhance Harm Reduction in Thailand."

Quan, V., et al. (2007). "Predictors of mortality among injecting and non-injecting HIV-negative drug users in northern Thailand." Addiction **102**: 441-446.

Rácz, J., et al. (2007). "Injecting Equipment Sharing and Perception of HIV and Hepatitis Risk among Injecting Drug Users in Budapest." AIDS Care **19**(1): 59-66.

Rhodes, T., et al. (2007). "Crack–heroin speedball injection and its implications for vein care: qualitative study." Addiction **102**: 1782-1790.

Rhodes, T., et al. (2006). "Groin injecting in the context of crack cocaine and homelessness: From 'risk boundary' to 'acceptable risk'?" Int J Drug Policy **17**(3): 164-170.

Ritter, A. and J. Cameron (2005). A Systematic Review of Harm Reduction. Drug Policy Modelling Project Monograph 06.

Roberts, J., et al. (2011). "A systematic review of interventions to increase the uptake of opiate substitution therapy in injecting drug users." J Public Health **33**(3): 378-384.

Roberts, M., et al. (2004). Thailand's 'War on Drugs' THE BECKLEY FOUNDATION DRUG POLICY PROGRAMME A DRUGSCOPE BRIEFING PAPER.

Samo, R. N., et al. (2016). "Risk Factors for Loss to Follow-Up among People Who Inject Drugs in a Risk Reduction Program at Karachi, Pakistan. A Case-Cohort Study." Plos One.

Sampl, S. and R. Kadden (2000). Motivational Enhancement Therapy and Cognitive Behavioral Therapy for Adolescent Cannabis Users: 5 Sessions, University of Connecticut School of Medicine U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment

Schmidt, A., et al. (2014). "Acute effects of heroin on negative emotional processing: relation of amygdala activity and stress-related responses." Biol Psychiatry **76**(4): 289-296.

Senbanjo, R. and J. Strang (2011). "The needle and the damage done: Clinical and behavioural markers of severe femoral vein damage among groin injectors." Drug and Alcohol Dependence **118**: 161-165.

Small, W., et al. (2009). "Social influences upon injection initiation among street-involved youth in Vancouver, Canada: a qualitative study." Substance Abuse Treatment, Prevention, and Policy **4**(8).

Smedslund, G. and et al (2011). "Motivational interviewing for substance abuse." Cochrane Database of Systematic Reviews 2011(5).

Stockings, E., et al. (2016). "Prevention, early intervention, harm reduction, and treatment of substance use in young people." The Lancet Psychiatry.

Strathdee, S. A. and R. A. Pollini (2007). "A 21st-century Lazarus: the role of safer injection sites in harm reduction and recovery." Addiction **102**: 848-849.

Strathdee, S. A. and D. Vlahov (2001). "The effectiveness of needle exchange programs: A review of the science and policy." AIDScience **1**(16).

Tait, R. J., et al. (2004). "Effectiveness of a brief-intervention and continuity of care in enhancing attendance for treatment by adolescent substance users." Drug and Alcohol Dependence **74**: 289–296.

Takahashi, S. (2009). "Drug Control, Human Rights, and the Right to the Highest Attainable Standard of Health: By No Means Straightforward Issues." Human Rights Quarterly **31**.

Tatarsky, A. (2003). " Harm reduction psychotherapy: Extending the reach of traditional substance use treatment. ." Journal of Substance Abuse Treatment **25**: 249-256.

Ti, L., et al. (2014). "Groin injecting among a community-recruited sample of people who inject drugs in Thailand." Subst Abuse Treat Prev Policy **9**(4).

United Nations (1972). Single Convention on Narcotic Drugs, 1961.

UNODC (2007). "Reducing the harm of drug use and dependence ".

UNODC (2010). Reducing adverse health and social consequences of drug abuse: A comprehensive approach

UNODC (2011). World Drug Report 2011. New York.

UNODC (2012). Abscess Prevention and Management among Injecting Drug Users.

UNODC (2015). World Drug Report 2015.

van den Bree, M. B., et al. (1998). "Genetic and environmental influences on drug use and abuse/dependence in male and female twins." Drug Alcohol Depend **52**(3): 231-241.

van der Bijl, J. J. and L. M. Shortridge-Baggett (2001). "The theory and measurement of the self-efficacy construct." Sch Inq Nurs Pract **15**(3): 189-207.

Volkow, N., et al. (2007). "Dopamine in drug abuse and addiction: results of imaging studies and treatment implications." Arch Neurol **64**(11): 1575-1579.

Wagner, K. D., et al. (2011). "Cognitive Behavioral Theories Used to Explain Injection Risk Behavior Among Injection Drug Users: A Review and Suggestions for the Integration of Cognitive and Environmental Models." Health Educ Behav.

Wang, Y. and X. Chen (2015). "Stress and alcohol use in rural Chinese residents: A moderatedmediation model examining the roles of resilience and negativeemotions." Drug and Alcohol Dependence(155): 76-82.

Wattana, W., et al. (2007). "Respondent-driven sampling to assess characteristics and estimate the number of injection drug users in Bangkok, Thailand." Drug and Alcohol Dependence **90**: 228-233.

Werb, D., et al. (2009). "Drug use patterns among Thai illicit drug injectors amidst increased police presence." Substance Abuse Treatment, Prevention, and Policy **4**(16).

WHO (2009). Management of common health problems of drug users.

WHO (2010). ATLAS of Substance Use Disorders, Country Profile: Thailand, WHO.

WHO (2010). A strategy to halt and reverse the HIV epidemic among people who inject drugs in Asia and the Pacific : 2010–2015, WHO.

Wilsona, D. P. and et al (2015). "The cost-effectiveness of harm reduction." International Journal of Drug Policy **26**: S5–S11.

Witkiewitz, K. and G. A. Marlatt (2004). "Relapse Prevention for Alcohol and Drug Problems." American Psychologist **59**(4): 224-235.

Wodak, A. and A. Cooney (2006). "Do needle syringe programs reduce HIV infection among injecting drug users: a comprehensive review of the international evidence." Subst Use Misuse **41**: 777-813.

APPENDIX

APPENDIX A

Triple-S Intervention Manual

Triple-S is a behavior change intervention designed grounded in Social Cognitive Learning Theory and Transtheoritical Model. Triple-S will be implemented with IDU. It comprises of six sessions aimed to change IDU behaviors. Triple-S intervention is from the concept as follow;

Start IDU prepare and start building readiness for behavior change

Smart IDU change their behavior by improving harm reduction self-efficacy and having safer drug use behaviors

Strong IDU reduce rate of drug use, realize benefit and maintain behavior change

Main Outcomes that will be measured from this intervention are as follow;

- Reduce drug use
- Safer drug use behaviors
- Improve IDUs' harm reduction self-efficacy

Format and timing of Triple-S intervention

The Triple-S intervention was conducted at two injecting drug users drop-in center under supported from The Global Fund and PSI Thailand Foundation. Researcher received permission from the organization to use the meeting room at these centers. Triple-S intervention was conducted in the period of three months which took around one hour per group per session. Totally, six sessions of intervention were conducted with each group of 3-5 persons per group. Each group was arranged by main type of drug use and level of stage of change. Each session was conducted every two weeks. In case participant cannot attend the session, that person should join another group with the same main type of drug use and same level of stage of change. Otherwise, individual format should be applied with that participant. Interventionist will consider if that person is comfortable to join other group or not. Introduction of that person and ice breaking will be done again with the group. In case that person

refuse to join the new group, individual format will be applied with the session and he/she will re-join his/her own group for the next session. Interventionist will be a key person to facilitate the group discussion and run the activities. Strategies will be used to prevent not attending the intervention and loss follow up by agreement to provide contact number to follow up in the recruitment stage, incentive will be provided to research participants to encourage them to participate in the intervention and staffs at drop-in center and their peers will assist in following up the participants. The intervention will be conducted at the meeting room in the drop-in center where there are staffs working there. In case there is any problem occurs, staff will be assisted in the issues that may arise. Normally, injecting drug users use opioids substance which is depressants so study participants may tend to feel sleepy during the session, rather than being dangerous.

Triple-S Intervention Review

Intervention was reviewed by experts as follow;

1. Dennis McCarty, Ph.D., Professor, Department of Public Health & Preventive Medicine, Oregon Health & Science University

2. Thomas Kerr, Ph.D., Director, Urban Health Research Initiative British Columbia Center for Excellence in HIV/AIDS

3. Apinun Aramrattana, MD, Ph.D., Department of Family Medicine, Chiang Mai University

Interventionists Qualification and Key Responsibilities

Qualifications of the interventionists are as follow;

- Minimum degree in Psychology, Social science or related degree
- Excellent communication and counselling skills
- Have experiences in working with addict or injecting drug users
- Understanding of drugs, counselling, communication, behavior change theory and practice, motivation interviewing
- Pass the training of Triple-S intervention

Key responsibilities;

- Conduct 6 sessions of Triple-S intervention with IDU

Assessment Process

Before the first session of intervention, at mid-intervention and post-intervention, each participant will be assessed in term of level of stage of change. This information will be used to assess each person readiness to change and for arranging the group. Information from outcome assessment questionnaire will be recorded in the log sheet.

For the follow up assessment, only questionnaire in section 2 to 4 will be used with the participants. Strategies will be used to manage to have participants come back for follow up at 1-, 3- and 6-month after the intervention as follow;

- Agreement to provide contact number to follow up in the recruitment stage
- Research assistants will call to make an appointment with study participants to do the follow up assessment
- Staffs at drop-in center and their peers will assist in following up the participants
- If needed, research assistants will do the follow up assessment at their convenience place

Research Assistants Qualification and Key Responsibilities

Qualifications of research assistants are as follow;

- A bachelor's or master’s degree in social sciences, psychology, or a related field.
- A few years of experience working with drug users are required.
- Excellent communication skills
- Pass the questionnaire training and test for the interviewing

Key responsibilities;

- Conduct baseline and follow up surveys with injecting drug users in control and intervention group

Start I: Preparation

Objective: To prepare study participant for Triple-S sessions

Overview: Each person must be contacted for preparation for the sessions. Study participant will provide information about their life situation and drug use problems. Challenging about their life will be discussed and expectation for attending this intervention will be defined. Insight of IDU will be generated and this information will be used for segmenting the target group. At this stage, Triple-S intervention will be introduced to study participant. This information will also be used to plan for motivation enhancement for each person in each stage. Outline of the sessions of the intervention will be given to the participants. Appointment for the sessions will be made.

Details of Start I:

Materials: Plasticine, Flipchart, papers

Activity	Topics	Method	Time
1. Activity "Myself"	Icebreaking	- Interventionist introduces themselves and starts this activity for icebreaking by providing plasticine to participants and let each person make it to best represent them. - Each person identifies their nickname to use for the whole Triple-S sessions and present the plasticine to the group with reasons. Interventionist could probe about how it represent each person and meaning to their life	20 min

Activity	Topics	Method	Time
		- After the presentation, interventionist or other participants can probe for each participant's response for better understanding and clarification	
2. Presentation	Introduction to Triple-S	- Interventionist explain overview and objective of Triple-S intervention	10 min
3. Discussion	Preparation for Triple-S intervention	- Interventionist discuss with participant and set up a shared common rules for participation in Triple-S sessions - Interventionist provide pieces of paper for participant to write up their expectations and self-assessment for participating in Triple-S intervention - Scheduling for another Triple-S sessions	15 min

Start II: Building readiness for change

Objective: To motivate study participant to observe their own behaviors and start thinking about changing their drug use behavior

This session will be about building readiness for change. The interventionist will begin the process of assessing and building the participant's motivation to change by addresses their life goal. Study participants will discuss with the interventionist about how drug use affect their life goal. Self-efficacy will be

improved by changing their belief about their own capability to learn or perform behaviors. Harm reduction knowledge and concept will be given to study participants. Homework exercise will be given to study participant which is about recording drug use and behaviors.

Details of Start II:

Materials: papers, crayon, Triple-S Card 1, 2 and 3, Triple-S Log Sheet

Activity	Topics	Method	Time
1. Activity "Story of My Life"	Goal setting	- Interventionist provide pieces of paper and crayon to participants and ask them to draw pictures about their life in the next 5 years in realistic and put the picture to the wall	10 min
	Life situation	- Intervention provide Triple-S Card 1 to participant asking about their daily life and challenges in life that make it not reaching their life goal	5 min
	Drug use problems	- Intervention provide Triple-S Card 2 to participant asking about how drug use related to life goal, problems from using drugs including personal, family or community problems	5 min
	Harm reduction	- Intervention provide Triple-S Card 3 to participant asking about how harm	5 min

Activity	Topics	Method	Time
		reduction practice can make them reach their life goal	
2. Presentation		- After answering three questions, participants put these three cards to the wall under their picture. Each person presents their story to the group. Interventionist or other participants can probe for each participant's response for better understanding and clarification - Interventionist record their story in Triple-S Log Sheet	15 min
3. Presentation	Harm reduction knowledge and concept	- Interventionist provide information about drug use and injecting behaviors including safer injecting drugs, harm reduction knowledge, overdose prevention, perception of benefits from drug abstinent, harm reduction and behavior change	15 min
4. Assignment		- Interventionist explain the assignment to record their drug use and their behaviors daily in the next 2 weeks	5 min

Smart I: Changing behavior

Objective: To provide knowledge and information for changing their drug use behavior

This part includes reviewing about drug use problems that occur with study participant's life. Each person has to define their drug use behavior that they intend to change, benefits their life, and set goal of behavior change. They will set the plan for changing their behaviors. Role model will be shown and discuss to support attentional, retention and production process. Homework exercise will be given to study participant which is about recording drug use behaviors, changes that occur in their drug use behaviors and their feeling about it.

Details of Smart I:

Materials: papers, Triple-S card 4

Activity	Topics	Discussion/Activity Process	Time
1. Reviewing assignment		- Interventionist start the session by asking each participant to present their assignment to the group to assess their own behavior (In case anyone do not complete their assignment, interventionist should provide a piece of paper for them to review their behaviors in the past 2 weeks while others can think about their behaviors again) - Assessment of each person will be reviewed, discussed and recorded in Triple-S Log Sheet	15 min

Activity	Topics	Discussion/Activity Process	Time
2. Discussion	Planning for changing behavior	- Interventionist ask participant to choose one of their drug use behaviors that they want to change and relate to their life goal. - Then each person discuss about benefit from drug use behavior change that related to their life goal - Interventionist asks them to fill in Triple-S Card 4. - Then ask each person to set their goal for behavior change, plan for drug use behavior change and harm reduction, fill in Triple-S Card 4 and present to the group.	25 min
3. Presentation	Role model	- Success stories of drug users who are able to change their drug use behavior will be shown and discussed. Each participant will be asked to tell their role model by not stating real name but use nickname instead.	15 min
4. Assignment		- Interventionist explain the assignment to record their	5 min

Activity	Topics	Discussion/Activity Process	Time
		planed behavior change in the next 2 weeks	

Smart II: Coping with relapse

Objective: To develop skills to deal with challenges that may occur during behavior change process

This session will develop further skills for IDU to deal with challenges that may occur and assist each participant to develop emergency plan in order to cope with relapse and maintain their behavior change. Self-observation related to their drug use behaviors will be discussed. Past experiences of them related to relapse will be discussed. Factors that associated with relapse will be discussed with study participant including peer pressure, family support, community support and employer support. Key person support will be identified in order to assist them during the process. Planning for stronger coping strategies with at-risk situations will be defined and various situations that may cause relapse will be shown with possible solutions. The group will discuss about how to deal with each challenge. Homework exercise will be given to study participant which is about recording their feeling when practicing safe drug use behaviors, problems occur and how to deal with each situation.

Details of Smart II:

Materials: Triple-S Card 4

Activity	Topics	Discussion/Activity Process	Time
1. Reviewing assignment		- Interventionist start the session by asking each participant to present their assignment to the group to assess their own behavior (In case anyone do not complete their assignment,	15 min

Activity	Topics	Discussion/Activity Process	Time
		interventionist should provide a piece of paper for them to review their behaviors in the past 2 weeks while others can think about their behaviors again) - Assessment of each person will be reviewed, discussed and recorded in Triple-S Log Sheet - Interventionist ask each person to discuss about their feelings, factors that make them change their behavior successful or unsuccessful and how to deal with each situation	
2. Presentation "Case study 1"	Withdrawal situation	- Interventionist present Case Study 1 and discuss with participant. - Interventionist ask participant to discuss their experience, feelings and drug use behaviors when withdrawal - Interventionist ask participant to brainstorm possible solutions for each situation	10 min

Activity	Topics	Discussion/Activity Process	Time
3. Presentation "Case study 2"	Negative emotions situation	- Interventionist present Case Study 2 and discuss with participant. - Interventionist ask participant to discuss their experience, feelings and drug use behaviors when they are in negative emotions - Interventionist ask participant to brainstorm possible solutions for each situation	10 min
4. Presentation "Case study 3"	Social pressure	- Interventionist present Case Study 3 and discuss with participant. - Interventionist ask participant to discuss their experience, feelings and drug use behaviors when they are in social pressure - Interventionist ask participant to brainstorm possible solutions for each situation	10 min
5. Discussion		- Interventionist provide Triple Card 4 to participant and ask them to summarize their own behaviors in the past 2 weeks from their	10 min

Activity	Topics	Discussion/Activity Process	Time
		assignment, changes and challenges - Interventionist ask them to set up a plan to deal with challenges that make their behavior change unsuccessful	
6. Assignment		- Interventionist explain the assignment to record their planed behavior change in the next 2 weeks	5 min

Strong I: Benefits of behavior change

Objective: To realize benefit of their behavior changes and enhance motivation

Motivation to drug use behavior change will be discussed and strengthen benefits that they will get. Motivation can be enhanced by emphasizing that using/injecting drug may affect their life goal. Changing in their life will be discussed. Challenges from practicing harm reduction will be defined and discussed. Environmental factors that may cause at-risk situation will be given and discussed possible solutions. Internal rewards will be reinforced. Capability to behavior change will be strengthened and motivated them to maintain their behavior change and evaluate trigger for relapse. Homework exercise will be given to study participant to record their feeling and changing in their life after behavior change.

Details of Strong I:

Materials: papers, Triple-S Card 4

Activity	Topics	Discussion/Activity Process	Time
1. Reviewing assignment		- Interventionist start the session by asking each participant to present their assignment to the group to assess their own behavior (In case anyone do not complete their assignment, interventionist should provide a piece of paper for them to review their behaviors in the past 2 weeks while others can think about their behaviors again) - Assessment of each person will be reviewed, discussed and recorded in Triple-S Log Sheet - Interventionist ask each person to discuss about their feelings, factors that make them change their behavior successful or unsuccessful and how to deal with each situation	15 min
2. Activity "In 3 Words"	Benefit from behavior change	- Interventionist ask participant to write down 3 words that represent their drug use behavior change in the past month. - Each person present these 3 words to the group with reasons	30 min

Activity	Topics	Discussion/Activity Process	Time
		- Interventionist ask them to discuss about result from their behavior change related to their life goal and encourage their changes by providing positive reinforcement and strengthen their ability to change their behavior - Interventionist ask them to discuss about how others perceive about their behavior change and their feedback - Interventionist ask participant to write down 3 words that represent their plan for drug use behavior change in the next 2 weeks	
7. Discussion		- Interventionist provide Triple Card 4 to participant and ask them to summarize their own behaviors in the past 2 weeks from their assignment, changes and challenges - Interventionist ask them to set up a plan to deal with challenges that make their behavior change unsuccessful	10 min
8. Assignment		- Interventionist explain the assignment to record their	5 min

Activity	Topics	Discussion/Activity Process	Time
		planed behavior change in the next 2 weeks	

Strong II: Maintaining behavior change

Objective: To create commitment for sustaining behavior change

This session will assist each participant to realize advantages of behavior change that lead to their life goals, belief in their capability to change and deal with challenging situations and continue commitment to sustaining new behavior. Advantages of behavior change that lead to their life goals will be discussed. Internal rewards will be reinforced. Key person support will be identified in order to assist them during the process. Type of support and how they can get it will also be introduced to each participant. Follow up scheduling will be planned.

Details of Strong II:

Materials: papers, Triple-S Card 4

Activity	Topics	Discussion/Activity Process	Time
1. Reviewing assignment		- Interventionist start the session by asking each participant to present their assignment to the group to assess their own behavior (In case anyone do not complete their assignment, interventionist should provide a piece of paper for them to review their behaviors in the past 2 weeks while others can think about their behaviors again)	15 min

Activity	Topics	Discussion/Activity Process	Time
		- Assessment of each person will be reviewed, discussed and recorded in Triple-S Log Sheet - Interventionist ask each person to discuss about their feelings, factors that make them change their behavior successful or unsuccessful and how to deal with each situation	
2. Discussion	Sustainability of behavior change	- Interventionist ask participant to think about what will help them to remind for behavior change in the future, write down in the a piece of paper and present to the group	15 min
3. Discussion	Other Support	- Interventionist ask participant to identify other support that they need in order to change their behavior sustainably - Interventionist ask them to record it in Triple-S card 4	10 min
4. Conclusion		- Conclusion of Triple-S intervention and feedback	15 min
5. Planning for follow up		- Follow up assessment will be scheduled with each participant	5 min

APPENDIX B

Triple-S Log Sheet and Card

Participant ID: _____

Group No: _____

Main type of drug use: _____

START

Session	Note	Assessment
Start I Date_____ Time_____		Stage of change:_____
Start II Date_____ Time_____		Stage of change:_____

Triple-S Log Sheet

Participant ID: _____

Group No: _____

Main type of drug use: _____

SMART

Session	Note	Assessment
Smart I Date_____ Time_____		Stage of change:_____
Smart II Date_____ Time_____		Stage of change:_____

Triple-S Log Sheet

Participant ID: _____

Group No: _____

Main type of drug use: _____

STRONG

Session	Note	Assessment
Strong I Date_____ Time_____		Stage of change:_____
Strong II Date_____ Time_____		Stage of change:_____

Triple-S Card 1

ความท้าทายหรืออุปสรรคในการไปถึงเป้าหมายชีวิตของท่านคืออะไร

Triple-S Card 2

การใช้ยาในปัจจุบันของท่าน มีผลต่อการไปถึงเป้าหมายชีวิตของท่านหรือไม่ อย่างไร

Triple-S Card 3

การลดอันตรายจากการใช้ยา มีผลต่อการไปถึงเป้าหมายชีวิตของท่านหรือไม่ อย่างไร

Triple-S Card 4

Participant ID: _____

Group No: _____

หัวข้อ		บันทึก
SMART I	ระบุพฤติกรรมการใช้ยาที่ต้องการปรับเปลี่ยน	
	ประโยชน์ที่จะเกิดขึ้นจากการปรับเปลี่ยนพฤติกรรม	
	เป้าหมายของการปรับเปลี่ยนพฤติกรรม	
	วิธีการปรับเปลี่ยนพฤติกรรม	
SMART II	ผลการปรับเปลี่ยนพฤติกรรมใน 2 สัปดาห์ที่ผ่านมา	
	ปัญหาอุปสรรคที่พบ	
	วิธีการแก้ปัญหา	
STRONG I	ผลการปรับเปลี่ยนพฤติกรรมใน 2 สัปดาห์ที่ผ่านมา	
	ปัญหาอุปสรรคที่พบ	
	วิธีการแก้ปัญหา	
STRONG II	สิ่งที่จะช่วยเตือนเรื่องการปรับเปลี่ยนพฤติกรรม	
	สิ่งที่ต้องการการสนับสนุน	

APPENDIX C

Self Help Booklet for Control Group

APPENDIX D

Outcome Assessment Questionnaire

Respondent ID:_____

Interview Place:_____

Interviewer:_____

SECTION 1: DEMOGRAPHICS

1.1 Please specify your gender

□ (1) Male □ (2) Female

1.2 How old were you on your last birthday?

[____|____] Years

1.3 What is the highest level of education you have completed?

□ (1) None

□ (2) Primary school (Class 4)

□ (3) Primary school (Class 6)

□ (4) Lower Secondary (Junior High)

□ (5) Upper Secondary (Senior High)/ Vocational Certificate

□ (6) Bachelor degree or higher

1.4 How are you employed at the moment?

□ (1) Not employed

□ (2) Full time please specify _____

□ (3) Part time please specify _____

□ (4) Student

□ (5) Other please specify _____

1.5 What is your <u>average monthly</u> personal income?

[_____] Baht □ (0) No income

1.6 What is your current marital status?

□ (1) Single

□ (2) Married

□ (3) Divorced / Separated / Widowed

SECTION 2: DRUG USE

2.1 How long have you been injecting drugs?

[____|____] year(s) [____|____] month(s)

2.2 When was the last time you injected drugs?

□ (1) Today

□ (2) Last 7 days

□ (3) Within a month

□ (4) Within 2 months

□ (5) Within 3 months

□ (6) Within 6 months

□ (7) More than 6 months

2.3 In the past month, what type of substance have you used? *(Multiple answers)*

□ (1) Heroin

□ (2) Amphetamines (Yabaa)

□ (3) Domicum

□ (4) Marijuana

□ (5) Other, please specify _____

2.4 In the past month, what type of substance have you injected? *(Multiple answers)*

□ (1) Heroin

□ (2) Amphetamines (Yabaa)

□ (3) Domicum

□ (4) Marijuana

□ (5) Other, please specify _____

2.5 In the past month, what is your drug of choice?

□ (1) Heroin

□ (2) Amphetamines (Yabaa)

□ (3) Domicum

□ (4) Marijuana

□ (5) Other, please specify _____

2.6 In the past month, what is your main pattern of drug use when you inject?

□ (1) Use only one type of substance

□ (2) Use many types of substance but use one for each injection (not mix)

□ (3) Mix more than one types of substances for each injection

2.7 In the past month, how many times did you inject in an average week?

[____|____]time(s)

2.8 Have you been in any types of treatment in the past?

□ (1) Yes Please specify Type of treatment _____

Time period _____

□ (0) No

2.9 Have you ever been in prison because of drug-related?

□ (1) Yes Please specify Time Period _____

□ (0) No

2.10 Have you ever experienced drug overdose?

□ (1) Yes Please specify Time Period _____

□ (0) No

Only those who answer 'Heroin' in question 2.4

Now I'm going to ask you some questions about heroin

2.11 On what day did you last use heroin? *(exclude today)* _____

2.12 How many hits did you have on that day? _____

2.13 On which day before that did you use heroin? _____

2.14 And how many hits did you have on that day? _____

2.15 And when was the day before that? _____

Other Drug *(from question 2.4)*

2.16 These questions are about other drugs, please specify _____2.22 _____

2.17 On what day did you last use this drug? *(exclude today)*_____2.23 _____

2.18 How many hits did you have on that day? _____2.24 _____

2.19 On which day before that did you use this drug? _____2.25 _____

2.20 And how many hits did you have on that day? _____2.26 _____

2.21 And when was the day before that? _____2.27 _____

SECTION 3: INJECTING AND SEXUAL PRACTICES

Injecting Practices

3.1 In the past month, how many times have you used a needle after someone else had already used it?

□ (0) No times

□ (1) One time

□ (2) Two times

□ (3) 3-5 times

□ (4) 6-10 times

□ (5) More than 10 times

3.2 In the past month, how many different people have used a needle before you?

□ (0) None

□ (1) One person

□ (2) Two people

□ (3) 3-5 people

□ (4) 6-10 people

□ (5) More than 10 people

3.3 In the past month, how many times has someone used a needle after you have used it?

□ (0) No times

□ (1) One time

□ (2) Two times

□ (3) 3-5 times

□ (4) 6-10 times

□ (5) More than 10 times

3.4 In the past month, how often have you cleaned needles before re-using them?

□ (0) Doesn't re-use

□ (1) Every time

□ (2) Often

□ (3) Sometimes

□ (4) Rarely

□ (5) Never

3.5 In the past month, which part of body have you injected?

1:_____

2:_____

3:_____

3.6 In the past month, did you change your injecting site every time you inject?

□ (1) Yes

□ (0) No

3.7 In the past month, do you use tourniquet when you inject?

□ (1) Yes Type of tourniquet _____

□ (0) No Please specify reason _____

Sexual Practices

3.8 In the past month, how many people, including clients, have you had sex with?

□ (0) None **** If no sex in the past month, go to next section****

□ (1) One person

□ (2) Two people

□ (3) 3-5 people

□ (4) 6-10 people

□ (5) More than 10 people

3.9 In the past month, how often have you used condoms when having sex with your regular partner(s)?

□ (0) No reg. partner/No penetrative sex

□ (1) Every time

□ (2) Often

□ (3) Sometimes

□ (4) Rarely

□ (5) Never

3.10 In the past month, how often did you use condoms when you had sex with casual partners?

□ (0) No cas. partners/No penetrative sex

□ (1) Every time

□ (2) Often

□ (3) Sometimes

□ (4) Rarely

□ (5) Never

3.11 In the past month, how often have you used condoms when you have been paid for sex?

□ (0) No paid sex/No penetrative sex

□ (1) Every time

□ (2) Often

□ (3) Sometimes

□ (4) Rarely

□ (5) Never

SECTION 4: HARM REDUCTION SELF-EFFICACY

Imagine yourself as you are right now in each of these situations. Circle a number from 0 (Not at all confident) to 10 (Very confident) to say how confident you are that you could do each of the behaviors in each situation. ***(SHOW CARD)***

Situation #1: Withdrawal

Imagine that you are currently in withdrawal from your drug of choice (heroin or another opiate). Think about how you have felt in the past when in withdrawal. You might be feeling sweaty, having cramps or diarrhea, or be vomiting. Imagine that you are not feeling depressed or sad, even though you are feeling physically ill. Imagine you are alone. In this situation, how confident are you that you could…

	Not at all confident				Somewhat confident						Very confident
4.1 Cut back on the amount of drug that you usually use	0	1	2	3	4	5	6	7	8	9	10
4.2 Use only heroin or other opiates when you inject (do not mix with alcohol, cocaine or others)	0	1	2	3	4	5	6	7	8	9	10
4.3 Do a test shot (use a smaller dose than usual) before injection all of your drug	0	1	2	3	4	5	6	7	8	9	10
4.4 Do a taster shot before injecting all of your drug (left the tourniquet off after you insert the needle and before pushing in the plunger)	0	1	2	3	4	5	6	7	8	9	10

	Not at all confident				Somewhat confident						Very confident
4.5 Use a clean cooker and clean cotton or filter when you inject	0	1	2	3	4	5	6	7	8	9	10
4.6 Take a warm bath, or move your arms around to bring out a vein before trying to shoot up	0	1	2	3	4	5	6	7	8	9	10
4.7 Use a different injection site so old sites can heel	0	1	2	3	4	5	6	7	8	9	10
4.8 Wash and clean your arms, legs, and injection sites with alcohol wipes or soap and water before and after injecting	0	1	2	3	4	5	6	7	8	9	10
4.9 Inject into arms or the back of legs before trying anywhere else	0	1	2	3	4	5	6	7	8	9	10
4.10 Smoke your drug if a vein is not available	0	1	2	3	4	5	6	7	8	9	10
4.11 Get a brand new needle to inject	0	1	2	3	4	5	6	7	8	9	10
4.12 Clean all surfaces where you will prepare your injection with soap and water	0	1	2	3	4	5	6	7	8	9	10
4.13 Use water to clean a dirty needle/syringe before using it again	0	1	2	3	4	5	6	7	8	9	10

	Not at all confident				Somewhat confident						Very confident
4.14 Choose a safe place to inject that is private, clean and well lit	0	1	2	3	4	5	6	7	8	9	10
4.15 Use a rubber tourniquet to tie off rather than a belt	0	1	2	3	4	5	6	7	8	9	10

Situation #2: Negative Emotions

Imagine that you are currently feeling sad and depressed. Imagine you are not experiencing withdrawal and that you are alone. Think about how you have felt in the past when in this type of mood. In this situation, how confident are you that you could…

	Not at all confident				Somewhat confident						Very confident
4.16 Cut back on the amount of drug that you usually use	0	1	2	3	4	5	6	7	8	9	10
4.17 Use only heroin or other opiates when you inject (do not mix with alcohol, cocaine or others)	0	1	2	3	4	5	6	7	8	9	10
4.18 Do a test shot (use a smaller dose than usual) before injection all of your drug	0	1	2	3	4	5	6	7	8	9	10
4.19 Do a taster shot before injecting all of your drug (left the tourniquet off after you insert the needle	0	1	2	3	4	5	6	7	8	9	10

	Not at all confident				Somewhat confident						Very confident
and before pushing in the plunger)											
4.20 Use a clean cooker and clean cotton or filter when you inject	0	1	2	3	4	5	6	7	8	9	10
4.21 Take a warm bath, or move your arms around to bring out a vein before trying to shoot up	0	1	2	3	4	5	6	7	8	9	10
4.22 Use a different injection site so old sites can heel	0	1	2	3	4	5	6	7	8	9	10
4.23 Wash and clean your arms, legs, and injection sites with alcohol wipes or soap and water before and after injecting	0	1	2	3	4	5	6	7	8	9	10
4.24 Inject into arms or the back of legs before trying anywhere else	0	1	2	3	4	5	6	7	8	9	10
4.25 Smoke your drug if a vein is not available	0	1	2	3	4	5	6	7	8	9	10
4.26 Get a brand new needle to inject	0	1	2	3	4	5	6	7	8	9	10
4.27 Clean all surfaces where you will prepare your injection with soap and water	0	1	2	3	4	5	6	7	8	9	10

	Not at all confident				Somewhat confident						Very confident
4.28 Use water to clean a dirty needle/syringe before using it again	0	1	2	3	4	5	6	7	8	9	10
4.29 Choose a safe place to inject that is private, clean and well lit	0	1	2	3	4	5	6	7	8	9	10
4.30 Use a rubber tourniquet to tie off rather than a belt	0	1	2	3	4	5	6	7	8	9	10

Situation #3: Social Pressure

Imagine that you are with another person (such as a friend or partner) or with a group, and are about to use the drugs you just scored. You can see that your friends are using in a way that you feel is unsafe. Imagine that you are not in withdrawal and are not feeling sad or depressed. In this situation, how confident are you that you could…

	Not at all confident				Somewhat confident						Very confident
4.31 Cut back on the amount of drug that you usually use	0	1	2	3	4	5	6	7	8	9	10
4.32 Use only heroin or other opiates when you inject (do not mix with alcohol, cocaine or others)	0	1	2	3	4	5	6	7	8	9	10
4.33 Do a test shot (use a smaller dose than usual) before injection all of your drug	0	1	2	3	4	5	6	7	8	9	10
4.34 Do a taster shot before injecting all of your drug	0	1	2	3	4	5	6	7	8	9	10

	Not at all confident				Somewhat confident						Very confident
(left the tourniquet off after you insert the needle and before pushing in the plunger)											
4.35 Use a clean cooker and clean cotton or filter when you inject	0	1	2	3	4	5	6	7	8	9	10
4.36 Take a warm bath, or move your arms around to bring out a vein before trying to shoot up	0	1	2	3	4	5	6	7	8	9	10
4.37 Use a different injection site so old sites can heel	0	1	2	3	4	5	6	7	8	9	10
4.38 Wash and clean your arms, legs, and injection sites with alcohol wipes or soap and water before and after injecting	0	1	2	3	4	5	6	7	8	9	10
4.39 Inject into arms or the back of legs before trying anywhere else	0	1	2	3	4	5	6	7	8	9	10
4.40 Smoke your drug if a vein is not available	0	1	2	3	4	5	6	7	8	9	10
4.41 Get a brand new needle to inject	0	1	2	3	4	5	6	7	8	9	10
4.42 Clean all surfaces where you will prepare your injection with soap and water	0	1	2	3	4	5	6	7	8	9	10

	Not at all confident				Somewhat confident						Very confident
4.43 Use water to clean a dirty needle/syringe before using it again	0	1	2	3	4	5	6	7	8	9	10
4.44 Choose a safe place to inject that is private, clean and well lit	0	1	2	3	4	5	6	7	8	9	10
4.45 Use a rubber tourniquet to tie off rather than a belt	0	1	2	3	4	5	6	7	8	9	10

Outcome Assessment Questionnaire (Thai)

หมายเลข:_____

สถานที่สัมภาษณ์:_____

ผู้สัมภาษณ์:_____

ส่วนที่ 1: ข้อมูลลักษณะประชากร

1.1 กรุณาระบุเพศของคุณ

☐ (1) ชาย ☐ (2) หญิง

1.2 คุณมีอายุเท่าใดในวันครบรอบวันเกิดครั้งล่าสุด

[____|____] ปี

1.3 คุณจบการศึกษาสูงสุดในระดับใด

☐ (1) ไม่ได้ศึกษา

☐ (2) ประถมศึกษา (ป.4)

☐ (3) ประถมศึกษา (ป.6)

☐ (4) มัธยมต้น (ม.3 หรือเทียบเท่า)

☐ (5) มัธยมปลาย (ม.6. ปวช. หรือเทียบเท่า)

☐ (6) ปริญญาตรีหรือสูงกว่า

1.4 ปัจจุบันคุณประกอบอาชีพอะไร

☐ (1) ไม่ได้ทำงาน

☐ (2) ทำงานเต็มเวลา โปรดระบุ_____

☐ (3) ทำงานไม่เต็มเวลา โปรดระบุ_____

☐ (4) นักเรียน/นักศึกษา

☐ (5) อื่นๆ โปรดระบุ_____

1.5 คุณมีรายได้เฉลี่ยต่อเดือนเท่าไร

[_____] บาท ☐ (0) ไม่มีรายได้

1.6 สถานภาพสมรสในปัจจุบันของคุณเป็นอย่างไร

☐ (1) โสด

☐ (2) แต่งงานแล้ว

☐ (3) หย่าร้าง / แยกกันอยู่ / หม้าย

ส่วนที่ 2: การใช้ยาเสพติด

2.1 คุณเริ่มฉีดยาเสพติดมานานเท่าไรแล้ว

[____|____]ปี [____|____] เดือน

2.2 ครั้งล่าสุดที่คุณฉีดยาเสพติดคือเมื่อใด

☐ (1) วันนี้

☐ (2) ในช่วง 7 วันที่ผ่านมา

☐ (3) ในช่วง 1 เดือนที่ผ่านมา

☐ (4) ในช่วง 2 เดือนที่ผ่านมา

☐ (5) ในช่วง 3 เดือนที่ผ่านมา

☐ (6) ในช่วง 6 เดือนที่ผ่านมา

☐ (7) นานกว่า 6 เดือน

2.3 ในช่วง 1 เดือนที่ผ่านมา คุณใช้ยาเสพติดประเภทใดบ้าง? *(ตอบได้หลายคำตอบ)*

☐ (1) เฮโรอีน

☐ (2) แอมเฟตามีน (ยาบ้า)

☐ (3) โดมิคุ่ม

☐ (4) กัญชา

☐ (5) อื่นๆ โปรดระบุ _____

2.4 ในช่วง 1 เดือนที่ผ่านมา คุณฉีดยาเสพติดประเภทใดบ้าง? *(ตอบได้หลายคำตอบ)*

☐ (1) เฮโรอีน

☐ (2) แอมเฟตามีน (ยาบ้า)

☐ (3) โดมิคุ่ม

☐ (4) กัญชา

☐ (5) อื่นๆ โปรดระบุ _____

2.5 ในช่วง 1 เดือนที่ผ่านมา ยาเสพติดหลักที่คุณฉีดเป็นประจำคือยาเสพติดประเภทใด

☐ (1) เฮโรอีน

☐ (2) แอมเฟตามีน (ยาบ้า)

☐ (3) โดมิคุ่ม

☐ (4) กัญชา

☐ (5) อื่นๆ โปรดระบุ _____

2.6 ในช่วง 1 เดือนที่ผ่านมา รูปแบบการฉีดยาเสพติดของคุณเป็นเช่นไร

☐ (1) ใช้ยาเสพติดเพียงประเภทเดียว

☐ (2) ใช้ยาเสพติดหลายประเภท แต่ใช้เพียงหนึ่งประเภทในการฉีดแต่ละครั้ง (ไม่ได้ผสมกัน)

☐ (3) ผสมยาเสพติดมากกว่าหนึ่งประเภทเข้าด้วยกันสำหรับการฉีดแต่ละครั้ง

2.7 ในช่วง 1 เดือนที่ผ่านมา คุณฉีดยาเสพติดโดยเฉลี่ยกี่ครั้งต่อสัปดาห์

[____|____]ครั้ง

2.8 คุณเคยเข้ารับการบำบัดยาเสพติดบ้างหรือไม่

☐ (1) เคย กรุณาระบุประเภทของการบำบัด _____

กรุณาระบุช่วงเวลาเข้ารับการบำบัด_____

☐ (0) ไม่เคย

2.9 คุณเคยถูกต้องขังในคดีที่เกี่ยวข้องกับยาเสพติดหรือไม่

☐ (1) เคย กรุณาระบุช่วงเวลาที่ถูกคุมขัง_____

☐ (0) ไม่เคย

2.10 คุณเคยมีประสบการณ์ใช้ยาเกินขนาดหรือไม่

☐ (1) เคย กรุณาระบุช่วงเวลา_____

☐ (0) ไม่เคย

สำหรับผู้ที่ตอบว่าฉีดเฮโรอีน ในข้อ 2.4

คำถามต่อไปนี้จะเกี่ยวกับการฉีดเฮโรอีน

2.11 คุณฉีดเฮโรอีนครั้งล่าสุดเมื่อใด *(ไม่รวมวันนี้)* _____

2.12 ในวันนั้น คุณฉีดเฮโรอีนเป็นจำนวนกี่ครั้ง _____

2.13 ก่อนหน้านั้น คุณฉีดเฮโรอีนเมื่อใด _____

2.14 แล้วในวันนั้น คุณฉีดเฮโรอีนเป็นจำนวนกี่ครั้ง _____

2.15 ก่อนหน้านั้นอีก คุณฉีดเฮโรอีนเมื่อใด _____

ยาเสพติดประเภทอื่น ๆ

คำถามต่อไปนี้จะเกี่ยวกับการฉีดยาเสพติดประเภทอื่นๆ กรุณาระบุประเภทของยา_____

2.16 คุณฉีดยา_____ครั้งล่าสุดเมื่อใด *(ไม่รวมวันนี้)* _____

2.17 ในวันนั้น คุณฉีดยา_____เป็นจำนวนกี่ครั้ง _____

2.18 ก่อนหน้านั้น คุณฉีดยา_____เมื่อใด _____

2.19 แล้วในวันนั้น คุณฉีดยา_____เป็นจำนวนกี่ครั้ง _____

2.20 ก่อนหน้านั้นอีก คุณฉีดยา_____เมื่อใด _____

ส่วนที่ 3: พฤติกรรมการฉีดยาเสพติดและการมีเพศสัมพันธ์

พฤติกรรมการฉีดยาเสพติด

3.1 ในช่วง 1 เดือนที่ผ่านมา คุณใช้เข็มฉีดยาที่ผู้อื่นใช้มาก่อนแล้ว เป็นจำนวนกี่ครั้ง

☐ (0) ไม่ได้ใช้เลย

☐ (1) 1 ครั้ง

☐ (2) 2 ครั้ง

☐ (3) 3-5 ครั้ง

☐ (4) 6-10 ครั้ง

☐ (5) มากกว่า 10 ครั้ง

3.2 ในช่วง 1 เดือนที่ผ่านมา มีคนที่ใช้เข็มมาก่อนหน้าคุณ เป็นจำนวนกี่คน

☐ (0) ไม่มีเลย

☐ (1) 1 คน

☐ (2) 2 คน

☐ (3) 3-5 คน

☐ (4) 6-10 คน

☐ (5) มากกว่า 10 คน

3.3 ในช่วง 1 เดือนที่ผ่านมา มีผู้ที่ใช้เข็มฉีดยาต่อจากที่คุณใช้แล้ว เป็นจำนวนกี่ครั้ง

☐ (0) ไม่มีเลย

☐ (1) 1 ครั้ง

☐ (2) 2 ครั้ง

☐ (3) 3-5 ครั้ง

☐ (4) 6-10 ครั้ง

☐ (5) มากกว่า 10 ครั้ง

3.4 ในช่วง 1 เดือนที่ผ่านมา คุณทำความสะอาดเข็มฉีดยาก่อนที่จะใช้ซ้ำ บ่อยเพียงใด

☐ (0) ไม่ได้ใช้เข็มฉีดยาซ้ำ

☐ (1) ทุกครั้ง

☐ (2) บ่อยๆ

☐ (3) เป็นบางครั้ง

☐ (4) นานๆครั้ง

☐ (5) ไม่เคยเลย

3.5 ในช่วง 1 เดือนที่ผ่านมา คุณฉีดยาเสพติดที่บริเวณใดในร่างกายบ้าง

ตำแหน่งที่ 1:_____

ตำแหน่งที่ 2:_____

ตำแหน่งที่ 3:_____

3.6 ในช่วง 1 เดือนที่ผ่านมา คุณเปลี่ยนตำแหน่งฉีดทุกครั้งหรือไม่

☐ (1) ใช่

☐ (0) ไม่ใช่

3.7 ในช่วง 1 เดือนที่ผ่านมา คุณใช้สายรัดที่เป็นยางเมื่อคุณฉีดยาเสพติดหรือไม่

☐ (1) ใช้

☐ (0) ไม่ใช้ กรุณาระบุเหตุผล_____

พฤติกรรมการมีเพศสัมพันธ์

3.8 ในช่วง 1 เดือนที่ผ่านมา คุณมีเพศสัมพันธ์กับคู่นอน รวมทั้งคู่นอนที่เป็นผู้มาซื้อบริการ รวมทั้งสิ้นกี่คน

☐ (0) ไม่ได้มีเพศสัมพันธ์เลย ******หากไม่ได้มีเพศสัมพันธ์ในเดือนที่ผ่านมาให้ข้ามไปยังส่วนถัดไปได้เลย******

☐ (1) 1 คน

☐ (2) 2 คน

☐ (3) 3-5 คน

☐ (4) 6-10 คน

☐ (5) มากกว่า 10 คน

3.9 ในช่วง 1 เดือนที่ผ่านมา เวลามีเพศสัมพันธ์กับคู่นอนประจำ คุณใช้ถุงยางอนามัยบ่อยครั้งเพียงใด

☐ (0) ไม่มีคู่นอนประจำ / ไม่ได้มีเพศสัมพันธ์แบบสอดใส่

☐ (1) ทุกครั้ง

☐ (2) บ่อยๆ

☐ (3) เป็นบางครั้ง

☐ (4) นานๆครั้ง

☐ (5) ไม่เคยเลย

3.10 ในช่วง 1 เดือนที่ผ่านมา เวลามีเพศสัมพันธ์กับคู่นอนชั่วคราว คุณใช้ถุงยางอนามัยบ่อยครั้งเพียงใด

☐ (0) ไม่มีคู่นอนชั่วคราว / ไม่ได้มีเพศสัมพันธ์แบบสอดใส่

☐ (1) ทุกครั้ง

☐ (2) บ่อยๆ

☐ (3) เป็นบางครั้ง

☐ (4) นานๆครั้ง

☐ (5) ไม่เคยเลย

3.11 ในช่วง 1 เดือนที่ผ่านมา เวลาที่คุณให้ (หรือขาย) บริการทางเพศ คุณใช้ถุงยางอนามัยบ่อยครั้งเพียงใด

☐ (0) ไม่ได้ขายบริการ / ไม่ได้มีเพศสัมพันธ์แบบสอดใส่

☐ (1) ทุกครั้ง

☐ (2) บ่อยๆ

☐ (3) เป็นบางครั้ง

☐ (4) นานๆครั้ง

☐ (5) ไม่เคยเลย

ส่วนที่ 4: ความสามารถของตนเองด้านการลดอันตรายจากการใช้ยา

ลองจินตนาการว่าคุณกำลังตกอยู่ในสถานการณ์เหล่านี้ ให้วงกลมที่หมายเลขจากเลข 0 (ไม่มั่นใจเลย) จนถึงเลข 10 (มั่นใจอย่างมาก) เพื่อแสดงระดับความมั่นใจของคุณในการมีพฤติกรรมต่างๆ ในสถานการณ์ดังกล่าว ***(แสดง SHOW CARD)***

สถานการณ์ที่ 1: เสี้ยนยา

ลองจินตนาการว่าคุณกำลังมีอาการเสี้ยนยาจากยาเสพติดหลักที่คุณใช้เป็นประจำ (ไม่ว่าจะเป็นเฮโรอีนหรืออนุพันธ์ฝิ่นอื่นๆ) ลองคิดถึงความรู้สึกเมื่อคุณเสี้ยนยาครั้งที่ผ่านๆมา คุณอาจจะมีอาการเหงื่อออก ปวดช่องท้องหรือท้องเสีย หรืออาจจะอาเจียน ให้ลองจินตนาการว่าคุณไม่ได้กำลังอยู่ในภาวะหดหู่หรือซึมเศร้า แม้ว่าคุณกำลังรู้สึกไม่สบายตัว และให้จินตนาการว่าคุณอยู่เพียงลำพัง ในสถานการณ์นี้ คุณมั่นใจเพียงใดว่าคุณจะสามารถ...

	ไม่มั่นใจเลย มั่นใจปานกลาง มั่นใจมาก
4.1 ลดปริมาณยาเสพติดจากปริมาณปกติที่เคยใช้	0 1 2 3 4 5 6 7 8 9 10
4.2 ฉีดยาเสพติดเพียงประเภทเดียว (ไม่ผสมกับยาเสพติดอื่นๆ)	0 1 2 3 4 5 6 7 8 9 10
4.3 ทดลองฉีดเพื่อทดสอบฤทธิ์ของยาก่อน (ฉีดด้วยปริมาณน้อยกว่าปกติ) ก่อนที่จะฉีดยาเสพติดที่คุณเตรียมไว้ทั้งหมด	0 1 2 3 4 5 6 7 8 9 10
4.4 ค่อยๆฉีดในปริมาณน้อยก่อนที่จะฉีดยาเสพติดทั้งหมดในกระบอกฉีด (กระทำโดยการปล่อยสายรัดหลังจากแทงเข็มเข้าไปแล้ว และก่อนที่จะดันลูกสูบของกระบอกฉีดเข้าไป)	0 1 2 3 4 5 6 7 8 9 10
4.5 ใช้อุปกรณ์เตรียมยาเช่นสำลีหรือตัวกรองที่สะอาดเมื่อฉีดยาเสพติด	0 1 2 3 4 5 6 7 8 9 10
4.6 ล้างแขนด้วยน้ำอุ่นหรือแกว่งแขน เพื่อให้เห็นเส้นเลือดชัดเจนก่อนที่จะฉีด	0 1 2 3 4 5 6 7 8 9 10

	ไม่มั่นใจเลย มั่นใจปานกลาง มั่นใจมาก
4.7 เปลี่ยนตำแหน่งฉีดไปเรื่อยๆ เพื่อที่จะให้แผลบริเวณเดิมหาย	0 1 2 3 4 5 6 7 8 9 10
4.8 ทำความสะอาดแขน ขา หรือตำแหน่งฉีด ก่อนและหลังการฉีด	0 1 2 3 4 5 6 7 8 9 10
4.9 ฉีดที่บริเวณแขนหรือขาด้านหลัง ก่อนจะลองฉีดที่ตำแหน่งอื่น	0 1 2 3 4 5 6 7 8 9 10
4.10 หากหาเส้นเลือดไม่เจอ (หรือไม่มีเส้นเหลือให้ฉีดแล้ว) จะเปลี่ยนเป็นการสูบแทน	0 1 2 3 4 5 6 7 8 9 10
4.11 ใช้เข็มใหม่ในการฉีด	0 1 2 3 4 5 6 7 8 9 10
4.12 ทำความสะอาดสถานที่ที่คุณจะเตรียมการฉีดด้วยสบู่และน้ำ	0 1 2 3 4 5 6 7 8 9 10
4.13 ใช้น้ำล้างเข็มและกระบอกฉีดที่ไม่สะอาดก่อนที่จะใช้ซ้ำอีกครั้ง	0 1 2 3 4 5 6 7 8 9 10
4.14 เลือกสถานที่ฉีดที่มีความเป็นส่วนตัว สะอาด และมีแสงสว่างเพียงพอ	0 1 2 3 4 5 6 7 8 9 10
4.15 ใช้สายรัดที่เป็นยางเพื่อมัดแขน	0 1 2 3 4 5 6 7 8 9 10

สถานการณ์ที่ 2: อารมณ์ด้านลบ

ลองจินตนาการว่าคุณกำลังรู้สึกเศร้าโศกและหดหู่ ให้ลองจินตนาการว่าคุณไม่ได้กำลังอยู่ในภาวะเสี้ยนยาและกำลังอยู่เพียงลำพัง ลองคิดว่าคุณมีความรู้สึกเช่นไรเมื่อเกิดอารมณ์ความรู้สึกเช่นนี้ในครั้งที่ผ่านๆมา ในสถานการณ์นี้ คุณมั่นใจเพียงใดว่าคุณจะสามารถ…

	ไม่มั่นใจเลย มั่นใจปานกลาง มั่นใจมาก
4.16 ลดปริมาณยาเสพติดจากปริมาณปกติที่เคยใช้	0 1 2 3 4 5 6 7 8 9 10
4.17 ฉีดยาเสพติดเพียงประเภทเดียว (ไม่ผสมกับยาเสพติดอื่นๆ)	0 1 2 3 4 5 6 7 8 9 10

	ไม่มั่นใจเลย มั่นใจปานกลาง มั่นใจมาก
4.18 ทดลองฉีดเพื่อทดสอบฤทธิ์ของยาก่อน (ฉีดด้วยปริมาณน้อยกว่าปกติ) ก่อนที่จะฉีดยาเสพติดที่คุณเตรียมไว้ทั้งหมด	0 1 2 3 4 5 6 7 8 9 10
4.19 ค่อยๆฉีดในปริมาณน้อยก่อนที่จะฉีดยาเสพติดทั้งหมดในกระบอกฉีด (กระทำโดยการปล่อยสายรัดหลังจากแทงเข็มเข้าไปแล้ว และก่อนที่จะดันลูกสูบของกระบอกฉีดเข้าไป)	0 1 2 3 4 5 6 7 8 9 10
4.20 ใช้อุปกรณ์เตรียมยาเช่นสำลีหรือตัวกรองที่สะอาดเมื่อฉีดยาเสพติด	0 1 2 3 4 5 6 7 8 9 10
4.21 ล้างแขนด้วยน้ำอุ่นหรือแกว่งแขน เพื่อให้เห็นเส้นเลือดชัดเจนก่อนที่จะฉีด	0 1 2 3 4 5 6 7 8 9 10
4.22 เปลี่ยนตำแหน่งฉีดไปเรื่อยๆ เพื่อที่จะให้แผลบริเวณเดิมหาย	0 1 2 3 4 5 6 7 8 9 10
4.23 ทำความสะอาดแขน ขา หรือตำแหน่งฉีด ก่อนและหลังการฉีด	0 1 2 3 4 5 6 7 8 9 10
4.24 ฉีดที่บริเวณแขนหรือขาด้านหลัง ก่อนจะลองฉีดที่ตำแหน่งอื่น	0 1 2 3 4 5 6 7 8 9 10
4.25 หากหาเส้นเลือดไม่เจอ (หรือไม่มีเส้นเหลือให้ฉีดแล้ว) จะเปลี่ยนเป็นการสูบแทน	0 1 2 3 4 5 6 7 8 9 10
4.26 ใช้เข็มใหม่ในการฉีด	0 1 2 3 4 5 6 7 8 9 10
4.27 ทำความสะอาดสถานที่ที่คุณจะเตรียมการฉีดด้วยสบู่และน้ำ	0 1 2 3 4 5 6 7 8 9 10
4.28 ใช้น้ำล้างเข็มและกระบอกฉีดที่ไม่สะอาดก่อนที่จะใช้ซ้ำอีกครั้ง	0 1 2 3 4 5 6 7 8 9 10
4.29 เลือกสถานที่ฉีดที่มีความเป็นส่วนตัว สะอาด และมีแสงสว่างเพียงพอ	0 1 2 3 4 5 6 7 8 9 10
4.30 ใช้สายรัดที่เป็นยางเพื่อมัดแขน	0 1 2 3 4 5 6 7 8 9 10

<u>สถานการณ์ที่</u> 3: <u>แรงกดดันจากสังคม</u>

ลองจินตนาการว่าคุณกำลังอยู่กับบุคคลอื่น (เช่นเพื่อนหรือคู่) หรืออยู่กับกลุ่มเพื่อน และกำลังจะใช้ยาเสพติดที่มีอยู่ คุณเห็นว่าเพื่อนๆกำลังใช้ยาเสพติดอย่างที่คุณคิดว่าไม่ปลอดภัย ให้ลองจินตนาการว่าคุณ<u>ไม่</u>ได้กำลังอยู่ในภาวะเสี้ยนยา และ<u>ไม่</u>ได้กำลังอยู่ในภาวะหดหู่หรือซึมเศร้า ในสถานการณ์นี้ คุณมั่นใจเพียงใดว่าคุณจะสามารถ...

	ไม่มั่นใจเลย มั่นใจปานกลาง มั่นใจมาก
4.31 ลดปริมาณยาเสพติดจากปริมาณปกติที่เคยใช้	0 1 2 3 4 5 6 7 8 9 10
4.32 ฉีดยาเสพติดเพียงประเภทเดียว (ไม่ผสมกับยาเสพติดอื่นๆ)	0 1 2 3 4 5 6 7 8 9 10
4.33 ทดลองฉีดเพื่อทดสอบฤทธิ์ของยาก่อน (ฉีดด้วยปริมาณน้อยกว่าปกติ) ก่อนที่จะฉีดยาเสพติดที่คุณเตรียมไว้ทั้งหมด	0 1 2 3 4 5 6 7 8 9 10
4.34 ค่อยๆฉีดในปริมาณน้อยก่อนที่จะฉีดยาเสพติดทั้งหมดในกระบอกฉีด (กระทำโดยการปล่อยสายรัดหลังจากแทงเข็มเข้าไปแล้ว และก่อนที่จะดันลูกสูบของกระบอกฉีดเข้าไป)	0 1 2 3 4 5 6 7 8 9 10
4.35 ใช้อุปกรณ์เตรียมยาเช่นสำลีหรือตัวกรองที่สะอาดเมื่อฉีดยาเสพติด	0 1 2 3 4 5 6 7 8 9 10
4.36 ล้างแขนด้วยน้ำอุ่นหรือแกว่งแขน เพื่อให้เห็นเส้นเลือดชัดเจนก่อนที่จะฉีด	0 1 2 3 4 5 6 7 8 9 10
4.37 เปลี่ยนตำแหน่งฉีดไปเรื่อยๆ เพื่อที่จะให้แผลบริเวณเดิมหาย	0 1 2 3 4 5 6 7 8 9 10
4.38 ทำความสะอาดแขน ขา หรือตำแหน่งฉีด ก่อน<u>และ</u>หลังการฉีด	0 1 2 3 4 5 6 7 8 9 10
4.39 ฉีดที่บริเวณแขนหรือขาด้านหลัง <u>ก่อน</u>จะลองฉีดที่ตำแหน่งอื่น	0 1 2 3 4 5 6 7 8 9 10
4.40 หากหาเส้นเลือดไม่เจอ (หรือไม่มีเส้นเหลือให้ฉีดแล้ว) จะเปลี่ยนเป็นการสูบแทน	0 1 2 3 4 5 6 7 8 9 10

	ไม่มั่นใจเลย มั่นใจปานกลาง มั่นใจมาก
4.41 ใช้เข็มใหม่ในการฉีด	0 1 2 3 4 5 6 7 8 9 10
4.42 ทำความสะอาดสถานที่ที่คุณจะเตรียมการฉีดด้วยสบู่และน้ำ	0 1 2 3 4 5 6 7 8 9 10
4.43 ใช้น้ำล้างเข็มและกระบอกฉีดที่ไม่สะอาดก่อนที่จะใช้ซ้ำอีกครั้ง	0 1 2 3 4 5 6 7 8 9 10
4.44 เลือกสถานที่ฉีดที่มีความเป็นส่วนตัว สะอาด และมีแสงสว่างเพียงพอ	0 1 2 3 4 5 6 7 8 9 10
4.45 ใช้สายรัดที่เป็นยางเพื่อมัดแขน	0 1 2 3 4 5 6 7 8 9 10

APPENDIX E

Show Card for Scale Questions

<u>การแสดงระดับความคิดเห็น</u>

กรุณาแสดงความคิดเห็นของคุณว่ามั่นใจหรือไม่มั่นใจมากน้อยเพียงใด

ไม่มั่นใจเลย มั่นใจปานกลาง มั่นใจมาก

0 1 2 3 4 5 6 7 8 9 10

คำตอบทั้งหมดนั้นไม่มีข้อใดที่ถูกหรือผิด

เราสนใจที่จะทราบความคิดเห็นที่แท้จริงของคุณเท่านั้น

APPENDIX F

Intervention Assessment Questionnaire

The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

Respondent ID:_____

Center No:_____

Interviewer:_____

Personal Drug Use Questionnaire (SOCRATES 8D)

Instruction: Please read the following statements carefully. Each one describes a way that you might (or might not) feel about your drug use. For each statement, circle one number from 1 to 5 to indicate how much you agree or disagree with it right now. Please circle one and only one number for every statement.

	Strongly Disagree	**Disagree**	**Undecided or Unsure**	**Agree**	**Strongly Agree**
1. I really want to make changes in my use of drugs.	1	2	3	4	5
2. Sometimes I wonder if I am an addict.	1	2	3	4	5
3. If I don't change my drug use soon, my problems are going to get worse.	1	2	3	4	5
4. I have already started making some changes in my use of drugs.	1	2	3	4	5
5. I was using drugs too much at one time, but I've managed to change that.	1	2	3	4	5
6. Sometimes I wonder if my drug use is hurting other people.	1	2	3	4	5
7. I have a drug problem	1	2	3	4	5

	Strongly Disagree	Disagree	Undecided or Unsure	Agree	Strongly Agree
8. I'm not thinking about changing my drug use, I'm already doing something about it.	1	2	3	4	5
9. I have already changed my drug use, and I am looking for ways to keep from slipping back to my old pattern.	1	2	3	4	5
10. I have serious problems with drugs.	1	2	3	4	5
11. Sometimes I wonder if I am in control of my drug use.	1	2	3	4	5
12. My drug use is causing a lot of harm.	1	2	3	4	5
13. I am actively doing things now to cut down or stop my use of drugs.	1	2	3	4	5
14. I want help to keep from going back to the drug problems that I had before.	1	2	3	4	5
15. I know that I have a drug problem.	1	2	3	4	5
16. There are times when I wonder if I use drugs too much.	1	2	3	4	5
17. I am a drug addict.	1	2	3	4	5

	Strongly Disagree	**Disagree**	**Undecided or Unsure**	**Agree**	**Strongly Agree**
18. I am working hard to change my drug use.	1	2	3	4	5
19. I have made some changes in my drug use, and I want some help to keep from going back to the way I used before.	1	2	3	4	5

Intervention Assessment Questionnaire (Thai)

The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

หมายเลข:_____

หมายเลขสถานที่สัมภาษณ์:_____

ผู้สัมภาษณ์:_____

แบบสอบถามเรื่องการใช้ยาเสพติด (SOCRATES 8D)

คำอธิบาย: กรุณาอ่านข้อความต่อไปนี้อย่างละเอียด ข้อความแต่ละข้อแสดงถึงสิ่งที่คุณอาจจะรู้สึก (หรือไม่ได้รู้สึก) เกี่ยวกับการใช้ยาเสพติด ในแต่ละข้อ ให้วงกลมรอบตัวเลข 1 ถึง 5 เพื่อแสดงว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับแต่ข้อความมากน้อยเพียงใด โดยในแต่ละข้อให้วงกลมเพียงตัวเลขเดียวเท่านั้น

	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ตัดสินใจไม่ได้หรือไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
1. ฉันต้องการเปลี่ยนแปลงพฤติกรรมการใช้ยาเสพติดของฉันอย่างจริงจัง	1	2	3	4	5
2. ในบางครั้ง ฉันสงสัยว่าฉันติดยาเสพติดหรือไม่	1	2	3	4	5
3. ถ้าฉันไม่เปลี่ยนแปลงพฤติกรรมการใช้ยาเสพติดของฉันในเร็วๆนี้ ปัญหาต่างๆของฉันจะยิ่งแย่ลง	1	2	3	4	5
4. ฉันได้เริ่มที่จะเปลี่ยนแปลงพฤติกรรมการใช้ยาเสพติดของฉันบ้างแล้ว	1	2	3	4	5
5. ฉันเคยใช้ยาเสพติดอย่างหนักในแต่ละครั้ง แต่ฉันได้เริ่มที่จะเปลี่ยนแปลงพฤติกรรมนี้แล้ว	1	2	3	4	5
6. ในบางครั้ง ฉันสงสัยว่าการใช้ยาเสพติดของฉันทำร้ายคนอื่นบ้างหรือไม่	1	2	3	4	5

	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ตัดสินใจไม่ได้หรือไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
7. ฉันเป็นคนที่มีปัญหาด้านการใช้ยาเสพติด	1	2	3	4	5
8. ฉันไม่ได้เพียงแค่คิดที่จะเปลี่ยนแปลงพฤติกรรมการใช้ยาเสพติด แต่ฉันได้ลงมือทำอะไรบางอย่างแล้ว	1	2	3	4	5
9. ฉันได้เริ่มเปลี่ยนแปลงพฤติกรรมการใช้ยาเสพติดแล้ว และกำลังหาทางป้องกันไม่ให้กลับไปใช้ยาเสพติดแบบเดิมอีก	1	2	3	4	5
10. ฉันมีปัญหารุนแรงหลายอย่างจากการใช้ยาเสพติด	1	2	3	4	5
11. ในบางครั้ง ฉันสงสัยว่ายังสามารถควบคุมการใช้ยาเสพติดของตนเองได้หรือไม่	1	2	3	4	5
12. การใช้ยาเสพติดของฉันทำให้เกิดอันตรายอย่างมาก	1	2	3	4	5
13. ขณะนี้ฉันกำลังพยายามที่จะลดปริมาณหรือเลิกใช้ยาเสพติดอย่างจริงจัง	1	2	3	4	5
14. ฉันต้องการความช่วยเหลือเพื่อที่จะป้องกันไม่ให้กลับไปมีปัญหาจากการใช้ยาเสพติดเช่นเดิมอีก	1	2	3	4	5
15. ฉันทราบดีว่าฉันมีปัญหาจากการใช้ยาเสพติด	1	2	3	4	5
16. หลายๆครั้งที่ฉันสงสัยว่าฉันใช้ยาเสพติดมากเกินไปหรือไม่	1	2	3	4	5
17. ฉันเป็นผู้ติดยาเสพติด	1	2	3	4	5
18. ฉันกำลังพยายามอย่างหนักเพื่อที่จะเปลี่ยนพฤติกรรมการใช้ยาของฉัน	1	2	3	4	5

	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ตัดสินใจไม่ได้หรือไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
19. ฉันได้เริ่มเปลี่ยนแปลงพฤติกรรมการใช้ยาเสพติดแล้ว และฉันต้องการความช่วยเหลือเพื่อที่จะป้องกันไม่ให้กลับไปมีปัญหาจากการใช้ยาเสพติดเช่นเดิมอีก	1	2	3	4	5

APPENDIX G

SOCRATES 8D Scoring Sheet

For each item, copy the circled number from the answer sheet next to the item above. Then sum each column to calculate scale totals. Sum these totals to calculate the Total SOCRATES Score.

Recognition	Ambivalence	Taking Steps
1_____		
	2_____	
3_____		
		4_____
		5_____
	6_____	
7_____		
		8_____
		9_____
10_____		
	11_____	
12_____		
		13_____
		14_____
15_____		
	16_____	
17_____		
		18_____
		19_____
Total SOCRATES Score = Recognition + Ambivalence + Taking Steps		

APPENDIX H

Screening Questionnaire

Instruction to Project Staff:

Ask each question and tick in a box to screen respondent

1. How old are you?

   [____|____] Years

2. When was the last time that you inject drugs?

   □ Within 6 months □ Longer than 6 months

3. Where do you live?

   □ Bangkok and its vicinity □ Outside Bangkok and its vicinity

4. Are you currently receiving Methadone Maintenance Treatment?

   □ Yes □ No

5. In the past 6 months, did you participate in any research project?

   □ Yes □ No

6. Do you willing to be contacted by our project staff in the period of 10 months?

   □ Yes □ No

Checked by project staff			
For respondent who is a female, is she pregnant?	□ Yes	□ No	□ Don't know
Does he/she has any medical or psychiatric conditions?	□ Yes	□ No	□ Don't know
Is he/she able to read and write Thai?	□ Yes	□ No	□ Don't know
Pass screening criteria	**□ Yes**	**□ No**	

Screening Questionnaire (Thai)

แบบสอบถามคัดกรอง

<u>คำแนะนำสำหรับเจ้าหน้าที่</u>: ให้สัมภาษณ์ทีละข้อเพื่อคัดกรองผู้เข้าร่วมโครงการ

1. คุณอายุเท่าใด

   [____|____] ปี

2. ครั้งล่าสุดที่คุณฉีดสารเสพติดคือเมื่อใด

   ☐ ภายใน 6 เดือนที่ผ่านมา ☐ นานกว่า 6 เดือน

3. คุณอาศัยอยู่จังหวัดใด

   ☐ กรุงเทพและปริมณฑล ☐ นอกเหนือจากกรุงเทพและปริมณฑล

4. ปัจจุบันคุณรับการบำบัดสารเสพติดด้วยสารทดแทนเมธาโดนหรือไม่

   ☐ ใช่ ☐ ไม่ใช่

5. ในช่วง 6 เดือนที่ผ่านมา คุณได้เข้าร่วมโครงการวิจัยบ้างหรือไม่

   ☐ เข้าร่วม ☐ ไม่ได้เข้าร่วม

6. คุณยินดีให้เจ้าหน้าที่โครงการติดต่อกับคุณเพื่อประเมินผล ในระยะเวลา 10 เดือนนับจากนี้หรือไม่

   ☐ ยินดี ☐ ไม่ยินดี

ตรวจสอบโดยเจ้าหน้าที่			
สำหรับผู้หญิง เป็นผู้ที่ตั้งครรภ์อยู่หรือไม่	☐ ใช่	☐ ไม่ใช่	☐ ไม่ทราบ
เป็นผู้ที่มีปัญหาหรืออาการด้านสุขภาพจิตหรือจิตเวชหรือไม่	☐ ใช่	☐ ไม่ใช่	☐ ไม่ทราบ
สามารถเขียนและอ่านไทยได้หรือไม่	☐ ได้	☐ ไม่ได้	☐ ไม่ทราบ
ผ่านการคัดกรองหรือไม่	**☐ ผ่าน**	**☐ ไม่ผ่าน**	

APPENDIX I

Informed Consent Form

หนังสือแสดงความยินยอมเข้าร่วมการวิจัย (กลุ่มทดลอง)

ทำที่.....

วันที่.....เดือน.....พ.ศ. .....

เลขที่ ประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย.....

ข้าพเจ้า ซึ่งได้ลงนามท้ายหนังสือนี้ ขอแสดงความยินยอมเข้าร่วมโครงการวิจัย

ชื่อโครงการวิจัย ประสิทธิผลของโปรแกรมเพื่อปรับเปลี่ยนพฤติกรรมในกลุ่มผู้ใช้ยาเสพติดด้วยวิธีการฉีด

ชื่อผู้วิจัย นางสาวดวงตา ปาวา

สถานที่ติดต่อ 444/184 หมู่บ้านเดอะแพลนท์บางนา ถ.กิ่งแก้ว-บางพลี ต.บางพลีใหญ่ อ.บางพลี สมุทรปราการ 10540

โทรศัพท์มือถือ 084-007-4477

ข้าพเจ้า **ได้รับทราบ**รายละเอียดเกี่ยวกับที่มาและวัตถุประสงค์ในการทำวิจัย รายละเอียดขั้นตอนต่างๆ ที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ความเสี่ยง/อันตราย และประโยชน์ซึ่งจะเกิดขึ้นจากการวิจัยเรื่องนี้ โดยได้อ่านรายละเอียดในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด และ**ได้รับคำอธิบาย**จากผู้วิจัย **จนเข้าใจเป็นอย่างดี**แล้ว

ข้าพเจ้าจึง**สมัครใจ**เข้าร่วมในโครงการวิจัยนี้ ตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย โดยข้าพเจ้ายินยอมตอบแบบสอบถาม ได้แก่ ข้อมูลทั่วไป การใช้ยาเสพติด พฤติกรรมการฉีดยาเสพติดและการมีเพศสัมพันธ์ และความสามารถของตนเองด้านการลดอันตรายจากการใช้ยา โดยใช้เวลาประมาณ 20 นาที จำนวน 4 ครั้ง และเข้าร่วมในโปรแกรมให้ข้อมูลด้านการใช้ยาเสพติด ครั้งละ 1 ชั่วโมง จำนวน 6 ครั้ง เมื่อเสร็จสิ้นการวิจัยแล้วข้อมูลที่เกี่ยวข้องกับผู้มีส่วนร่วมในการวิจัยจะถูกทำลาย

ข้าพเจ้ามีสิทธิ**ถอนตัว**ออกจากการวิจัยเมื่อใดก็ได้ตามความประสงค์ **โดยไม่ต้องแจ้งเหตุผล** ซึ่งการถอนตัวออกจากการวิจัยนั้น จะไม่มีผลกระทบในทางใดๆ ต่อข้าพเจ้าทั้งสิ้น

ข้าพเจ้าได้รับคำรับรองว่า ผู้วิจัยจะปฏิบัติต่อข้าพเจ้าตามข้อมูลที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และข้อมูลใดๆ ที่เกี่ยวข้องกับข้าพเจ้า ผู้วิจัยจะ**เก็บรักษาเป็นความลับ** โดยจะนำเสนอข้อมูลการวิจัยเป็นภาพรวมเท่านั้น ไม่มีข้อมูลใดในการรายงานที่จะนำไปสู่การระบุตัวข้าพเจ้า

หากข้าพเจ้าไม่ได้รับการปฏิบัติตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย ชั้น 4 อาคารสถาบัน 2 ซอยจุฬาลงกรณ์ 62 ถนนพญาไท เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0-2218-8147, 0-2218-8141 โทรสาร 0-2218-8147 E-mail: eccu@chula.ac.th

ข้าพเจ้าได้กล่าวคำยินยอมต่อหน้าพยาน ทั้งนี้ข้าพเจ้าได้รับสำเนาเอกสารชี้แจงผู้เข้าร่วมการวิจัย และสำเนาหนังสือแสดงความยินยอมไว้แล้ว

ลงชื่อ

.....

(.....)

ผู้วิจัยหลัก

ลงชื่อ

.....

(.....)

พยาน

หนังสือแสดงความยินยอมเข้าร่วมการวิจัย (กลุ่มควบคุม)

ทำที่.....

วันที่.....เดือน.....พ.ศ. .....

เลขที่ ประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย.....

ข้าพเจ้า ซึ่งได้ลงนามท้ายหนังสือนี้ ขอแสดงความยินยอมเข้าร่วมโครงการวิจัย

ชื่อโครงการวิจัย ประสิทธิผลของโปรแกรมเพื่อปรับเปลี่ยนพฤติกรรมในกลุ่มผู้ใช้ยาเสพติดด้วยวิธีการฉีด

ชื่อผู้วิจัย นางสาวดวงตา ปาวา

สถานที่ติดต่อ 444/184 หมู่บ้านเดอะแพลนท์บางนา ถ.กิ่งแก้ว-บางพลี ต.บางพลีใหญ่ อ.บางพลี สมุทรปราการ 10540

โทรศัพท์มือถือ 084-007-4477

ข้าพเจ้า **ได้รับทราบ**รายละเอียดเกี่ยวกับที่มาและวัตถุประสงค์ในการทำวิจัย รายละเอียดขั้นตอนต่างๆ ที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ความเสี่ยง/อันตราย และประโยชน์ซึ่งจะเกิดขึ้นจากการวิจัยเรื่องนี้ โดยได้อ่านรายละเอียดในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด และ**ได้รับคำอธิบาย**จากผู้วิจัย **จนเข้าใจเป็นอย่างดี**แล้ว

ข้าพเจ้าจึง**สมัครใจ**เข้าร่วมในโครงการวิจัยนี้ ตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย โดยข้าพเจ้ายินยอมตอบแบบสอบถาม ได้แก่ ข้อมูลทั่วไป การใช้ยาเสพติด พฤติกรรมการฉีดยาเสพติดและการมีเพศสัมพันธ์ และความสามารถของตนเองด้านการลดอันตรายจากการใช้ยา โดยใช้เวลาประมาณ 20 นาที จำนวน 4 ครั้ง เมื่อเสร็จสิ้นการวิจัยแล้วข้อมูลที่เกี่ยวข้องกับผู้มีส่วนร่วมในการวิจัยจะถูกทำลาย

ข้าพเจ้ามีสิทธิ**ถอนตัว**ออกจากการวิจัยเมื่อใดก็ได้ตามความประสงค์ **โดยไม่ต้องแจ้งเหตุผล** ซึ่งการถอนตัวออกจากการวิจัยนั้น จะไม่มีผลกระทบในทางใดๆ ต่อข้าพเจ้าทั้งสิ้น

ข้าพเจ้าได้รับคำรับรองว่า ผู้วิจัยจะปฏิบัติต่อข้าพเจ้าตามข้อมูลที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และข้อมูลใดๆ ที่เกี่ยวข้องกับข้าพเจ้า ผู้วิจัยจะ**เก็บรักษาเป็นความลับ** โดยจะนำเสนอข้อมูลการวิจัยเป็นภาพรวมเท่านั้น ไม่มีข้อมูลใดในการรายงานที่จะนำไปสู่การระบุตัวข้าพเจ้า

หากข้าพเจ้าไม่ได้รับการปฏิบัติตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย ชั้น 4 อาคารสถาบัน 2 ซอยจุฬาลงกรณ์ 62 ถนนพญาไท

เขตปทุมวัน กรุงเทพฯ 10330 โทรศัพท์ 0-2218-8147, 0-2218-8141 โทรสาร 0-2218-8147 E-mail: eccu@chula.ac.th

ข้าพเจ้าได้กล่าวคำยินยอมต่อหน้าพยาน ทั้งนี้ข้าพเจ้าได้รับสำเนาเอกสารชี้แจงผู้เข้าร่วมการวิจัย และสำเนาหนังสือแสดงความยินยอมไว้แล้ว

ลงชื่อ

.....

(.....)

ผู้วิจัยหลัก

ลงชื่อ

.....

(.....)

พยาน

APPENDIX J

Photos of the Activities in the Triple-S Intervention Group







COLA

VITA

Name Miss Duangta Pawa

Place of Birth Bangkok, Thailand

Email address duangtap@gmail.com

Education Background

2011 – 2016

Doctor of Philosophy, College of Public Health Sciences

Chulalongkorn University

2004 – 2006

Master of Science, College of Innovation Education

Thammasat University

1996 – 1999

Bachelor of Science, Faculty of Science and Technology

Thammasat University