CHAPTER III

RESEARCH DESIGNS AND METHODS

There were two objectives of this study. The first was to identify factors influencing condom use for preventing HIV/AIDS among MSWs in gay bars and gay massage parlours in Chiang Mai province, by using elements taken from the ARRM. The second objective was to develop the HIV/AIDS prevention program based on the significant factors affecting condom use which were identified from phase I of the study. Finally, the HIV/AIDS prevention program was evaluated for effectiveness.

Research design of this study had two phases:

Phase I was a cross-sectional study which was used to identify factors influencing condom use for preventing HIV/AIDS among MSWs by using elements taken from the ARRM.

Phase II was a quasi- experimental design with one group's pre-test / post-test. This study aimed to develop and to evaluate the effectiveness of the HIV/AIDS prevention program for MSWs. The HIV/AIDS prevention program was a series of activities designed for enhancing the factors influencing condom use which were found from phase I.

The research methodology of each phase was presented as follows:

3.1 Research design phase I

A cross-sectional study was used to identify factors predicting condom use, based on the ARRM model. The significant predictors were used to design an HIV/AIDS prevention program for MSWs in phase II.

Population

The target population of this study was MSWs working in Chiang Mai province.

Samples

The sample was 200 MSWs working in gay bars and gay massage parlours in Chiang Mai province.

Sample selection

Participants were recruited from a pool of MSWs working in gay bars and gay massage parlours in Chiang Mai province. The sample size was estimated to be approximately 200 persons. The samples were selected equally from all gay bars and all gay massage parlours. The MSWs were selected using the following criteria:

Inclusion criteria

Participants of this study had to:

- be male aged over 20 years old
- have worked as MSWs, have been offering commercial sex for at least two weeks
- have worked at gay bars and gay massage parlours in Chiang Mai province
- understand and be able to communicate in the Thai language

Exclusion criteria

Persons with following criteria were excluded from the study if they:

- refused to be interviewed
- were not working in gay bars and gay massage parlours during the study period
- reported that they had HIV/AIDS

Sample size determination

Multiple logistic regression analysis was the analytical technique used in this study. Therefore, the sample size must be sufficient for regression analysis. The sample sizes of this study were calculated by using the formula

for multiple logistic regression analysis. With a sample size estimated of at least 190 persons:

$$N \geq (10 \times n) + 50$$
$$N \geq (10 \times 14) + 50$$
$$N \geq 190$$

When N = sample size, n = the total number of independent variables

In this study, the researcher included 10 additional samples for 5% missing of sample. This made a total of 200 samples recruited for this study.

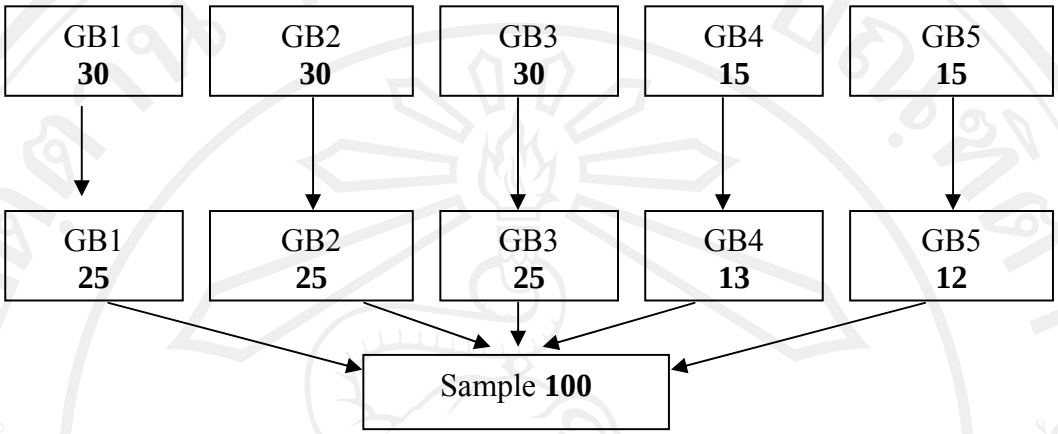
Sampling method

According to Mplus data (on January 21, 2010), there were five gay bars and twelve gay massage parlours in the Chiang Mai province. There were approximately 30, 30, 30, 15, and 15 MSWs working at these five gay bars. There were approximately 15, 10, 15, 15, 15, 20, 10, 30, 30, 10, 10, and 20 MSWs working at these twelve gay massage parlours. Based on assumption, subjects were equally selected from gay bars and gay massage parlours. Therefore, 100 participants were selected from gay bars and also 100 participants from gay massage parlours. MSWs were selected using proportional stratified random with using fraction, as following:

To obtain 100 participants from 5 gay bars, 25 samples must be recruited from the first gay bar. Additionally, 25, 25, 13, and 12 samples were selected from other gay bars, respectively. MSWs in each gay bar were selected by using simple random sampling by drawing the sample name without replacement, as shown in figure 3.

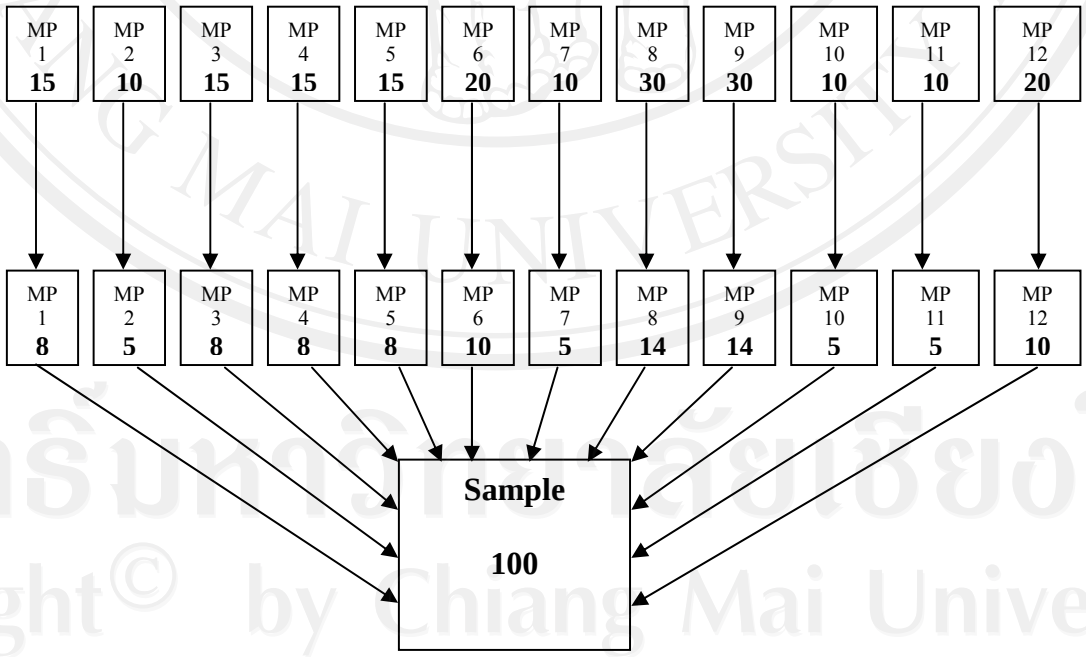
Similar method was used for selecting samples from gay massage parlours, figure 4 shown the study's sampling method.

Figure 3: Steps in sample selection from gay bars



GB = Gay bar

Figure 4: Steps in sample selection from 'gay massage parlours'



MP = Massage parlours

Instrument

The data collection tool for this study was a questionnaire which was divided into two parts, as follows: (see the appendix I)

Part 1: Demographic characteristics of MSWs, including age, nationality, living status, educational level, income, work experience, and history of STDs.

Part II: Psychosocial factors, selected from constructs of the ARRM and from the studies of Conner, Stein, & Longshore (2005), Brecht, Murphy, & Evans (2009) and Kaljee et al. (2005). This part of the questionnaire covers eight areas:

i) **Perceived infection risk** or the person's perceived chance of contracting AIDS.

This element of the study used five statements to measure perceived infection risk of participant. For example: "You've already done things that could have exposed you to AIDS" or "You have chances of getting AIDS". The respondents were asked to rank his answer using five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5). The sum of participant's scores (ranging from 5 to 25) reflected their 'perceived infection risk' - a higher score indicating a higher perceived risk.

ii) **AIDS knowledge** or knowledge about sexual routes transmission and prevention of HIV/AIDS.

This element of the study used ten statements to measure AIDS knowledge of the participant. For example: "AIDS only affects gay men" or "Anal sex is the only form of sexual contact that can expose people to AIDS". On the AIDS knowledge scale, the response are "yes", "no" or "not sure". For the purposes of this analysis, both "no" and "not sure" hold a score of 0 and "yes" holds a score of 1. Thus, the sum participant's scores (ranging from 0 to 10) reflected their level of 'AIDS knowledge' – a higher score indicating a higher level of knowledge.

iii) **Peer norms** or belief of peers approval or disapproval to condom use behavior of MSWs. This element of the study used the following four statements:

i) "Your co-workers think you should use condoms when you have sex"

ii) "Your owner thinks you should use condoms when you have sex"

iii) “Your boy/girl friend thinks you should use condoms when you have sex”

iv) “Your client thinks you should use condoms when you have sex”

Participants were asked to rank their answers using a five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5). The sum of participant's scores (ranging from 4 to 20), with higher score indicating a stronger belief of approval of co-worker, owner, boy/girl friend and client to condom use behavior of MSWs.

iv) **Cues to action** or being prompted into action by receiving advice promoting condom use. This element of the study used six statements. For example, “You use condoms after engaging in a conversation with a health care provider”. The respondent was asked to rank his answer using the same five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5). The sum of participants score (ranging from 6 to 30) identified triggers for condom use behaviour. The higher scores reflect a better trigger for the promotion of condom use amongst MSWs.

v) **Self–efficacy** or participant's confidence in his ability to exercise condom use.

Five statements were used in this element of the study. For example, "Using condoms is easy for you" or "You will not have sex if the partner refuses to use a condom". Using the five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5), the sum of participant's score (ranging from 5 to 25) represented their confidence in using condoms. Higher scores indicated a higher level of perceived self-efficacy.

vi) **Respond self–efficacy** or beliefs about the efficacy or benefits of the condom.

This element of the study focused on just one statement: "Using condoms prevents the chance of getting AIDS". Again, the respondent was requested to rank his answer using the five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5). Participant's score (ranging from 1 to 5) represented his belief about the efficacy or benefits of the condom as a preventative measure for reducing the risk of AIDS transmission. A higher score indicates a higher beliefs response efficacy.

vii) **Intention to use condoms**

This element of the study was measured using three statements:

i) “In the future you will use condoms during vaginal sex”

ii) “In the future you will use condoms during anal sex”

iii) “In the future you will use condoms during oral sex”

On the 'intention to use condoms' scale, the responses are “yes”, “no” or “not sure”. For the purposes of this analysis, both “no” and “not sure” hold a score of 0 and “yes” as 1.

viii) **Condom use**

This element of the study relates to condom use behaviour amongst MSWs. When answering this section of the questionnaire, participants were asked to answer in accordance to the most recent time that they participated in anal, vaginal or oral sexual relations with a paying customer. Three statements were used here:

i) “In the past month you used condoms when you had anal sex”

ii) “In the past month you used condoms when you had oral sex”

iii) “In the past month you used condoms when you had vaginal sex”

On the condom use scale the responses are “every time”, “sometimes” or “never used”. For the purposes of this analysis, both “never used” and “sometimes” hold a score of 0 and “every time”, 1.

Validity and reliability

Validity

An English version of any instruments for this study were translated and modified into Thai by the researcher. The content validity of the instruments was determined by a group of three experts who work in the area of HIV/AIDS and academia. The researcher asked these experts to evaluate whether the items were elevated to the objectives and whether they provided accurate and comprehensive data in accordance to the aims of the study.

Reliability

After the instruments were revised and adjusted, based on feedback received from the experts, they were tested with 30 MSWs who work in gay bars and gay massage parlours, with similar characteristics to the target population of MSWs. The MSWs were asked to complete and return the revised questionnaires. Researchers would be on site to collect all completed questionnaires. The Cronbach's Alpha Coefficient was used to calculate the internal consistency of the questionnaire. The value for internal consistency was calculated, based on the cut point being either equal to or more than 0.7. The alpha coefficient of all items was 0.77 which was the reliability value of the instruments dividing its value of each factor as follows.

The reliability of AIDS knowledge of 10 items was .72. The reliability of perceive infection risk of 5 items was .73. The reliability of peer norm of 4 items was .84. The reliability of cue to action of 6 items was .85. The reliability of perceive self-efficacy of 5 items was .89.

Data collection

All data was collected by the researcher and interviewers. The data collection process was divided into two stages: a 'preparation stage' and a 'data-collection stage':

Preparation Stage

The researcher trained two interviewers who were health volunteers working with MSWs in Chiang Mai from Mplus, to reduce interviewer bias. The researcher explained the purposes of the study, method, procedure and meaning of the different sections of the questionnaire to the interviewers, who would then be trained to perform data-collection.

The researcher met the owner of each gay bar and each gay massage parlour to request their full co-operation in the study and to explain the procedures and objectives of study. Also, recommendation letters from the Faculty of Graduate Studies, at Chiang Mai University was set to the owners of all gay bars and gay massage parlours in order to obtain provisional permission to conduct the research.

Data-Collection Stage

Since the sample group was selected from two different types of workplace: 'gay bars' and 'gay massage parlours', one must account for different operating hours. For MSW participant's based in gay bars, interviewers conducted and collected their completed questionnaires before the start of their working hours (7.00 pm). For those MSW participants based in gay massage parlours, interviewers conducted and collected their completed questionnaires during working hours (9.00 am - 2.00 pm) to ensure a complete data collection sample.

Data was collected as follows:

i) The interviewers explained the procedure and objectives of the study to participate MSWs. The participating MSWs were informed of their human rights protection and were asked to sign a consent form, confirming the agreement to participate in the study.

ii) The interviewers collected data from participating MSWs using questionnaires, developed by the researcher. The interviewers asked participants for their demographic details and recorded the responses to each section, which may use either closed, or open-ended questions or statements.

iii) After the questionnaires have been completed and returned to the researcher, the researcher checked for completeness of the information provided. If certain information was missing, the interviewer asked the participant to complete their answers to the questionnaire.

Data Analysis

Data was analyzed using the Statistical Package for the Social Sciences (SPSS), a computer software package for windows version 16.0 (Vanichbuncha, 2005). To answer research questions, descriptive and inferential statistics were used. The alpha level for significance was set at .05.

Descriptive statistics, in terms of frequency, percentage, mean and standard deviation were used to analyze the demographic factors (age, nationality, living status, educational level, work experience, income, and history of STDs).

Mean and standard deviation were used to analyse the psychosocial factors (perceived infection risk, peer norms, AIDS knowledge, cues to action, perceived self–efficacy and respond self–efficacy).

For frequency and percentage were used to analyse intention to use condoms and condom use.

Multivariate logistic analysis was used to identify independent effects of each factor, the two main outcomes include; intention to use condoms and condom use behavior. Bi-variable analysis was subsequently performed to determine the unadjusted association between main outcomes and potential factors. Only factors significantly associated with intention to use condoms and condom use in bi-variate analysis were entered into a multivariable logistic regression model. Variables were included in a multivariable model if they presented a p - value ≤ 0.05 in bi-variate analysis. This study analyzed the behavior of preventing HIV/AIDS by dividing the three types of sexual behavior; condom use for vaginal sex, anal sex, and oral sex.

3.2 Research design phase II

A quasi- experimental design with one group's pre-test / post-test was used in this study. The researcher collected the data before intervention, immediately after the intervention, and again one-month and three months after providing the intervention, as shown in figure 4. Because some behaviors could be changed over time, therefore this study has to be tested at 3 points after the intervention.

Figure 5: Research design of Phase II study

	Pre-test		**Post-test**		
	O_1	**X**	**O_2**	**O_3**	**O_4**
Time (month)	**before intervention**		**0**	**1**	**3**

O_1: outcomes before intervention

O_2: outcomes immediately after providing the intervention

O_3: outcomes one month after the intervention

O_4: outcome three months after the intervention

X: the HIV/AIDS prevention program

Population

The populations of this study were MSWs working in gay bars and gay massage parlours in Thailand.

Samples

Study participants were 160 MSWs. There were 80 MSWs working in gay bars and 80 MSWs working in gay massage parlours.

Inclusion criteria

Participant of this study had to:

- be male aged over 20 years old
- have worked as MSWs, have been offering commercial sex for at least two weeks
- have worked at gay bars and gay massage parlours in Chiang Mai
- understand and be able to communicate in the Thai language
- volunteer to take part in this study

Exclusion criteria

Person with following criteria were excluded from the study if they:

- could not participate in all activity of the study
- reported that they have HIV/AIDS

Sample size determination

The sample size was calculated using the STATA statistical software**.** The main outcome in this study was the proportional on condom use. The sample size calculation was based on the results of Kelly et al. (2003) study. They evaluated a social network HIV prevention program for young men who have sex with men in

Russia and Bulgaria which main outcome and population similarly to this study. They observed the proportional on condom use of 0.50 at before intervention and 0.62 after intervention. The alpha level for significance was set at .05 and power of the test at .80. The sample size of this study was equal to or more than 134 persons. In this study, the researcher included 26 additional samples for 20% loss to follows up. This made a total of 160 samples recruited for this study.

Sample selection

MSWs were recruited from a pool of MSWs working in gay bars and gay massage parlours in Chiang Mai province by using cluster random sampling. According to Mplus data (on January 21, 2010), there are approximately 120 MSWs working in gay bars and additional 200 MSWs working in gay massage parlours. To include data representing MSWs in both with gay bars and gay massage parlours equally, 50% (80 MSW participants) were selected from gay bars and another 50% (80 MSW participants) from gay massage parlours.

A cluster random sampling was used as the sampling method because the selected intervention would be a group method. To prevent data contamination, clusters of working place (gay bars and gay massage parlours) was used as a sampling unit.

To obtain 80 MSWs in each group for phase II of the study, 3 gay bars from 5 gay bars and 5 gay massage parlours from 12 gay massage parlours were selected by using simple random sampling. However, if the total number of MSWs were <80 in each group, another simple random sampling of gay bars and gay massage parlours would be performed.

Intervention

HIV/AIDS prevention program

This HIV/AIDS prevention program was a series of activities designed for enhancing the factors influencing condom use which were found from phase I of the study. The results of phase I found that factors influencing condom use for vaginal sex, anal sex, and oral sex were increasing age, AIDS knowledge, perceived self-efficacy, peer norm, and intention to use condom for oral sex. Thus, the HIV/AIDS

prevention program should be designed to increase these constructs. The program should include activities to increase knowledge about transmission and prevention of HIV/AIDS, increasing self-efficacy, and executing group activities of peer norm (as shown in table 1). The intervention was conducted in a small group environment facilitated by the researcher. The HIV/AIDS prevention program was composed of 3 sessions (8 activities). Each session took 45 minutes to 1 hour to complete (as shown in figure 6) and was conducted in successive weeks.

Session I (week 1)

Session I was composed of four activities.

Activity 1: Making a relationship

The purpose of Activity 1 was to establish the relationships between the researcher and the MSWs. It provided the MSWs with the objectives of the program and the characteristics of the activities. The hope was to create trust, cooperation and a sense of security between the participating MSWs and the researcher, through participation in these group activities.

Activity 2: Introduction to HIV/AIDS and condom use

The purpose of the Activity 2 was to provide the participating MSWs with AIDS infection risk and AIDS knowledge. This study has encouraged the participants to realize how much their occupational risk in contracting AIDS could possibly be through the water exchange activity game. The water exchange activity was a game to which the researcher used to stimulate perceived infection risk. Sodium hydroxide or caustic soda, assorted Phenolphthalein and water was filled into a glass, separated each substance then separates based on the density levels of each liquid. Then, each participant was distributed a glass with the 3 sampling substances along with a syringe. After that, the participants were instructed to get in pairs and extract half a syringe worth of water from their own glass and eject it into their partner's glass. The participant was instructed to observe the water in his own glass. They then found out that the water's color turned to purple. At the last period of the activity, the researcher asked the participants for their observed outcome and a summarization of the activity. This activity was supposed to enhance the knowledge that having sexual

relations with many people without any protection could risk AIDS affection. Then, the researcher provided general information about HIV/AIDS, including the causes of AIDS, transmission, symptoms, diagnosis, treatment and prevention. The researcher supported this information with media to provide additional information about AIDS, including VDO about the symptoms during each stage of HIV/AIDS, pictures presenting the severity of AIDS, flip-chart about AIDS and pamphlets about AIDS. (see the appendix V)

Activity 3: Discussion to share ideas about making condom use more fun

The purpose of the Activity 3 was to develop attitude toward condom use of MSWs. Focus group discussions were used in this activity for inducing the idea sharing and for setting group commitment regulation in HIV/AIDS prevention program. The focus group discussion was a group discussion of approximately 6 - 12 persons guided by the researcher. The researcher led the group in a discussion to share ideas about how to make using condoms more enjoyable. The researcher distributed different kinds of condoms and lubricants and provided some starter ideas. Those ideas provided emphasis on safe use of condoms as well as suggested techniques for the most preventive efficacy result. The MSWs generated and discussed new ideas, and discussed how their ideas might work with different types of partners, especially paying partners. Ideas were recorded on flip charts.

Activity 4: Preparing a personal condom-use plan

The purpose of the Activity 4 was to promote intention to use condom within MSWs. MSWs prepared a personal condom-use plan. To prepare their plans, MSWs were asked to write their personal plan on a form. The plan was reviewed by the researcher for problems that may interfere with successful implementation. Copies of the plan were kept by the MSW and the researcher to analyze whether the sampling groups had executed according to the plan or not and how. If they did or did not follow the plan, they were asked to include the reasons of doing or abandoning the plan as well. The MSWs would then be asked to implement their personal condom-use plan with a sexual partner within 48 hours.

Session II (week 2)

Session II was composed of two activities.

Activity 5: Review of personal condom-use plans

The purpose of Activity 5 was to develop peer norms among MSWs. The researcher returned to gay bars and gay massage parlours in the next course of activities to participating MSWs. This activity aimed to reinforce what the participants were taught in the first session.

The activity was a review of the personal condom-use plans. On review, MSWs discussed what they intended to do and their level of success when they attempted to implement their plan. If a plan was not successful, the group discussed the reasons why they were unsuccessful and proposed ideas that might enhance future implementation. If a plan was successful, the group explored the reasons for its success and generated ideas that might lead to more fun or enjoyable condom use experiences. In this activity, MSWs who had success on their personal condom-use plans would share ideas with co-workers about their success in using condoms.

Activity 6: Regenerate personal condom-use plans

Personal condom-use plans were regenerated and written on cards, which were kept by MSWs. This activity was to promote intention to use condoms within MSWs.

Session III (week 3)

Session III was composed of two activities.

Activity 7: Refusal skills training

The purpose of Activity 7 was to practice communication and improve self-efficacy on talking about condom use by MSWs with their partners. This activity promoted the MSWs' ability to initiate conversations with their partners about how to refuse sex if the partner refuses to use a condom during oral, anal or vaginal sex. In this activity, the researcher trained the MSWs to assert their right to decline sexual intercourse without a condom. The researcher suggested situations and asked the MSWs to practice their refusal communication skills with each other.

Activity 8: Prepare a personal condom-use plan

Personal condom-use plans were written on cards, which were kept by MSWs. The MSWs implemented their plans and review whether they had followed the plans or not.

Table 1 Activity and Goals/ Aims of HIV/AIDS prevention program

Activity	Goals/ Aims
Session I	
1.Making a relationship	-To establish the relationships between the researcher and MSWs
2. Introduction to HIV/AIDS and condom use	- To provide the participating MSWs with AIDS infection risk and AIDS knowledge
3. Discussion to share ideas about making condom use more fun	- To develop attitude toward condom use
4. Preparing a personal condom use plan	- To promote intention to use condom
Session II	
5.Review of personal condom use plans	- To develop peer norm
6. Regenerate personal condom use plan	- To promote intention to use condom
Session III	
7. Refusal skills training	- To improve self-efficacy
8. Regenerate personal condom use plan	- To promote intention to use condom

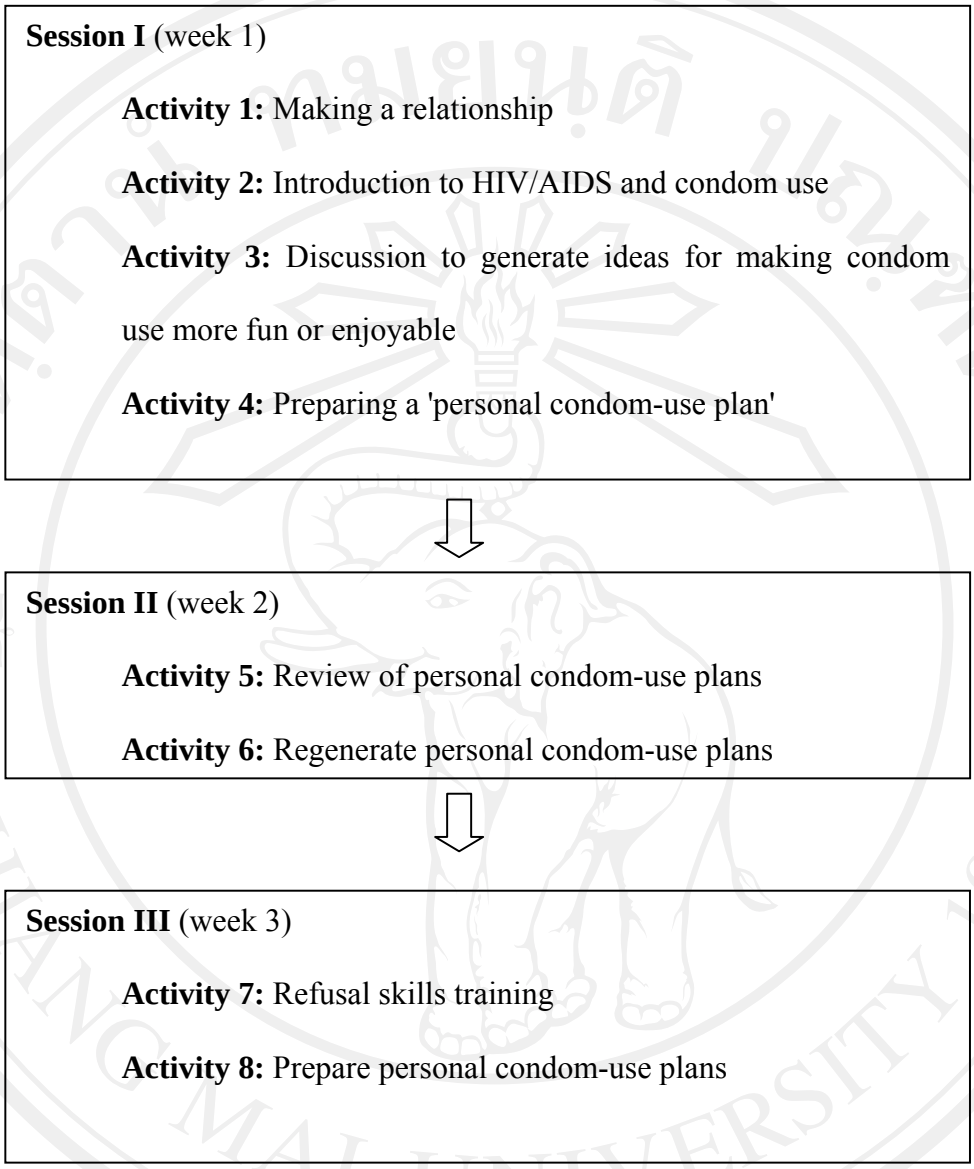


Figure 6: Flow chart of HIV/AIDS prevention program

Implementation of the program

Since the sample group was selected from two different types of workplace: gay bars and gay massage parlours, one must account for different operating hours. Thus, program implementation for the two workplaces took place at different times. Intervention with participating MSWs working in gay bars took place before working hours commence (7.00 pm – 9.00 pm). Intervention with participating MSWs working in gay massage parlours was taken place during working hours (4.00 pm - 7.00 pm).

The procedure for providing the HIV/AIDS prevention program would be as follows:

i) The researcher explained the objectives and the procedures of the study to all participating MSWs. Participants were asked to sign the consent form before participating the study.

ii) Demographic data was collected and a pre-test of AIDS knowledge, attitudes toward condom use, self-efficacy, intention to use condom and condom use were conducted using a questionnaires.

iii) The sample group received the HIV/AIDS prevention program over the course of the following three weeks.

iv) Immediately after intervention, one month after, and again three months after intervention, MSWs were requested to complete questionnaires. This data was collected by the researcher. A follow-up interview would also be performed with MSWs, to assess AIDS knowledge, perceive infection risk, peer norm, attitude toward condom use, self-efficacy, intention to use condom and condom use.

v) The data was analyzed by the researcher.

Study instruments

The primary data collecting tools were the questionnaires which were similar in Phase I of the study but Phase II of the study contained an additional factor; attitudes towards condom use. The questionnaires in Phase II were divided into two parts: (see the appendix II)

Part I of the questionnaire was the demographic characteristics section. It identified information about the participating MSWs, including their age, nationality, living status, educational level, income, working experience, and history of STDs.

Part II of the questionnaire was the psychosocial factors section. This part of the questionnaire covers seven groups of variables developed by the researcher. Areas covered include: AIDS knowledge, perceived infection risk, peer norms, self–efficacy, intention to use condoms, and condom use. All of the six factor questions had been brought up in phase I study.

Phase II study contained an additional factor; attitudes towards condom use which was composed of five statements reflecting beliefs about the efficacy of the condom. Sample statements were, "Using condoms prevents the chance of getting AIDS" or " The proper use of a condom could enhance sexual pleasure". A five-point Likert-type scale were used to rate answers for each statement, ranging from strongly disagree (1) to strongly agree (5). The sum of scores (ranging from 5 to 25) reflected participant's attitudes toward condom use. The higher score, the more likely they are to use condoms.

Validity and reliability

The questionnaire of the Phase II study was similar to the questionnaire was used of Phase I which had already been tested for validity and reliability. It reliability was more than 0.7.

Data analysis

Data was analyzed by using the Statistical Package for the Social Sciences (SPSS), a computer software package for windows version 16.0 (Vanichbuncha, 2005). To answer research questions, descriptive and inferential statistics were used. The alpha level for significance set at .05.

The repeated measurements of ANOVA was used to compare difference on the mean scores of AIDS knowledge, perceive infection risk, peer norm, attitude toward condom use, and perceived self–efficacy in HIV/AIDS prevention across time (before intervention, immediately, one month and three month after intervention).

McNemar's test was used to test the difference between proportions of participants who had changed their intention to use condoms and condom use before and after intervention.

Protection of human subjects

Before the research was carried out, the study was submitted to the 'Human Rights Research Board Committee of the Faculty of Graduate Studies' at Chiang Mai University. The researcher would inform participants of their human rights protection. The researcher clearly explained the purposes of the study and the data

collection procedure including the duration and the expected outcome. Participants had the right to refuse to participate in any part of the study. They might also withdraw entirely from the study at any time, if they wish. A decision to withdraw from the study would not affect participants in any way. If the participants agreed to participate in the study, the participants would give a signed in consent form (see the Appendix III, IV). Participants received 100 baht for each activity. Moreover, they received additional 100 baht for completing the questionnaire. The confidentiality of participant's questionnaires would be maintained using code numbers. No names or any identifying information were used in data analysis or discussion. The results were reported as group data.

Location

Study was conducted in gay bars and gay massages parlours in Muang District, Chiang Mai province**.** These establishments were under the support and supervision of the M-plus organization.