Study Protocol

The development of an online intervention to reduce HIV/STI risk and drug use-related harms among stimulant-using MSM in Malaysia

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Planned Study Period : 1 December 2020 – 30 June 2022
Sponsor : Malaysian AIDS Council
Funders : Global Fund to Fight AIDS, Tuberculosis and Malaria
Sustainability of HIV Services for Key Populations in Asia Program (SKPA)

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Study Synopsis

Study title	The development of an online intervention to reduce HIV/STI risk and drug use-related harms among stimulant-using men who have sex with men (MSM) in Malaysia
Sponsor	Malaysian AIDS Council
Funder	Global Fund to Fight AIDS, Tuberculosis and Malaria Sustainability of HIV Services for Key Populations in Asia Program (SKPA)
ISRCTN	14406171
Project Start Date	December 2020
Project End Date	June 2022
Research Aspect	The study will develop a community-based, online intervention to cater the mental health and sexual health needs for stimulant-using MSM in Malaysia. Participants are able to access harm-reduction information, support for drug use recovery, as well as peer counselling on sexual risk reduction at their own privacy and convenient time. The study builds the capacity of community-based organization in reaching stimulant-using MSM and provide evidence-based, psychosocial support to these men who are vulnerable to a range of adverse health outcomes, including depression, suicidality, HIV/STI/Hepatitis C & B Infection.
Objectives	To develop an online intervention for stimulant-using MSM in Malaysia and collect feasibility and efficacy data
Study Design	Randomized control trial.
Sample Size	226 men aged at least 18 years who eEngaged in chemsex with other men (defined as using crystal methamphetamine, GBL/GHB, or ecstasy/MDMA) in the past 12 months
Intervention and control groups	Participants will be randomly allocated to two groups: **Group A (Intervention Group** Group A will receive the developed intervention tool comprising a Brief Intervention (FRAME Model). An online meeting will be arranged with a trained, peer counsellor to discuss drug use behaviour and to provide support and motivation to change. After the brief counseling, participant will then be directed to the Chemsex Care Plan, a self-directed interactive program that participants can access anytime at their convenience and will provide participants access to online materials (videos, infographics, etc) to educate stimulant-using MSM on reducing risky drug-use behaviour, as well as goal-setting. Participant will be asked to complete a brief survey at 6-week and 12-week follow-up to assess the drug use behavior and motivation to change. **Group B (Control Group)** Group B will receive a self-help toolkit from the World Health Organization for cutting down and stopping drug use. Participant is encouraged to use the toolkit to manage their drug use for 12 weeks. Similar to Group A, they will then be asked to complete a follow-up survey after 6 weeks and 12 weeks. After the end of the study, they will be given access to the Chemsex Care Plan.

	Randomization Participants who agree to the follow-up study are sent a link and a password (unique password for each participant) to log onto the study website. Those logging on are randomized in 1:1 ratio with no stratification to receive their respective materials.
Study outcomes	The development of the online intervention addresses the worsening HIV epidemic in a subpopulation of MSM in Malaysia. This pilot study collects the feasibility, acceptability, and preliminary efficacy of ASSIT-Brief Intervention and Chemsex Care Plan to reduce harms related to drug use and sexual risk among MSM.
Measurements	**Primary outcome measure** Stimulant use severity is measured using e-ASSIST (eASSIST; measured at baseline and 12-week follow-up) **Secondary outcome measures** Measured at baseline, 6-week, and 12-week follow-up: 1. Number of days stimulants used in the last 30 days 2. Depression, Anxiety, and Stress Scale - 21 Items (DASS-21)

Project Summary

The proposed study aims to develop a community-based, online intervention to address the mental health and sexual health needs among stimulant-using MSM in Malaysia. Recreational drug use in the sexual context ("chemsex") is driving the HIV epidemic among MSM in Malaysia and yet community-based, harm-reduction services are not available for MSM who wish to reduce their drug use or support their recovery from drug abuse. In this pilot study, participants will be able to receive peer counselling on drug use and sexual risk reduction, access interactive online education materials to support their recovery, at their own privacy and convenient time. The psychosocial interventions selected for the study (ASSIST-Brief Intervention and Chemsex Care Plan) are rooted in motivational interviewing which is client-oriented and aims to enhance participants' motivation in changing drug use and risky sexual behaviors, and helps participants establish and meet their goals in reducing both behaviors. This pilot randomized controlled trial will provide feasibility, acceptability, and efficacy of a community-led online intervention to reduce harms associated with stimulant use among MSM in Malaysia. Specifically, this online intervention will address HIV/STI/Hepatitis risk and a range of adverse mental health conditions such as depression, suicidality, and harms related to methamphetamine overdose and methamphetamine-induced psychosis. This brief and portable intervention for stimulant-using MSM will build on the strength of a previous successful sexual health campaign for MSM, and will be integrated with the prevention services at the HIV NGOs and mental health services in Malaysia.

Table of Contents

1. Introduction

Sexualized drug use has become a growing concern in the MSM communities globally (Bourne et al. 2015, Schmidt et al., 2016) and in southeast Asia (Lim SH, et al., 2015; Vu NT. Holt M et al. 2016). The is a clear association between stimulant drug use among MSM and the risk of HIV infection (Vu NT, 2015). In Malaysia, the use of stimulant drugs by some MSM to facilitate and enhance sexual pleasure has been documented (Lim et al., 2018). In a qualitative study of stimulant-using MSM, sexual disinhibition and hypersexuality was common during chemsex, leading to decreased condom use, sex with multiple partners and other high risk sexual behaviors that increased the likelihood of HIV and STI transmission. MSM who have problematic use suffer from a range of physical, mental, and social harms associated with stimulant use (Lim et al., 2018). Despite draconian drug laws in Malaysia, crystal methamphetamine, ecstasy and GHB/GBL were among the popular drugs for chemsex. The normalization of stimulant drug use can be observed in gay dating apps and social media where stimulant-using MSM seek for chemsex partners and to trade stimulant drugs.

The prohibition of drug use and homosexuality in Malaysia has marginalized this subgroup of MSM. Drug treatment services tailored to the needs of MSM are non-existent in Malaysia. **A community-based, low-threshold, online intervention** that provides a safe environment where MSM access drug screening, harm-reduction materials is needed. Therefore, we propose to develop a comprehensive online intervention that will address the sexual health and mental health needs of stimulant-using MSM in Malaysia. In this interactive website, clients will be able to access harm-reduction materials, undergo screening for substance use and be provided with a brief intervention virtually by case workers. **ASSIST (The Alcohol, Smoking and Substance Involvement Screening Test) plus brief intervention**, has been developed by the World Health Organization to identify and treat substance use disorders (WHO, 2010). It has been translated and validated in Bahasa Malaysia. In the proposed study, the outreach workers from the community-based organizations will be trained to administer ASSIST in order to screen MSM for stimulant drug use and deliver a brief intervention using motivational interviewing techniques. The screening and administration of the brief intervention will be conducted synchronously online with the clients. Additionally, risk reduction related to HIV/STI will be included in the brief intervention. MSM who are unaware of their HIV status will be encouraged to undergo HIV testing at the MSM-friendly clinic. Those who test negative will be linked to PrEP services for HIV prevention. Likewise, MSM who test positive will be supported for linkage to care and initiation of antiretroviral therapy. For MSM who have been diagnosed with HIV prior to the study, they will be supported to take their ART to achieve viral suppression.

MSM who do not wish to interact with CBO workers online will have to option to use the electronic version of ASSIST to self-evaluate the frequency and severity of their drug use. Subsequently, they will be linked to **Chemsex Care Plan**, an online tool which enable users to select the best strategies to manage their drug use according to their short-term and long-term life goals (Stuart D & Weymann 2015). The Chemsex Care Plan consists of interactive

online materials designed to help MSM explore their motivation for change, to learn harm-reduction information for those who are not ready to reduce or quit using, and cognitive skills to prevent relapse for those who wish to be abstinent from using drugs. This online tool will be helpful for MSM who wish to access health education materials and learn some cognitive and behavioral skills on their own. The content of the videos available in Chemsex Care Plan reflects the realities of gay men struggling with drug abuse in the UK and these videos have raised awareness on the severity of chemsex in the MSM communities in the UK and provided practical advice in supporting MSM in recovery.

In the proposed study, all ASSIST materials will be adapted to include sexual risk reduction, and HIV/STI/Hepatitis C prevention. Secondly, the content of The Chemsex Care Plan will be translated to Bahasa Malaysia and to develop videos that are culturally appropriate to Malaysian contexts. A webmaster will be hired to design an interactive webpage. The aims of the present study are:

Aim 1: To adapt ASSIST-brief intervention, Chem Sex Care Plan to reduce drug use and HIV sexual risks for stimulant-using MSM in Malaysia

Aim 2: To determine the feasibility and efficacy of an online intervention for stimulant-using MSM in Malaysia.

Background

Stimulant drug use may be driving HIV epidemic among MSM in Asia.

The HIV epidemic among MSM is escalating in Asia and the Pacific region, with increasing HIV prevalence among MSM in Thailand (van Griensven 2013), China (Ma 2007), and Malaysia (MOH 2018). The national HIV prevalence among MSM was 21.6% in Malaysia, among the highest in the region. In a cohort study of 1744 Thai MSM, the increase of HIV prevalence was parallel to the increase with the use of stimulant drugs (Piyara P, van Griensven et al, 2018). Young age, finding casual sex partners on the internet were associated with both incident methamphetamine use and HIV infection (Piyara P, van Griensven et al, 2018). In an anonymous online survey, 7.6% of Malaysian MSM reported using poppers, crystal methamphetamine, erectile dysfunction in the past 6 months (Lim et al. 2015). Men in the stimulant drug use were 3.9 times more likely to be HIV positive and were more likely to have engaged in group sex and have had more than 6 sexual partners in the past 6 months (Lim et al 2015).

Chemsex is an emerging issue with growing concerns among MSM communities in Asia.

The use of specific drugs to enhance sexual pleasure and to prolong sexual activities among MSM has been known as ‘chemsex’. In the UK, chemsex is defined as the use crystal meth, mephedrone and GHB/GBL before or during sexual activities among MSM. In Asia-Pacific region, the prevalence of chemsex ranges differently according to countries, from 5% in Japan, 9.3% in Taiwan, 11-14% in Australia, to nearly 18% in Thailand. In the previous online surveys of Malaysian MSM, the prevalence of chemsex range from 13.7%% (Lim et al.

2015) to 17.2% (Lim et al. 2017). Besides HIV and STI infection, MSM who engage in chemsex are vulnerable to mental health and social consequences associated with stimulant drug use (Lim et al 2019). Sexual disinhibition and heightened sexual arousal may lead to adventurous sex and extreme sex, limiting ability of MSM in practicing safer sex. In a qualitative study of stimulant-using MSM living in Klang Valley, participants reported that sleep deprivation, poor dental health, weight loss, increased palpitation, hallucination, depressed mood, and psychosis as the short-term and long-term effects of stimulant use.

A community-based, online intervention may be effective in reaching stimulant-using MSM. Due to cultural and legal prohibition of same-sex activities and illicit drug use in Malaysia, stimulant-using MSM are marginalized and hidden (Lim et al, 2018). Many MSM who have stimulant use problems do not seek help or treatment to address their drug use problems. Some may not be aware of the available psychiatric and substance abuse services in Klang Valley and other parts in Malaysia. These services may be limited as the providers may not be familiar issues surrounding sexual orientation and the health needs of MSM. Due to cultural and legal prohibition, perceived stigma and discrimination against gay men in the healthcare settings remain prevalent in Malaysia. In general, stimulant-using MSM trust their peers, especially former stimulant-drug users in disclosing their drug use and sexual behaviors. Currently, majority of stimulant-using MSM use various gay dating apps and social media such as Twitter to advertise and seek chemsex partners (Lim et al., 2018). A low-threshold, community-based intervention using social media engagement may be effective in reaching this subpopulation of MSM.

2. Materials and methods

2.1 Study participants and data collection

Participants will be recruited from Malaysia using advertisements posted on Twitter, Facebook and WhatsApp and mobile dating apps that target MSM communities (e.g., Grindr and Hornet). Interested participants who clicked on the advertisement will be directed to an eligibility screening form via a secure, web-based electronic data capture system.

Potential participants will fill in a brief eligibility survey. The inclusion criteria include:

1. Being biologically male
2. 18 years old or older
3. Having engaged in 'chemsex' with other men in the past 12 months (defined as taking crystal methamphetamine, GBL/GHB, or ecstasy/MDMA)
4. Capable of understanding and reading Malay or English
5. Willing to be contactable by WhatsApp for follow-up surveys
6. Able to provide online consent

Exclusion criteria:
MSM who are currently in drug rehabilitation, receiving treatment for drug abuse, actively engaging in narcotics anonymous or other modes of behavioural intervention-based treatment. Participants who are not eligible will be thanked for their interest. Those who are eligible will proceed to read an online consent form. The nature and the purpose, risk and benefits of participating in the study will be stated in the consent form. The participants who are eligible and provided online consent for the current study will proceed to complete a set of questionnaires which include their sociodemographic information, eASSIST lite (electronic Alcohol, Smoking and Substance Involvement Screening Test), the University of Rhode Island Change Assessment Scale (URICA) and Depression, Anxiety and Stress Scale - 21 Items (DASS-21).

After completion of the survey, participants will be randomized to receive the online intervention (ASSIST-Brief Intervention followed by Chemsex Care Plan) or the self-help guide on substance use published by the World Health Organization (see Figure 2). Participants will be able access the study website with individual ID/password to complete the behavioral assessment at 6-week and 12- week follow up. Participants will be reimbursed RM50 voucher for the completion of each online survey. Participants who have completed all surveys will be asked at the end of the study if they would be interested in participating in a future study of which they will be informed of the nature, purpose and potential harm and benefits. Interested participants' contacting information within this study will be stored in a secure encrypted file for future communication, while participants who do not wish to participate in the future study will have non-essential information (identifiers, contact information etc) deleted at the end of the study.

2.2. Study instruments

Sociodemographic and HIV/STI/Hepatitis C & B risk information

A socio-demographic form is created to obtain social and demographical information regarding the participants. In this section, subjects are required to provide information such as age, gender, ethnicity, preferred language, employment status, HIV testing history, HIV and STI status. Additionally, participants will be asked a few questions on HIV risk behaviors, such as condomless anal intercourse with regular/casual partners and number of sexual partners in the past 30 days.

eASSIST (electronic Alcohol, Smoking and Substance Involvement Screening Test)

The eASSIST is an electronic version of screening tool based on the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) which was developed by the World Health Organization. It is an 8-item clinician administered questionnaire developed for the World Health Organization (WHO) by an international group of substance abuse researchers to detect psychoactive substance use and related problems in primary care patients (Humeniuk et al., 2010). The ASSIST screens for lifetime and current (within the past three months) substance use of 10 different substances (tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives/sleeping pills, hallucinogens, opioids and 'other' drugs). The ASSIST has good concurrent, construct, predictive and discriminative validity, including the development of cut-off scores (Ali et al., 2002; Humeniuk and Ali, 2006; Newcombe et al., 2005; Humeniuk et al., 2008; Khan et al., 2011).

Designed for time pressured environments, the eASSIST takes approximately 5 minutes to complete. The eASSIST helps identify the risks associated with substance use and the personalised feedback helps explore options for change. The Malay version has been validated (Yee et al., 2017)

University of Rhode Island Change Assessment Scale (URICA)

The URICA is a self-reported assessment that measures stages of change within an individual, where each subscale (Precontemplation, Contemplation, Action and Maintenance) can be identified though responses given on a 5-point Likert Scale and be combined arithmetically to obtain a second-order score that can be used to assess 'Readiness to Change' in beginning a treatment. The scale was developed by the University of Rhode Island (DiClemente & Hughes, 1990) and has been validated in Bahasa Malaysia (Abdul Ghani, Amat & Abdullah, 2019). The URICA Scale helps in identifying the willingness of participants to engage in treatment and prompts the development of appropriate interventional treatments.

Depression, Anxiety and Stress Scale (DASS-21)

The DASS-21 is a 21-item questionnaire developed by Lovibond & Lovibond (Henry & Crawford, 2005; Lovibond and Lovibond, 1995). It is an abbreviated version of the original 42-item DASS-42 questionnaire developed by the same author. DASS-21 is a simple and concise self-administered tool that is used for the screening of depression, anxiety and also stress. DASS-21 has 7 items per each domain of depression, anxiety and stress. It has been

validated in many languages, including into the Malay language (Musa, 2007). The higher the total scores for each domain reflect the severity of the respective domains. The severity score for depression in DASS-21 are stratified into normal (0-9 scores), mild (10-13 scores), moderate (14-20 scores), severe (21-27 score), and extremely severe (28 scores or more).

2.3. Randomization, experimental conditions and follow-up

Participants who agree to the follow-up study are sent a link and a password (unique password for each participant) to log onto the study website. Those logging on are randomized in 1:1 ratio with no stratification by using computerized generated random online (www.randomization.com) to receive their respective materials. Those assigned to the intervention condition are provided with the online intervention (see part 3) with Brief Intervention (FRAME model) and The Chemsex Care Plan, developed from the chemsex counsellor from the renowned sexual health clinic (56 Deans' Street)(https://www.davidstuart.org/care-plan).Those assigned to the control group will be provided Self-care interventions for health toolkits from World health Organization (WHO) for the first three months. After three months, the control group will be provided with a link to access the The Chemsex Care Plan.

2.4. Sample size estimate

By using G*Power (Faul et al., 2009) calculation, according to Kurtz et al. (2013), the effect size is 0.53 for a behavioural intervention for High Risk Substance-Using MSM.

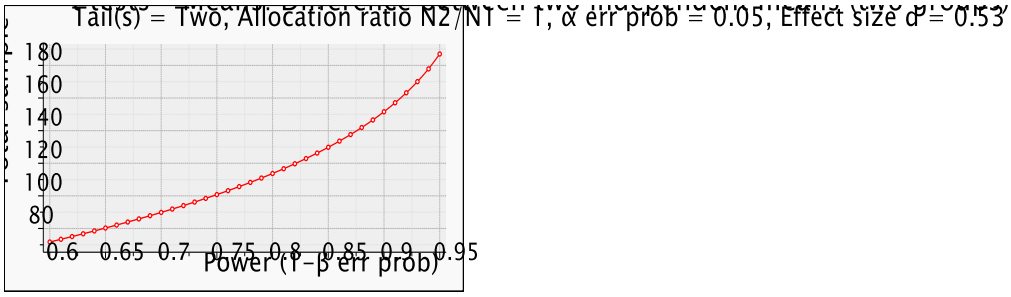


Figure 1. G-Power calculation

t tests - Means: Difference between two independent means (two groups)

Analysis:	A priori: Compute required sample size	
Input:	Tail(s)	= Two
	Effect size d	= 0.53
	α err prob	= 0.05
	Power (1-β err prob)	= 0.95
	Allocation ratio N2/N1	= 1
Output:	Noncentrality parameter δ	= 3.6334969
	Critical t	= 1.9728001
	Df	= 186
	Sample size group 1	**= 94**
	Sample size group 2	**= 94**
	Total sample size	**= 188**
	Actual power	= 0.9510082

A sample of 94 participants per condition was needed to detect a differential impact of the intervention compared to the control condition at the 6-week and 12-week follow-up. A 20% attrition rate was allowed for, leading to a targeted sample size of 226 participants.

2.4. Data analysis

2.4.1. Outcome variables

The primary outcome variable is the eASSIST (eASSIST; measured at baseline and 12-week follow-up) which indicates stimulant use severity (Gryczynski et al., 2015).The secondary outcome variables, number of days stimulants used in the last 30 days and the Depression, Anxiety and Stress Scale - 21 Items (DASS-21) will be measured at baseline, 6-week and 12-week follow-up. Among HIV-negative participants, willingness to access PrEP and utilization of PrEP will be assessed while among HIV-positive participants, linkage to HIV services and adherence to ART will be assessed at the 12-week follow up. Additionally, data on utilization of HIV/STI services at the community-friendly clinics will be extracted from the HIV/STI monitoring database by Malaysian AIDS Council using the unique client ID.

2.4.2. Analysis plan

Bivariate comparisons of baseline demographic and outcome variables will be conducted. Outcome analyses will employ mixed effect repeated measures outcomes and used all available data for each time point. Overall, 3 separate mixed-effect models will be conducted to examine the effect of time, intervention condition, and the time by intervention condition on each outcome variable. Missing data will be analysed using a maximum likelihood approach.

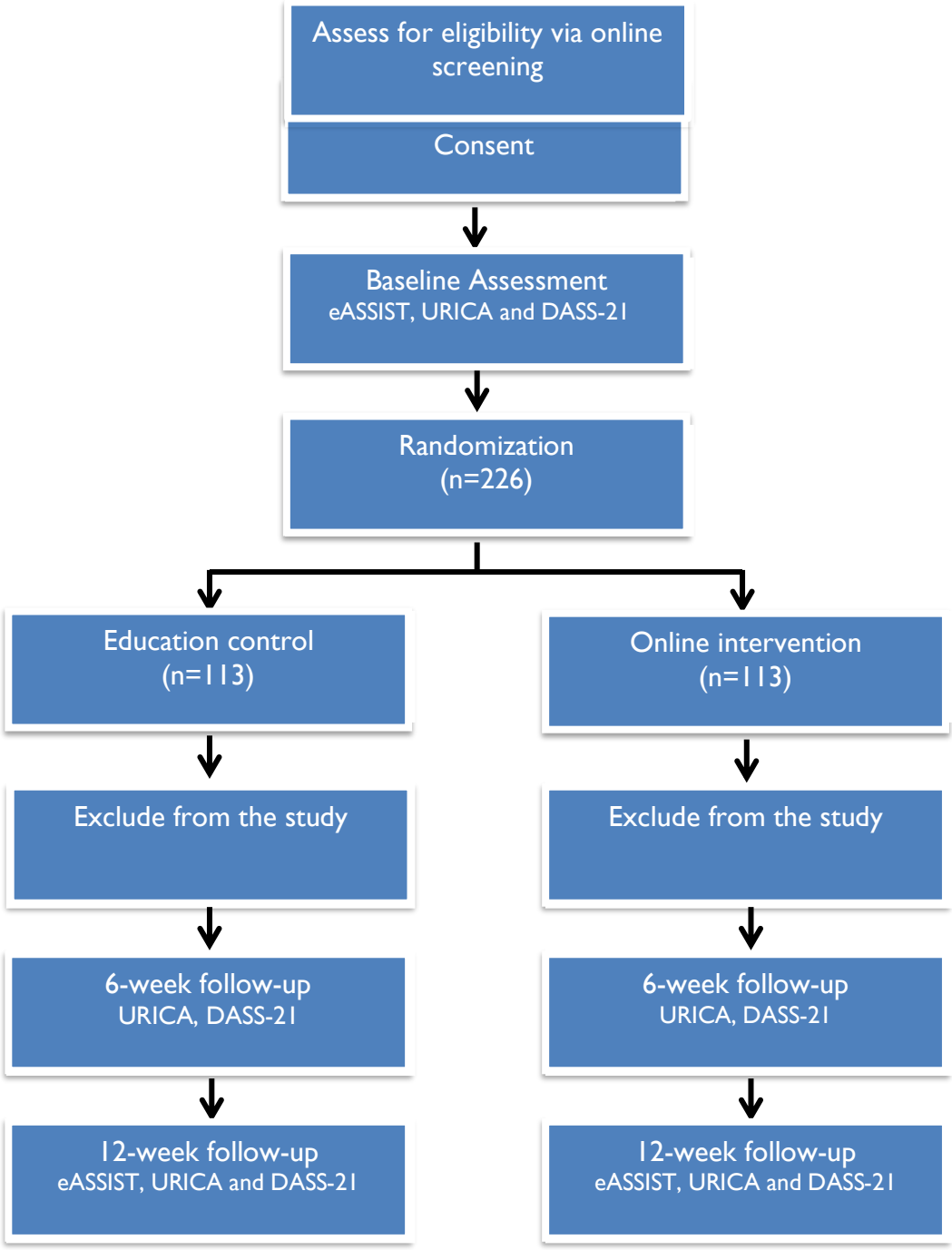


Figure 2. Study Flowchart

3. Online Intervention

The online intervention will comprise two components: 1) **Brief Intervention (FRAME model)** to be administered by case workers online, and 2) **Chemsex care Plan**, a self-directed, interactive online material that participants can access anytime, at their convenience.

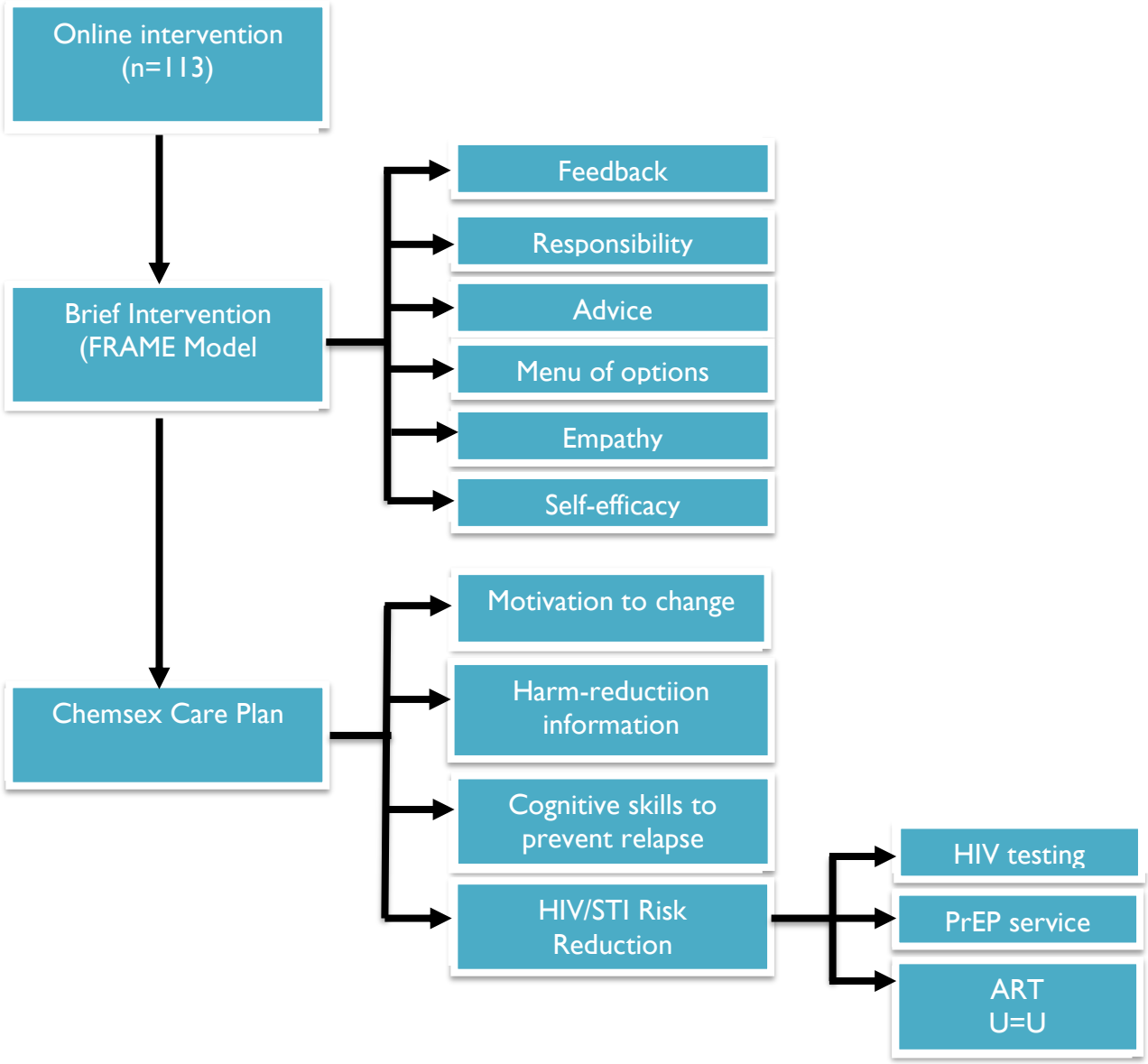


Figure 3. Online intervention flow chart

3.1 Brief Intervention (FRAMES model)

Participants will be asked to schedule an appointment to interact virtually with the case workers from the NGO to receive brief intervention after completing eASSIST. A personal chatroom will be opened for the case worker and participants to enhance anonymity and privacy. Participants may request video conference when they feel comfortable to do so. Following the screening questions from e-ASSIST, the case workers or peer counsellor will provide brief intervention (BI) which included the discussion of the scores of the eASSIST Feedback Report card and use of motivational Interviewing (MI) techniques to assess and motivate clients to change drug use behaviors. The principles underlying most approaches to BI were systemized by Miller and Sanchez (1994) in a FRAMES model which comprised of:

- **Feedback**: Give feedback on the risks and negative consequences of substance use.
- **Responsibility**: Emphasize that the individual is responsible for making his or her own decision about his/her drug use.
- **Advice**: Give straightforward advice on modifying drug use.
- **Menu of options**: Give menus of options to choose from, fostering the client's involvement in decision-making.
- **Empathy**: Be empathic, respectful, and non-judgmental.
- **Self-efficacy**: Express optimism that the individual can modify his or her substance use if they choose. Self-efficacy is one's ability to produce a desired result or effect.

The eASSIST-linked BI aimed at reducing illicit substance use and related risks is shown to be effective in different countries (Humeniuk et al., 2012). The brief intervention is based on the approach of motivational interviewing, which is a directive, client-centered counselling method developed from experience of alcoholism treatment by Miller. Several randomized clinical trials showed that MI is effective for reducing alcohol and substance use in general populations as well as in MSM (Morgenstern J 2009, William Zule 2012, Parson et al. 2014, Parson et al. 2018). Furthermore, MI is listed as one of the best behavioural interventions for HIV risk reduction by the US Centers for Disease Control and Prevention, http://www.cdc.gov/hiv/topics/research/prs/best-evidence-intervention,htm).

The brief intervention takes approximately 20 minutes to complete. During BI, the peer counsellor/case worker will elicit the participants' view of drug use behaviour, focused on increasing the commitment and confidence to change, and developing a personalized plan to maintain the change.

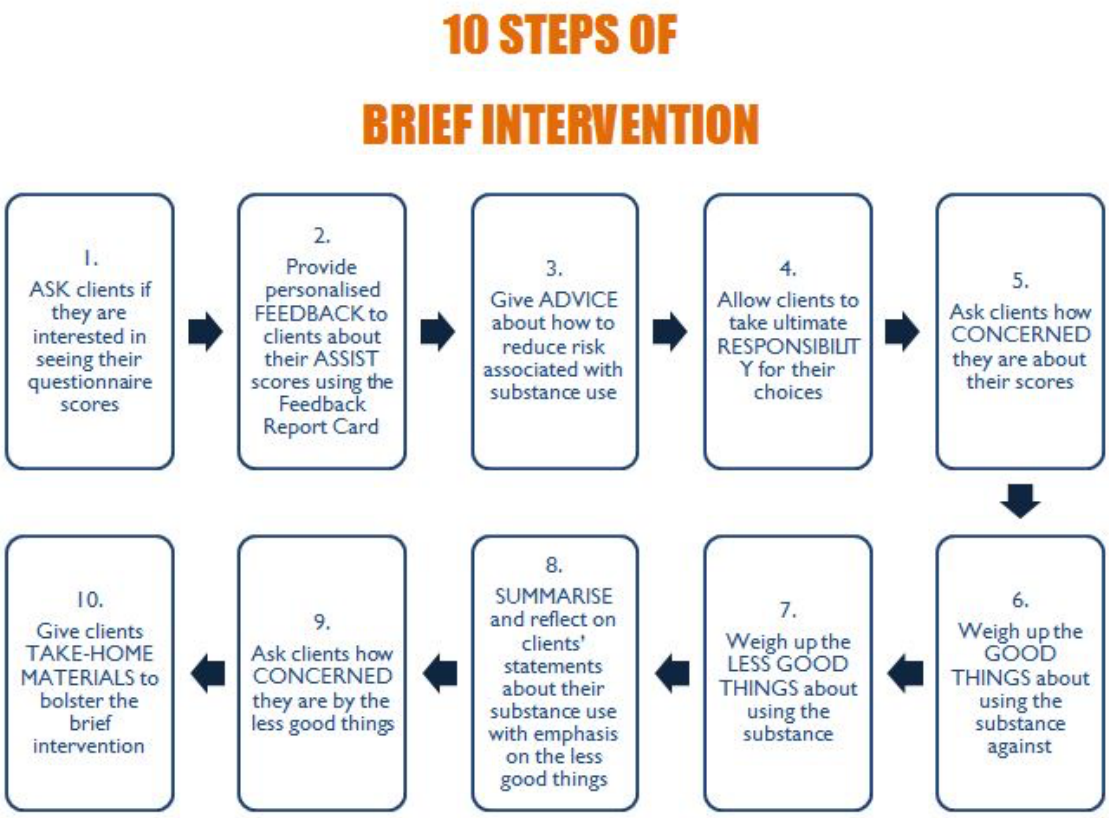


Figure 4. Brief Intervention

There are unique challenges for MSM in reducing or stopping stimulant drug use which need to be addressed during the brief intervention. The adaptation of ASSIST-brief intervention will aim to address the dual, parallel risky behaviors: stimulant drug use and risky sexual behaviors. Therefore, participants will be given a brief counselling on HIV and STI testing, highlighting the importance of knowing one's HIV/STI status and immediate treatment upon diagnosis. Other biomedical prevention methods such as PrEP and PEP will be prioritized as consistent condom use may be unrealistic during chemsex. Specifically, on-demand PrEP will be beneficial for those who engage in chemsex party during weekend or public holidays. Contact information of MSM-friendly HIV and STI clinics will be provided on the website. Case workers will assist with making appointment with the clinics and offer support to accompany participants to access HIV/STI services. For participants who are diagnosed with HIV prior to the study, engagement in care and concept of "Undetectable=Untransmissible" will be emphasized during the brief counseling.

3.2 The Chemsex Care Plan

Chemsex Care Plan is developed by chemsex counselor from the renowned sexual health clinic (56 Deans' Street). The Chemsex Care Plan is based on motivational interviewing and has incorporated elements of cognitive behavioral therapy. To adapt the chemsex care plan to suit the Malaysian context, attractive online materials will be developed in order to reach MSM who use stimulant drugs. These materials will include short videos, infographs, animations, etc. The following is the flow of the Chemsex Care Plan:

a) Setting life goals. Recognizing the participants may be at different level of readiness to reduce or quit using stimulant drugs, the care plan first asks clients to select their current goal related to drug use: 1) Abstinence, 2) Take a short break, 3) Play more safely, and 4) Still not sure what I want to do. Depending on the stages of change – participants will be directed to subpage that would best match their need. Additionally, it asks participants their confidence in meeting those goals and the importance of making these goals.

b) For those who select "abstinence" as their goal, they will be directed to a webpage with several education videos that to affirm their motivation and to In these videos, participants will be asked to reflect on their sex lives, the time when they had sober sex and social activities they might have missed during their active use of stimulant drugs. Participants will learn to change their social and physical environment to support their recovery.

c) For those who prefer to "taking a short break," they will be asked to set plan and goal for abstinence for a short period of time. They will be given suggestions to develop strategies to cope with cravings and maintain abstinence for a short period of time.

d) For MSM who have no desire to quit using but who wish to "play it safely", harm reduction information will be made available to them.

4. Ethical considerations

As part of the study, a list of FAQ will serve as an avenue for participants who wish to have quick answers to their questions. A pre-set of questions and answers regarding the benefits and harms of stimulant drug use, harm reduction, existing support services will be compiled and laid out in a simple format. A hotline number will be available on the website for research team to answer questions related to the study at designated time during weekdays. Participants will be reminded by WhatsApp message to conduct the follow-up surveys. All intervention materials will be delivered online; there will be no physical interaction between participants and research team members. No personal identifying information such as names or identification number will be collected from the participants. Instead, unique ID number will be used to identify the participants. Reminder message sent to participants will not reveal participant's status of participating in a study pertaining drug use and HIV.

Online Informed consent will be obtained before participants are enrolled to the study. Participants will be informed of the study design, study procedure and duration, potential risk and benefits of the study. Furthermore, participants will be asked not to reveal any identifying information such as their name and location during the brief intervention. Permission to audio record the brief intervention will be obtained from the participant before beginning of the intervention. The main purpose of the audio recording to verify and evaluate the counseling session and ensure that caseworkers' administration of the Brief Intervention according to the study protocol; all identifying information will be removed prior to review and recordings will be deleted after verification data has been obtained.

5. Adaptation Process

Experts in intervention development and delivering HIV prevention and substance abuse treatment services to stimulant using MSM will be formally engaged. The research team will include a psychiatrist, a public health researcher, a master's-level project director, and two external experts from University of Adelaide and National Cheung Kung University. The research team will conduct bi-monthly meetings with the local community members and services providers to modify the intervention for application in a community setting.

Training of case workers. Case workers from the CBO will undergo formal training in the following:

1) Stimulant drug use, ASSIST/brief intervention (1 Day) – by Dr. Fadzli from Hospital Kuala Lumpur and Prof. Rusdi from University Malaya Centre of Addiction Science (UMCAS), University Malaya. The workshop will cover the overview of stimulant drug use and psychosocial interventions for stimulant use disorder. Existing mental health and support services for drug abuse will also be discussed.

2) ASSIST-brief intervention (3 Days) – by Prof. Robert Ali from University of Adelaide (online training). Basic skills on drug counseling and delivering education materials will be imparted to case workers. After the training, peer counsellors will role play in administering ASSIST-brief intervention. The training will be evaluated by the Prof Ali and the research team. A certificate will be given case workers who are qualified to administer ASSIST-brief intervention.

3) Chemsex Care Plan, interviewing skills and issues pertaining to chemsex and drug use recovery from David Stuart (online training).

4) HIV Pre-Exposure Prophylaxis implementation in Malaysia by Dr. Iskandar Azwa from University of Malaya Medical Centre (online training).

Evaluation by participants. Two types of evaluation will be asked from the participants:

- **Outcomes evaluation by pre- and post-test**. Participants will be asked to complete a 6-week and 12-week follow-up survey with matched questions from baseline (see section 2.2).
- **Process evaluation.** We will collect data on participation, resource use, and satisfaction of peer counselling from research staff, case workers and participants. The number of views of online intervention materials, number of clicks on the website, duration of peer counselling, and usage of Chemsex Care Plan will be recorded to monitor the activities on the online intervention.
- **Expected outcomes**: Reduction in stimulant use, reduction in risky sexual behaviors, and improvement in mental health outcomes.

Hypothesis: We hypothesize that intervention participants will demonstrate significant decrease in HIV/STI risk and methamphetamine use from baseline to follow-up surveys. Additionally, we postulate that participation in the intervention will lead to improvement in secondary outcomes, including mental health (depression), social functioning and quality of life.

Appendices

Appendix A. ASSIST (Alcohol, Smoking and Substance Involvement Screening Test)

	Questions	Answer options and score
1.	In your life, which of the following substances have you ever used? (NON-MEDICAL U MEDICAL U MEDICAL USE ONLY)	No-0 Yes-3
2.	In the **past three months**, how often have you used the substances you mentioned (FIRST DRUG, SECOND DRUG, ETC)?	Never-0 Once/Twice=2 Monthly=3 Weekly=4 Daily/Almost daily=6
3.	During **the past three months**, how often have you had a strong desire or urge to use (FIRST DRUG, SECOND DRUG, ETC)?	Never-0 Once/Twice=3 Monthly=4 Weekly=5 Daily/Almost daily=6
4.	During the **past three months,** how often has your use of (FIRST DRUG, SECOND DRUG, ETC) led to health, social, legal or financial problems?	Never-0 Once/Twice=4 Monthly=5 Weekly=6 Daily/Almost daily=7
5.	During the **past three months**, how often have you failed to do what was normally expected of you because of you because of your use of (FIRST DRUG, SECOND DRUG, ETC)?	Never-0 Once/Twice=5 Monthly=6 Weekly=7 Daily/Almost daily=8
6.	Has a friend or relative or anyone else expressed concern about your use of (FIRST DRUG, SECOND DRUG, ETC.)?	No, never=0 Yes, in the past 3 months=6 Yes, but not in the past 3 months=3
7.	Have you **ever** tried and failed to control, cut down or stop using (FIRST DRUG, SECOND DRUG, ETC.)?	No, never=0 Yes, in the past 3 months=6 Yes, but not in the past 3 months=3
8.	Have you **ever** used any drug by injection? (NON-MEDICAL USE ONLY) MEDICAL USE ONLY)	No, never=0 Yes, in the past 3 months=2

If yes, ask pattern of injecting	Yes, but not in the past 3 months=1 Once weekly/less or <3 days in a row >1 per week or ≥3 days in a row

Scoring a specific substance involvement score

For example: Cannabis= Q2c+Q3c+Q4c+Q5c+Q6c+Q7c

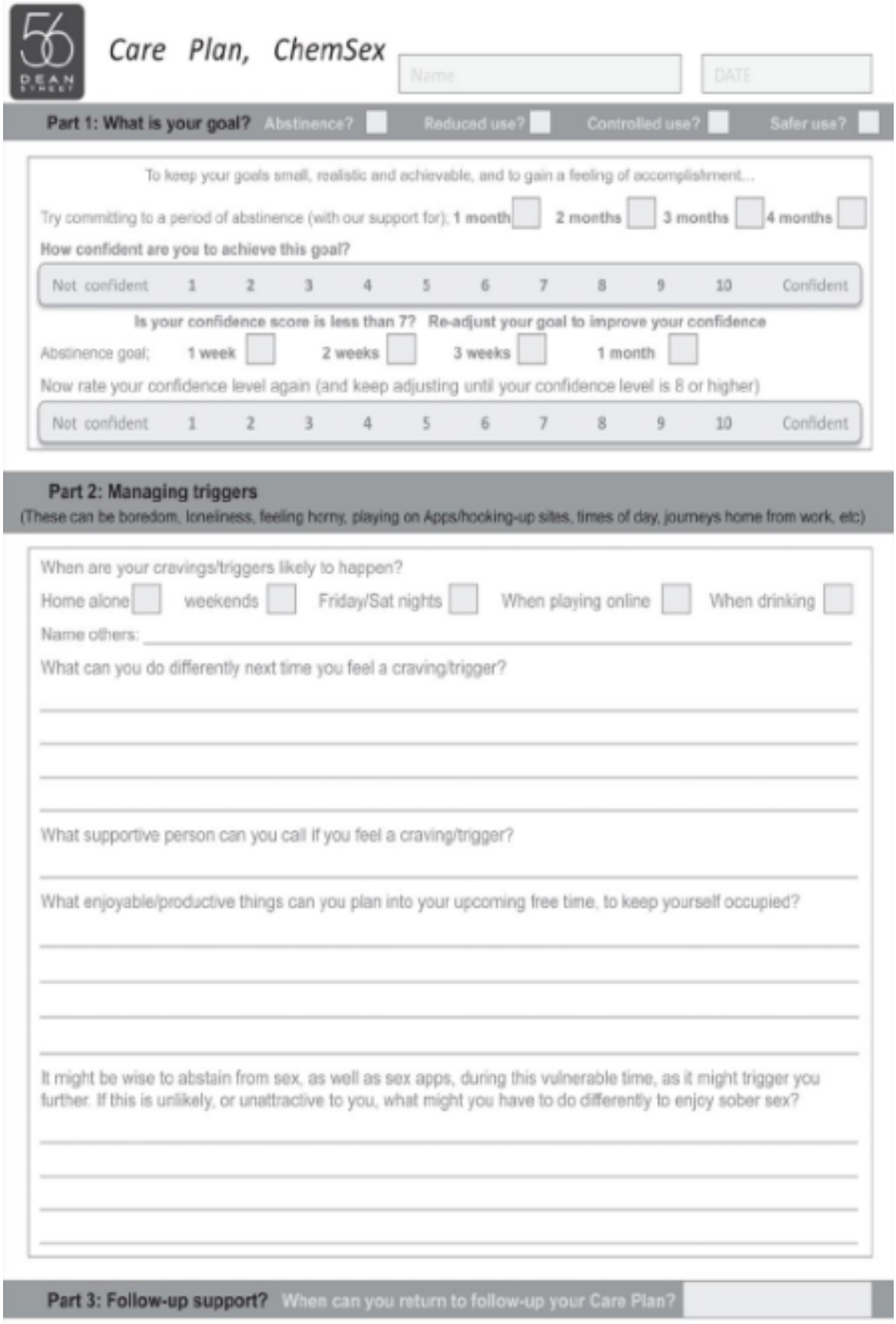
Only for tobacco= Q2a+Q3a+Q4a+Q6a+Q7a

Interpretation of score and type of intervention

- Low: You are at low risk of health and other problems from your current pattern of use.
- Moderate: You are at risk of health and other problems from your current pattern of substance use.
- High: You are at high risk of experiencing severe problems (health, social, financial, legal, High: relationship) as a result of your current pattern of use and are likely to be dependent

Substances	**Risk and type of intervention**		
	✓ General health advice	✓ Receive brief intervention ✓ Take home information	✓ Receive brief intervention ✓ Take home information ✓ Referral to specialist assessment and treatment
	(Low risk)	(Moderate risk)	(High risk)
Tobacco	0-3	4-26	27+
Alcohol	0-10	11-26	27+
Cannabis	0-3	4-26	27+
Amphetamine	0-3	4-26	27+
Inhalants	0-3	4-26	27+
Sedatives	0-3	4-26	27+
Hallucinogens	0-3	4-26	27+
Opiods	0-3	4-26	27+
Other drugs	0-3	4-26	27+

Appendix B. Chemsex Care Plan Form



56 DEAN STREET

Care Plan, ChemSex

Name

DATE

Part 1: What is your goal? Abstinence? ☐ Reduced use? ☐ Controlled use? ☐ Safer use? ☐

To keep your goals small, realistic and achievable, and to gain a feeling of accomplishment...

Try committing to a period of abstinence (with our support for): **1 month** ☐ **2 months** ☐ **3 months** ☐ **4 months** ☐

How confident are you to achieve this goal?

Not confident 1 2 3 4 5 6 7 8 9 10 Confident

Is your confidence score is less than 7? Re-adjust your goal to improve your confidence

Abstinence goal; **1 week** ☐ **2 weeks** ☐ **3 weeks** ☐ **1 month** ☐

Now rate your confidence level again (and keep adjusting until your confidence level is 8 or higher)

Not confident 1 2 3 4 5 6 7 8 9 10 Confident

Part 2: Managing triggers

(These can be boredom, loneliness, feeling horny, playing on Apps/hooking-up sites, times of day, journeys home from work, etc)

When are your cravings/triggers likely to happen?

Home alone ☐ weekends ☐ Friday/Sat nights ☐ When playing online ☐ When drinking ☐

Name others: _____

What can you do differently next time you feel a craving/trigger?

What supportive person can you call if you feel a craving/trigger?

What enjoyable/productive things can you plan into your upcoming free time, to keep yourself occupied?

It might be wise to abstain from sex, as well as sex apps, during this vulnerable time, as it might trigger you further. If this is unlikely, or unattractive to you, what might you have to do differently to enjoy sober sex?

Part 3: Follow-up support? When can you return to follow-up your Care Plan?

Appendix C. DASS-21 (Depression Anxiety Stress Scale)

DASS21

Name: Date:

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of time
3 Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

Appendix D. URICA (University of Rhode Island Change Assessment)

37686

Healthy Families Program

URICA

1512

NIDA - CFS - 0008	ASSESSMENT DATE: __/__/____ (mm/dd/yyyy)
NODE: 07	PHASE: ○ Baseline ○ Post Randomization
SITE ID: 01 - 00	SEGMENT: __ SEQUENCE: 01
PARTICIPANT ID: ____	FORM COMPLETED BY: _____
RELATION: 01 - 01	FORM COMPLETION LANGUAGE: ○ English ○ Spanish ○ Both
☐ FORM COMPLETION STATUS	1=Form completed as required; 2=Participant refused; 3=Responsible person did not complete; 4=Not enough time at the visit; 5=Participant did not attend visit; 6=Other (specify: _____)

Each statement below describes how a person might feel when starting therapy or approaching problems in their lives. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your "problem," answer in terms of problems related to your drug use. The words "here" and "this place" refer to this drug abuse treatment program.

Cada frase (oración) escrita abajo describe como se puede sentir una persona cuando empieza una terapia o cuando enfrenta problemas en su vida. Por favor, indique que tan de acuerdo o en desacuerdo está con cada frase (oración). En cada caso, haga su selección en términos de como usted se siente en este momento, no lo que usted ha sentido en el pasado o ni lo que le gustaría sentir. Para todas las frases (oraciones) que se refieren a su "problema," conteste en términos de problemas relacionados con su uso de droga. Las palabras "aquí" y "en este lugar" se refieren a este programa de tratamiento para el abuso de droga.

There are five possible responses to each of the items in the questionnaire.
(Hay 5 respuestas posibles por cada uno de los puntos en el cuestionario.)
Please darken the circle that best represents your answer to each question.
(Por favor llene el circulo que mejor represente su respuesta a cada pregunta.)

	Strongly Disagree *Muy en Desacuerdo* (1)	Disagree *En Desacuerdo* (2)	Undecided *Indeciso* (3)	Agree *De Acuerdo* (4)	Strongly Agree *Muy de Acuerdo* (5)
1. As far as I'm concerned, I don't have any problems that need changing. *En lo que respecta a mi, yo no tengo problemas que necesiten cambio.*	○	○	○	○	○
2. I think I might be ready for some self-improvement. *Pienso que pueda estar listo(a) para superarme.*	○	○	○	○	○
3. I am doing something about the problems that had been bothering me. *Estoy haciendo algo sobre los problemas que me estaban molestando (preocupando).*	○	○	○	○	○
4. It might be worthwhile to work on my problem. *Puede que valga la pena trabajar en mi problema.*	○	○	○	○	○
5. I'm not the problem one. It doesn't make much sense for me to be here. *Yo no soy el/la del problema. No tiene mucho sentido que yo este aquí.*	○	○	○	○	○
6. It worries me that I might slip back on a problem I have already changed, so I am here to seek help. *Me preocupa que caiga de nuevo en un problema que ya he cambiado, por eso estoy aquí para buscar ayuda.*	○	○	○	○	○

SITE: 01 - 00 PART ID: ____ RELATION: 01 - 01 ASSESS DATE: __ __ / __ __ / __ __ __ __

	Strongly Disagree *Muy en Desacuerdo* (1)	Disagree *En Desacuerdo* (2)	Undecided *Indeciso* (3)	Agree *De Acuerdo* (4)	Strongly Agree *Muy de Acuerdo* (5)
19. I wish I had more ideas on how to solve my problem. *Desearía tener mas ideas sobre como resolver miproblema.*	O	O	O	O	O
20. I have started working on my problem but I would like help. *Empecé a trabajar en mi problema pero me gustaría tener ayuda.*	O	O	O	O	O
21. Maybe this place will be able to help me. *A lo mejor este lugar me podrá ayudar.*	O	O	O	O	O
22. I may need a push right now to help me maintain the changes I've already made. *Puede que necesite impulso (estímulo, empuje) ahora para que me ayude a mantener los cambios que ya he hecho.*	O	O	O	O	O
23. I may be part of the problem, but I don't really think I am. *Puede que yo sea parte del problema, pero realmente no pienso que lo soy.*	O	O	O	O	O
24. I hope that someone here will have some good advice for me. *Espero que alguien aquí tenga buenos consejos para mi.*	O	O	O	O	O
25. Anyone can talk about changing; I'm actually doing something about it. *Cualquiera puede hablar de cambiar; yo realmente estoy haciendo algo sobre el asunto.*	O	O	O	O	O
26. All this talk about psychology is boring, why can't people just forget about their problems. *Toda esta palabrería (conversación) de sicología es aburrida, porqué es que la gente simplemente no se olvida de sus problemas.*	O	O	O	O	O
27. I'm here to prevent myself from having a relapse of my problem. *Yo estoy aquí para prevenir recaer (caer de nuevo) en mi problema.*	O	O	O	O	O
28. It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved. *Es frustrante, pero siento que pueda estar recayendo (cayendo de nuevo) en un problema que pensaba había resuelto.*	O	O	O	O	O
29. I have worries but so does the next guy. Why spend time thinking about them? *Yo tengo preocupaciones pero también las tiene cualquier otro. ¿Porqué gastar tiempo pensando en ellas?*	O	O	O	O	O
30. I am actively working on my problem. *Yo estoy activamente trabajando en mi problema.*	O	O	O	O	O

SITE: 01 - 00 PART ID: ____ RELATION: 01 - 01 ASSESS DATE: ___/___/_____

	Strongly Disagree *Muy en Desacuerdo* (1)	Disagree *En Desacuerdo* (2)	Undecided *Indeciso* (3)	Agree *De Acuerdo* (4)	Strongly Agree *Muy de Acuerdo* (5)
31. I would rather cope with my faults than try to change them. *Yo preferiría lidiar con mis defectos que tratar de cambiarlos.*	O	O	O	O	O
32. After all I had done to try and change my problems, every now and again it comes back to haunt me. *Después de todo lo que había hecho para tratar de cambiar mis problemas, de vez en cuando vuelven a rondarme (perseguirme).*	O	O	O	O	O

Comments *Comentarios:*

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