

FACTORS RELATED TO UNPROTECTED SEX IN MEN HAVING SEX WITH MEN
(MSM) IN MANDALAY, MYANMAR

MR MYO ZIN OO

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health Program in Public Health
College of Public Health Sciences Chulalongkorn University

Academic Year 2011

Copyright of Chulalongkorn University

บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)
เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ที่ส่งผ่านทางบัณฑิตวิทยาลัย

The abstract and full text of theses from the academic year 2011 in Chulalongkorn University Intellectual Repository (CUIR)
are the thesis authors' files submitted through the Graduate School.

ปัจจัยที่เกี่ยวข้องกับการมีเพศสัมพันธ์ที่ไม่ได้ป้องกันระหว่างชายและชาย ในเมือง

มณฑลพะเยา ประเทศพม่า

MR MYO ZIN OO

วิทยานิพนธ์เข้าเป็นส่วนหนึ่งของความต้องการ

สำหรับปริญญาโทบัณฑิตสาขาวิชาสาธารณสุขในงานสาธารณสุข

วิทยาลัยการสาธารณสุขศาสตร์จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2011

ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title FACTORS RELATED TO UNPROTECTED SEX IN MEN
 HAVING SEX WITH MEN (MSM) IN MANDALAY,
 MYANMAR
By Mr. Myo Zin Oo
Field of Study Public Health
Thesis Advisor Alessio Panza, M.D, M.Com.H,D.T.M&H

Accepted by College of Public Health Sciences, Chulalongkorn University in
Fulfillment of the Requirement for Master's Degree

.....Dean of the College of Public Health
 Sciences

(Professor Surasak Taneepanichskul, M.D.)

THESIS COMMITTEE

.....Chairman

(Assoc. Prof. Sathirakorn Pongpanich, Ph.D.)

.....Thesis Advisor

(Alessio Panza, M.D, M.Com.H, DTMH)

.....Examiner

(Asst. Prof. Khemika Yamarat, Ph.D)

.....External Examiner

(Nanta Auamkul, MD, M.P.H)

5478809153: สาธารณสุข

คำสำคัญ: เพศสัมพันธ์ที่ไม่ได้ป้องกัน, ผู้ชายที่มีเพศสัมพันธ์ด้วยกัน (กรณีศึกษา เมืองมัตตะเลย์ ประเทศสหภาพเมียนมาร์), เอชไอวี/เอดส์

เหมียวชิน โอ ; ปัจจัยที่มีส่วนเกี่ยวข้องกับการไม่ได้ป้องกันในการมีเพศสัมพันธ์ระหว่างชายกับชาย : กรณีศึกษา เมืองมัตตะเลย์ ประเทศสหภาพเมียนมาร์ อาจารย์ที่ปรึกษา: อเล็กซิโอ พันซา

(Alessio Panza, M.D, M.Com.H,D.T.M&H)

เชื้อเอชไอวี หรือ เอดส์ได้กระจายตัวและเป็นโรคภัยไข้เจ็บที่แพร่หลาย นอกจากนั้นยังเป็นปัญหาที่สำคัญต่อสุขภาพของคนทั่วโลกโดยเฉพาะอย่างยิ่งในกลุ่มรักร่วมเพศในเพศชาย การศึกษาภาคตัดขวางในครั้งนี้อาศัยเกี่ยวกับปัจจัยที่มีส่วนเกี่ยวข้องกับการไม่ได้ป้องกันในการมีเพศสัมพันธ์ระหว่างชายกับชาย : กรณีศึกษา เมืองมัตตะเลย์ ประเทศสหภาพเมียนมาร์ เป็นการศึกษากลุ่มชายที่มีเพศสัมพันธ์ระหว่างกันมีอายุระหว่าง 15-50 ปี จำนวนทั้งหมด 309 คน จาก 7 เขตการปกครองเมืองมัตตะเลย์ ประเทศสหภาพเมียนมาร์ ซึ่งถูกเลือกมาเป็นการสุ่มตัวอย่างโดยการสุ่มตัวอย่างแบบสโนว์บอล ใช้การวิเคราะห์การถดถอยโลจิสติก โดยการวิเคราะห์ตัวแปร 2 ตัวแปร เพื่อเลือกปัจจัยที่เป็นตัวแปรอิสระ ($p\text{-value} < 0.25$) และผลที่ได้เกิดจากการวิเคราะห์แบบ Backward : Wald เป็นเทคนิค Backward stepwise เทคนิคหนึ่งโดยที่การทดสอบตัวแปรของสมการถดถอยโลจิสติก จะขึ้นกับค่าความน่าจะเป็นสถิติ Wald โดยมีระดับนัยสำคัญทางสถิติอยู่ที่ 0.05

ผลการศึกษาจาก 309 คน พบว่า 17.5% เป็นเพศชายที่มีความเป็นชาย และ 62.1% เป็นเพศชายที่มีความเป็นหญิง ขณะที่ 20.4% เป็นเพศชายที่มีทั้งความเป็นชายและความเป็นหญิงในตัวเอง 55.7% ทำงานเกี่ยวกับด้านแฟชั่น 56.6% จะใช้ถุงยางอนามัยในการร่วมเพศทางทวารหนักกับคู่นอนในระยะเวลา 4 เดือนที่ผ่านมา จากการวิเคราะห์ตัวแปรทั้ง 2 นั้นแสดงให้เห็นว่า การมีเพศสัมพันธ์ทางทวารครั้งแรกส่งผลต่อโรคเอดส์ในระยะเวลา 4 เดือนแรก ($p < 0.001$) และจะใช้ถุงยางก็ต่อเมื่ออายุมากขึ้น ซึ่งการถูกบังคับให้มีเพศสัมพันธ์และการใช้ถุงยางมีค่า $p\text{-value} = 0.010$ และในการวิเคราะห์หตุตัวแปรนั้นพบว่าอายุไม่ได้มีนัยยะสำคัญต่อการใช้ถุงยางอนามัย ($p\text{ value} < 0.05$) ($p = 0.039$) และการถูกบังคับให้มีเพศสัมพันธ์นั้นค่านัยยะสำคัญอยู่ที่ $p = 0.009$)

สำหรับความพึงพอใจต่อองค์กรที่ให้ความช่วยเหลือนั้นพบว่า ค่อนข้างพึงพอใจ เนื่องจากองค์กรได้ให้ข้อมูลและทักษะการฝึกอบรมนอกจากนั้นองค์กรยังมีกลุ่มเพศชายที่มีความเป็นหญิงในตัวเอง ที่ได้เข้ามาเป็นส่วนหนึ่งขององค์กรซึ่งจะช่วยสร้างช่องทางในการสนับสนุนข้อมูลที่ถูกต้องและการรณรงค์ให้ใช้ถุงยางอนามัยสำหรับกลุ่มชายรักชายได้ ข้อเสนอแนะสำหรับการศึกษาในครั้งต่อไป ควรใช้การศึกษาเชิงคุณภาพร่วมด้วยโดยใช้ข้อมูลเชิงปริมาณเป็นฐานในการสร้างข้อคำถามเพื่อจะได้ทราบเหตุผลอื่นๆ ของการไม่ใช้ถุงยางอนามัย

สาขาการศึกษา : สาธารณสุข ลายเซ็นนักเรียน

ปีการศึกษา : 2011 ลายเซ็นอาจารย์ที่ปรึกษา

##5478809153: MAJOR PUBLIC HEALTH

KEY WORDS: UNPROTECTED SEX, MSM, HIV/AIDS

MYO ZIN OO; FACTORS RELATED TO UNPROTECTED SEX IN MEN HAVING SEX WITH MEN(MSM) IN MANDALAY, MYANMAR, THESIS ADVISOR: ALESSIO PANZA, M.D., MPH, DTMH&H

HIV/AIDS is the widely spread communicable disease and major public health problem of the world among MSM. The main aim of this study was to study the factors related to unprotected sex among MSM in Mandalay, Myanmar.

A cross-sectional survey was carried out in Mandalay, Myanmar. For this study MSM aged between 15 to 50 years of total 309 MSM from seven townships were studied. Mandalay was selected by using purposive sampling method and MSM were identified by using Snow ball sampling methods. Simple logistic regression analysis is adopted in the stage of bivariable analysis in order to select appropriate independent factors for further binary logistic analysis with p value <0.25 and for further indicate factors independently associated with the outcome and to identify the relative importance among determinants, binary logistic regression analysis using ‘backward Wald’ stepwise method is used at significant level of 0.05.

Among three kinds of 309 of respondents, 17.5 % was *Apone* (Musculine MSM), 62.1 % was *Apwint* (Feminine MSM) whereas 20.4 % was *Tha Nge* (Bisexual). 55.7% worked as Nat-Kadaw (Spirit medium) and worked in fashion sectors. Always condom use for anal sex with partner in the past 4 months was only 56.6%.

In bivariate analysis, the results showed that age at first anal sex with a man was positively associated with condom use for anal sex with partner in the past 4 months ($p < 0.001$) and used condom more as age older. There was strongly and positively association between forced to have sexual intercourse against will and condom use having p-value 0.010. In multivariate analysis, Current age was that was not significant at p value of <0.05 associated in bi-variate become to be positively associated with the use of condoms with sexual partner ($p = 0.039$). Forced to have sex against will and condom use maintained significant ($p = 0.009$).

For the service satisfaction given by the organization is highly satisfied by the respondents but there is still need to provide focused information and life skills training. MSM organizations should involve *Apwint* (Feminine MSM) in their work more extensively because they are the best channel to convey information and distribute condom to other kind of MSM. For further study, investigate the reasons for non condom use among MSM by using qualitative research and specific questions in questionnaire based quantitative research. It is necessary to update published information about the reasons for no condom use because these reasons keep change over time.

Field study :Public Health.....

Student’s signature

Academic Year :2011.....

Advisor’s signature

ACKNOWLEDGEMENTS

First, I would like to express my heartfelt appreciation to my advisor Dr Alessio Panza for his guidance, valuable advice, inspiration, encouragement and support to complete the research. I also love to express my sincere appreciation to Assoc. Prof. Sathirakorn Pongpanich, Dr Khemika Yamarat and Dr Nanta Auamkul for their valuable advice and kind support during my study.

I am delighted to express my special thanks to Dr Zaw Htun Waing (Deputy Director at UNION, INGO) and Prof: Dr San San Myint Aung (Rector at University of Community Health, Magway) for all their truthful proper guidance and valuable suggestions.

I am grateful to thanks Ms Phyto, leader of “The Help” MSM organization (CBO) and her fellowships, Mr Kyaw Kyaw Htwe and total of 309 respondents for their kindly help to conduct the survey

I also would like to thank all my teachers and staffs at College of Public Health Sciences, Chulalongkorn University for their academic and administrative supports. I wish to extend my special thanks to my colleagues sharing their experiences during our study times.

Finally, my heartfelt thanks to my parents, brothers, Dr Nay Zaw Htet and my beloved Dr Soe Sandi Tint for their infinite love, kindness, understanding and moral support throughout my study.

CONTENTS

	Page
ABSTRACT IN THAI	3
ABSTRACT IN ENGLISH	iv
ACKNOWLEDGEMENTS	vi
CONTENTS	vii
LIST OF TABLES	xi
LIST OF ABBREVIATIONS	xiii
CHAPTER I: INTRODUCTION	1
1.1 Background	1
1.2 Research Question.....	2
1.3 Research Objectives	3
1.3.1 General objective	3
1.3.2 Specific Objectives	3
1.4 Research Hypothesis	3
1.5 Conceptual Frame work	4
1.6 Operational definitions.....	5
1.6.1 Socio-demographic characteristics	5
1.6.2 Sexual history.....	5
1.6.3 Knowledge and attitudes about HIV/AIDS	6
1.6.4 Life skills	6
1.6.5 Access of MSM orientated services	6
1.6.6 Condom use	7
1.6.7 Men who have sex with men	7
1.6.8 Unprotected sex	7
1.6.9 Access of MSM orientated services	7
CHAPTER II: LITERATURE REVIEW	8

	Page
2.1 HIV epidemic and MSM.....	8
2.2 HIV/AIDS and MSM in Asia.....	8
2.3 HIV/AIDS and MSM in Myanmar	9
2.4 Size and Typologies of MSM populations.....	9
2.5 MSM and Condom use in Myanmar.....	10
2.6 Socio-demographic characteristics, knowledge & attitudes and life skills which influencing condom use	10
2.7 Sexual history.....	11
2.8 Knowledge and Attitudes about HIV/AIDS	11
2.9 Life Skills and condom use.....	12
2.10 Access to MSM services	12
CHAPTER III:RESEARCH METHODOLOGY	14
3.1 Study design.....	14
3.2 Study Area.....	14
3.3 Study population	14
3.4 Research criteria.....	14
3.4.1 Inclusion criteria	14
3.4.2 Exclusion criteria	14
3.5 Sample size	14
3.6 Study period	15
3.7 Sampling technique.....	15
3.8 Data collection tools.....	16
3.9 Data collection process	19
3.10 Reliability and Validity	20
3.11 Data entry and data Analysis Process	211
3.12 Limitation of the study	21
3.13 Ethical consideration.....	21

	Page
3.14 Benefits and outcomes	22
CHAPTER IV:RESULTS	23
4.1 Socio-demographic Characteristics.....	23
4.2 Sexual history.....	24
4.3 Condom use in the past 4 months	26
4.4 Condom use after drinking alcohol and drug use	27
4.5 Lubricant use during anal sex	28
4.6 Sexual abuse.....	29
4.7 Life skills.....	30
4.8 Knowledge on HIV/AIDS prevention and transmission.....	31
4.9 Attitude on HIV/AIDS	32
4.10 Specific services for MSM used by respondents	33
4.11 Satisfaction upon specific services for MSM	34
4.12 Association between socio-demographic factors and condom use for anal sex with partner in the past 4 months	366
4.13 Association between sexual histories and condom use for anal sex with partner in the past 4 months.....	37
4.14 Association between sexual histories of alcohol drinking, place of sex, give or receive presents and condom use for anal sex with partner in the past 4 months.....	39
4.15 Association between history of lubricant used and condom use for anal sex with partner in the past 4 months	41
4.16 Association between forced sex and condom use for anal sex with partner in the past 4 months.....	41
4.17 Association between knowledge, attitude and condom use for anal sex with partner in the past 4 months	42
4.18 Association between life skills and condom use for anal sex with partner in the past 4 months.....	43
4.19 Association between the used of specific services for MSM associated with condom use for anal sex with partner in the past 4 months	45

	Page
4.20 Association between the level of satisfaction on specific services for MSM and condom use for anal sex with partner in the past 4 months	45
4.21 The final model for the association between each independent variables and condom use for anal sex with sexual partner in the past 4 months	46
CHAPTER V: DISCUSSION, CONCLUSION, RECOMMENDATION.....	49
5.1 Discussion	49
5.2 Conclusion	56
5.3 Recommendations	57
REFERENCES.....	59
APPENDICES	65
APPENDIX A: QUESTIONNAIRE.....	66
Appendix: B	82
APPENDIX: C	83
APPENDIX: D	84
CURRICULUM VITAE.....	86

LIST OF TABLES

Table 1 Respondents by Socio-Demographic Characteristics	23
Table 2 Respondents by Sexual History	25
Table 3 Respondents by condom use in the past 4 months	26
Table 4 Respondents by condom use after drinking alcohol and drug use.....	27
Table 5 Respondents by lubricant used during anal sex	28
Table 6 Respondents by Sexual Abuse.....	29
Table 7 Respondents by Life Skills	30
Table 8 Respondents by Level of Knowledge and knowledge on HIV/AIDS prevention and transmission.....	31
Table 9 Respondents by Level of Attitude	33
Table 10 Respondents by Attitude.....	33
Table 11 Specific Services for MSM used by respondents	34
Table 12 Level of Satisfaction and satisfaction by respondents on specific services for MSM by respondents	35
Table 13 Binary analysis of Socio-demographic factors associated with condom use for anal sex with partner in the past 4 months.....	36
Table 14 Binary analysis of Sexual history associated with condom use for anal sex with partner in the past 4 months	38
Table 15 Binary analysis of Sexual histories of alcohol drinking, place of sex, give or receive presents associated with condom use for anal sex with partner in the past 4 months.....	40
Table 16 Binary analysis of Sexual history associated with condom use for anal sex with partner in the past 4 months	41
Table 17 Binary analysis of Sexual history of forced sex associated with condom use for anal sex with partner in the past 4 months	42

Table 18 Binary analysis of Knowledge, Attitude associated with condom use for anal sex with partner in the past 4 months.....	43
Table 19 Binary analysis of Life skills associated with condom use for anal sex with partner in the past 4 months	44
Table 20 Binary analysis of Use of specific services for MSM associated with condom use for anal sex with partner in the past 4 months	45
Table 21 Binary analysis of Level of satisfaction on specific services for MSM associated with condom use for sexual intercourse with partner in the past 4 months.....	45
Table 22 Logistic regression analysis of factors associated with the use of condoms for anal sex with partner in the past 4 months	46

LIST OF ABBREVIATIONS

HIV	-	Human Immunodeficiency virus
AIDS	-	Acquired Immunodeficiency Syndrome
MSM	-	Men who have Sex with Men
CDC	-	Centre for Disease Control
NGO	-	Non Government organization
WHO	-	World Health Organization
UNAIDS	-	The Joint United Nations Programme on HIV/AIDS
UNGASS	-	United Nations General Assembly Special Session
CSA	-	Childhood Sexual Abuse
NAP	-	National AIDS Programme
MSMGF	-	The Global Forum on MSM and HIV
NACO	-	National AIDS control organization
NAC	-	National AIDS Commission
MOH	-	Ministry of Health
FSW	-	Female Sexual Worker
PWID	-	People Who Inject Drug
CBO	-	Community Based Organization

CHAPTER I

INTRODUCTION

1.1. Background

The human immunodeficiency virus (HIV) is a retrovirus which infects the immune system and destroying their function. After getting infection, the immune system becomes weaker, and the person becomes more susceptible to infections. Acquired immunodeficiency syndrome (AIDS) is the advanced stage of HIV infection. The process of developing from HIV infected state to AIDS can take 10-15 years and antiretroviral drugs can slow down the process. HIV is transmitted through transfusion of contaminated blood, unprotected sexual intercourse (anal or vaginal), sharing of contaminated needles, and between a mother and her infant during pregnancy, childbirth and breastfeeding (WHO, 2012).

HIV/AIDS is the widely spread communicable disease and major public health problem of the world. AIDS impacts from the individual infected to the community and society in which they live. The effects of HIV/AIDS cross all boundaries of age, race, ethnicity, religion, and class. In many developing countries, AIDS and HIV have reached epidemic proportions. It is serious enough to consider for United States that a threat to its national security and in some nations have had a large impact on the economy and mortality rates (Shah, 2009).

In the early to mid-1980s, while other parts of the world were beginning to deal with serious HIV and AIDS epidemics, Asia remained relatively unaffected. By the early 1990s, however, AIDS epidemics had emerged in several Asian countries and by the end of the decade; HIV was spreading rapidly in many areas of the continent. Globally, there were 33.3 million [31.4 million–35.3 million] people living with HIV at the end of 2009 compared with 26.2 million [24.6 million– 27.8 million] in 1999 - a 27% increase, estimated by UNAIDS. (UNAIDS, 2010)

MSM and HIV/AIDS

Historically, before throughout the global epidemic, AIDS was first discovered among self-identified young gay man in the USA and then consistently high levels of HIV infection have been found among men who have sex with men (MSM) in many countries. (AVERT, 2011) Sex between men is stigmatized, officially criminalized in all over the world. In some countries, this adds to the vulnerability of MSM, and makes it impossible to carry out the relevant HIV prevention campaigns (UNAIDS, 2009).

When there is no protection is used, sex between men involves anal sex carries a higher risk of HIV transmission than unprotected vaginal sex. All over the world, the evidence is increasing of a resurgence of HIV in men who have sex with men especially in Asia including Myanmar; HIV prevalence among MSM is 28.8% (WHO, 2009). In the early, HIV prevention in North America, Europe and Australia among MSM has been successfully credited to the collective response of gay communities and their widespread adoption of safer sex behaviors (Wade A.S, et al., 2005). The reduction of HIV transmission among MSM remains a significant challenge because many MSM continue to have unprotected sex.

Because of inconsistency condom use, MSM were still at high risk of HIV in Nakhon Rachasima although HIV prevalence was lower than Bangkok and Chaing Mai Provinces in Thailand (Thongdee W & Kuttiyavitayakul V, 2011). In Myanmar, there is not much information on the reason for non-condom use among MSM in Yangon and Mandalay. Only few studies have been conducted about MSM in Myanmar which also have not been published. This research collected information that can shed light on the reasons for unprotected sex among the MSM in Mandalay.

1.2. Research Question

1. What are the social-demographic characteristics, sexual history, knowledge about HIV/AIDS prevention and transmission, attitudes, life skills and access to MSM oriented services among MSM in Mandalay, Myanmar?
2. What is the prevalence of condom use among MSM in Mandalay, Myanmar?

3. What is the association between condom use and social-demographic characteristics, sexual history, HIV related knowledge & attitudes, life skills and access to MSM orientated services among MSM in Mandalay, Myanmar?

1.3. Research Objectives

1.3.1. General objective

The general objective of the study is to study the factors related to unprotected sex among MSM in Mandalay, Myanmar.

1.3.2. Specific Objectives

1. To describe the socio-demographic characteristics of MSM in Mandalay, Myanmar.
2. To describe the sexual history of MSM people in Mandalay, Myanmar.
3. To identify the HIV/AIDS related knowledge & attitudes among MSM in Mandalay, Myanmar.
4. To describe the life skills towards the condom use among MSM in Mandalay, Myanmar.
- 5 To determine access satisfaction about MSM orientated specific services in Mandalay, Myanmar.
6. To estimate the prevalence of condom use among MSM in Mandalay, Myanmar.

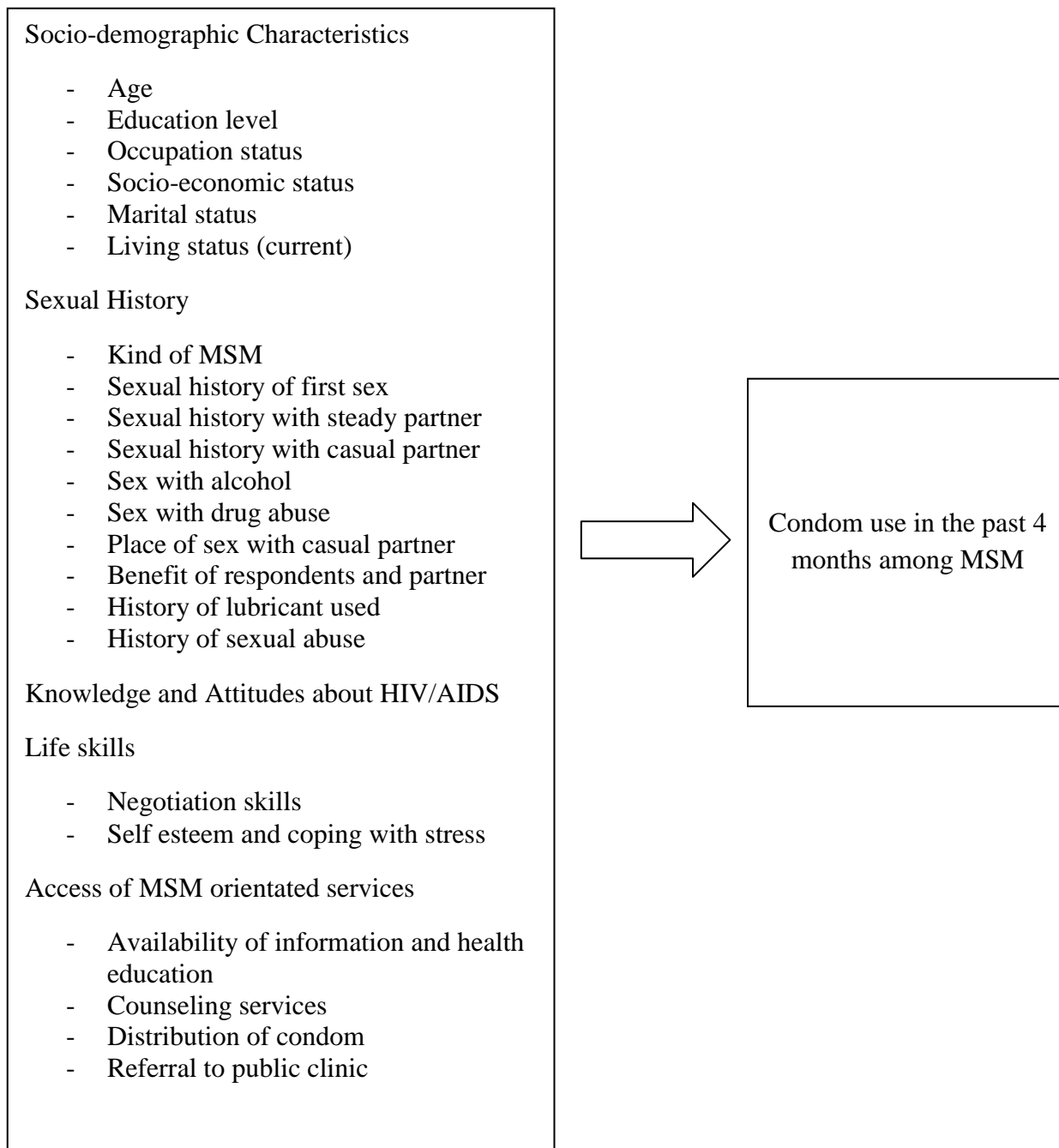
1.4. Research Hypothesis

1. There is an association between socio demographic characteristics, sexual history, HIV related knowledge & attitudes, life skills and access to MSM oriented services and condom use among MSM in Mandalay, Myanmar.
2. There is low condom use among MSM in Mandalay

1.5. Conceptual Frame work

Independent Variable

Dependent Variable



1.6. Operational definitions

In this study, there are both independent and dependent variables.

1.6.1. Socio-demographic characteristics

- **Age** refers to the last completed birthday at the time of the interview.
- **Residence** is defined as one of the seven Mandalay Township where the MSM lives.
- **Education level** refers to the school grade attended at the most highest attained level of education of the respondents and it is measured in six categories, “Non education”, “Primary education (grade 1-4)”, “Middle education” (grade 5-8) , “High education” (grade 9-10), “University education”.
- **Occupation status** refers to occupation of the respondents at the time of interview and it is measured in five categories, “Jobless”, “Nat Kadaw (Fortune teller)”, “Work in the fashion sector (Hairstyle, Make-up, dress designer), and other (Specify).
- **Socio-economic status** refers to the respondent’s income and possession and it is measured in 2 categories, “Own a house” and “Rent a house”.
- **Marital status** refers to the current marital status of the respondents. It is classified into “Never married” and “currently or formally married”.
- **Living status** refers to that respondent is “living alone”, “with parents”, “with relatives”, “with partner”, “with friends”.

1.6.2. Sexual history

- **Kind of MSM** mean three kinds of MSM in Myanmar which are *Apone* (Musculine MSM), *Apwint* (Feminine MSM) and *Tha Nge* (Bisexual MSM)
- **Sexual history of first sex** means age, type of partner at first sex with anyone and first anal sexual intercourse with a man using condom
- **Sexual history with steady partner** means whether respondents have steady partner or not, condom use with this partner, oral sex history and steady partner is somebody you know for more than two months, have sex with regularly and feel an emotional bond with)

- **Sexual history with casual partner** means whether respondents have casual partner or not, oral sex history and casual partner is somebody you have sex with only, and without pay
- **Sex with alcohol** means the use of condom or not by the respondents after drinking alcohol.
- **Sex with drug abuse** means the use of condoms or not by the respondents after taking drug such as methamphetamine or cocaine.
- **Place of sex** means the place where the respondent had sex with his partner
- **Benefits of respondents and partner** means whether respondents have to give and receive presents or not.
- **Lubricant used** means whether respondents used lubricant during anal sex or not.
- **Sexual abuse** means whether there is history about any sort of non-consensual sexual contact to the respondents or not.

1.6.3. Knowledge and attitudes about HIV/AIDS

- **Knowledge** on HIV/AIDS means knowing the basic information of HIV/AIDS and its preventive methods.
- **Attitudes** towards HIV/AIDS means beliefs, needs and values on AIDS itself, safe sex and condom use.

1.6.4. Life skills

- **Life skill** is defined by WHO “abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life”. In this study, mainly focus in the skills of negotiation of condom use, self-esteem (belief and confidence in one’s own ability and value) to use condom and stress coping towards unprotected sex behavior.

1.6.5. Access of MSM orientated services

- **Availability of information and health education** refers to from where they get information and health education about HIV/AIDS from organization.

- **Counseling services** means whether the respondents get the pretest and post test counseling by organization.
- **Distribution of condom** refers to that the respondent gets enough condoms distributed by the organization.
- **Referral to public clinic** means whether the respondent is referred to public clinic by the organization to take treatment when he has symptoms of HIV/AIDS.

1.6.6. Condom use

Condom use means condom was used or not during anal-genital sexual practice in male genital organ or in anal cavity in the past 4 months. It refers to frequency of condom use during sexual encounter (always, almost always, half of the time, some of the time and never) in this study. In order to determine the condom use, “Always” was coded as using condom and other four were coded as not using condom.

1.6.7. Men who have sex with men

MSM means to men or gay who have homosexual experience (anal-genital or oral-genital) with their partners who are gay or men.

1.6.8. Unprotected sex

Unprotected sex is having sex with no protection and for this study, no protection means having sex without condom use from the beginning to end of sexual intercourse.

1.6.9. Access of MSM orientated services

This means the respondents accessed to specific services for MSM given by organization and satisfaction upon these services.

CHAPTER II

LITERATURE REVIEW

2.1. HIV epidemic and MSM

Men who have sex with men (MSM), also known as males who have sex with males) are male persons who engage in sexual activity with members of the same sex, regardless of whether or not they have sex with women or have a personal or social gay or bisexual identity (UNAIDS, 2011). In many countries MSM are the group with the highest prevalence of HIV infection.

The significant impact that HIV is having on men who have sex with men is therefore not an isolated problem, but one that is very much linked to countries' wider HIV epidemics (MSMGF, 2011).

In many countries however, men who have sex with men are less visible. In places where homosexuality is not tolerated, men who have sex with men often hide their same-sex relations from their friends and families to avoid persecution. Many have wives, or have sex with women as well as men, and this means that they may transmit HIV to their female partners if they become infected.

Worldwide, it's estimated that sex between men accounts for between 5 and 10% of HIV infections. The situation varies between countries however, and in much of the developed world – including the USA, Canada, Australia, New Zealand and many parts of Western Europe – more people have become infected with HIV through male-male sex than through any other transmission route (UNAIDS, 2010).

2.2. HIV/AIDS and MSM in Asia

There is around a one-in-five odds ratio (18.7%) of being infected with HIV among men who have sex with men in Asia (Baral S et al., 2007). In India, the average national HIV prevalence among MSM in 2007 was 7.4%. In the southern states of India, HIV prevalence among MSM increased between 2003 and 2007 in the sentinel sites in Karnataka (from 10.8% to 17.6%, respectively), and Tamil Nadu (from 4.2% to 6.6%,

respectively) (NACO, 2007). HIV prevalence in 2009 among MSM was 3.8% in Nepal (FHI, 2009). In Thailand, HIV prevalence ranged from 17.3% in 2003 to 30.8% in 2007 (van Griensven F et al., 2009). There was a sharply rise of HIV prevalence from 0.8% in 2002 to 5.2% in 2007 among MSM in Indonesia (NAC, 2008).

2.3. HIV/AIDS and MSM in Myanmar

Myanmar is the Southeast Asia country. It is divided into seven states and seven regions with estimated total population of 53.4 million (mid-2010). First case of HIV in Myanmar was found in 1988. In 2008, there were estimated 240,000 (160,000-370,000) people are living with HIV (UNAIDS, 2010). HIV prevalence rate in adult has seen slow down from 0.7% in 2000 to 0.63% in 2008. Majority of reported AIDS cases (68%) are due to sexual transmission (MOH, 2010). A concentrated HIV epidemic occurs in Myanmar among men who have sex with men (MSM), female sex worker (FSWs) and people who inject drugs (PWID). Among the three most-at risk groups, HIV prevalence of MSM were raising to 28.8% (second highest) which was reported in 2008. This was the generally higher than the national HIV prevalence (0.63%) among adults aged 15-49 years. The highest prevalence (37.5%) was found among PWID and 18.4% among FSWs (WHO, 2009).

A study conducted among 828 MSM in Myanmar, 26.2% reported ever having had an STI; and 11.8% reported STI-related symptoms in the past three months according to a recent unpublished report. Syphilis prevalence among MSM was reported at 14.1% the highest among all the most-at-risk population groups in 2008 by HIV serosurveillance survey (NAP, 2009a).

2.4. Size and Typologies of MSM populations

There were estimated to range between 200 000 and 280 000 MSM in Myanmar (WHO, 2009). The information about MSM in Myanmar is limited. The appearances of MSM in Myanmar are mostly hidden. There are three types of MSM were self defined as “*Apwint*” who are exclusively receptive (having female appearance) and mostly called “*ah-chauk*”, “*Apone*” (having a manly appearance) who are mostly “*receptive*” and “*Tha Nge*” (hetero/bisexual man having a manly appearance) who are exclusively “*insertive*”.

The “*Tha Nge*” are young men having casual same sex sexual activities alongside with /or prior to heterosexual sex and do not recognize them-selves as men having sex with men and even less so as gay. In Mandalay, about 50% of the *Apwint*, 20% of the *Apone* and 10% of the *Tha Nge* were found to be HIV infected, respectively (NAP, 2009b).

2.5. MSM and Condom use in Myanmar

The reason for not using a condom during the last high risk sexual activity is “condoms not being available”. The reported use of lubricant is low, increasing the risk of condom breach. Another reason for low condom use is that there are only few organizations that provide preventive and care services for MSM are difficult to reach (NAP, 2009b).

2.6. Socio-demographic characteristics, knowledge & attitudes and life skills which influencing condom use

The young aged of between 15-24 who have temporary partners were more likely to perceive the risks associated with HIV/AIDS in relation to using condom. A greater proportion of unmarried youths were engaged in sexual activity before the age of 20 years and that condom-use was also inconsistent. Youths having temporary partners were more likely to perceive risk and reason for using a condom than when with their regular partner (Mohammad Raisul Haque & Amara Soonthorndhada, 2009). Age of 25-29 was less likely to report unprotected anal sex compared to aged 18-24 among MSM (Mansergh G et al., 2006). The probability for not condom use was significantly ($p < 0.05$) higher when the male partner was young (19years or under), among the younger age group (18-24 years) and among the older age group (35 years and over) (Larmarange J et al., 2010). The consistent use of condoms among homosexual couples was significantly associated with duration of their relationship (Moreau-Gruet F et al., 2001).

There was a significant increase in condom use in higher level educational status (Lagarde et al., 2001). The respondents of 27% having less education reported on engaging in unprotected anal intercourse in the past 2 months (Kelly J A et al., 1995). The condom use among MSM is low according to poor socio economics status among MSM in India (Bertozi SM et al., 2004). In another study, the high socio-economic

status of respondents associated with consistent condom use (Gutierrez JP et al., 2006). Among 896 adult males in China; one third had ever been married, 71.9% was reported as high prevalence of inconsistent condom use among MSM. Those who did not use condoms with MSM partners were also more likely than others to not use condoms with their female sex partners (Lau JT et al., 2008).

2.7. Sexual history

In Thailand, age at first sex is 18 years (Durex, 2005). The prevalence of childhood sexual abuse (CSA) among men who have sex with men is significantly higher than those in the general male population in previous studies of United States. HIV-uninfected MSM with CSA histories are at a greater risk for HIV infection and higher rates of HIV sexual risk behavior (Mimiaga MJ et al., 2009). Alcohol and drugs are a common part of socializing in some communities of men who have sex with men. Most of the survey's findings illustrated that habit of alcohol drinking and drug users are associated with condom use. The quantity of alcohol consumed was associated with reduced in condom use (Ford K & Norris AE, 1998). MSM who have sex with more than one partner (apart from casual partner) is also significantly associated with condom use (Ramirez J et al., 1994).

2.8. Knowledge and Attitudes about HIV/AIDS

The greater of knowledge about HIV/AIDS was also significant in condom use among MSM (Lance Coleman C, 2007). The lack of knowledge is one of the barriers in condom use. Some of the respondents did not use condoms because they thought that they are safe because they assumed that their partners were free from HIV/AIDS. Only 44.1% of MSM subgroup used condoms during the last anal sex and the reason for non condom use was they believed that their partner was disease free (31.6) and no need for safer sex (Lau JT et al., 2004).

2.9. Life Skills and condom use

The most important correlates of condom use were high life-skills rating (Gutierrez J P et al., 2006). In another study, the respondents of 15.8% didn't use condom because they afraid of affecting in relationship with their partners (Lau JT et al., 2004).

2.10. Access to MSM services

Non-governmental organizations (NGOs) are now recognized as key third sector actors on the landscapes of development, humanitarian action, human rights, environment, and many other areas of public action (David Lewis, 2009). In the USA and UK for example, MSM organizations have increased a great deal of awareness about HIV and AIDS. They provide many services to both prevent people becoming infected with HIV, to help those who are HIV positive, to protect their right and to fulfill their needs. HIV prevention campaigns often only talk about the risks of heterosexual sex, and there is little appropriate information available to men who have sex with men, which can give them the false impression that they are not at risk.

In Myanmar, there are few organizations which are working on HIV/AIDS in Myanmar. Most of these organizations are helping both HIV positive and HIV negative MSM. Population Services International (PSI) is a nonprofit organization based in Washington, D.C. and regional office is located in Yangon, Myanmar. This organization harnesses the vitality of the private sector to address the health problems of low-income and vulnerable populations in more than 60 developing countries. PSI in Myanmar, manage programs in nutrition, malaria, safe water, family planning and HIV/AIDS, uses commercial marketing strategies to promote health services, health products, and healthy behavior to people who are vulnerable and low-income to become healthier lives (PSI, 2005).

In Mandalay, there is another MSM organization named "The Help". This organization is self help group. At first, they started with four members with the technical support by International Alliance. By the year 2007, "The Help" was born as community based organization (CBO) with eleven staffs and some volunteers. Nowadays, their organization has a large volunteer those of who are MSM. They cooperate with others

INGO in many activities such as attending conference, training camp by inviting trainer from abroad. In 2010, they got president seat of Myanmar's MSM network which was held in Yangon. Then they are becoming partner of Global Fund in 2011.

Services provided by "The Help"

- (1) Giving health education and training for HIV prevention
- (2) Counseling services (Pre test and post test)
- (3) Blood testing
- (4) Distribution of condom and gel
- (5) Rural health education and
- (6) Referral to Public clinics

CHAPTER III

RESEARCH METHODOLOGY

3.1. Study design

A quantitative cross-sectional study design was chosen for the study.

3.2. Study Area

The seven townships of Mandalay city of Myanmar which are Aung Myay Thar Zan, Chan Aye Thar Zan, Mahar Aung Myay, Chan Mya Thar Si, Pyi Kyi Ta Kon, Amarapura and Pa Thein Gyi townships.

3.3. Study population

The target population for this study was MSM aged between 15 and 50 years. The lower limit was 15 years of age because MSM at this age can answer questionnaires without parental consent and upper limit of age was 50 years because MSM are still sexual active up to 50 and there is also reported unprotected sex in older group.

3.4. Research criteria

3.4.1. Inclusion criteria

- Only MSM living in Mandalay was used for the study
- MSM aged between 15 to 50 who were willing to participate

3.4.2. Exclusion criteria

- MSM living in Mandalay for less than four months.
- MSM aged between 15 and 50 who have mental disorder.
- MSM aged between 15 and 50 who do not understand Myanmar language.

3.5. Sample size

According to the condom use prevalence survey by AMI, (Aide Medicale Internationale, Dala) (AMI, 2006), the prevalence of condom use among MSM is 24%

Cochran formula was used to calculate the sample size for this study.

The sample size was 281

$$n = \frac{Z^2 P (1 - P)}{(a)^2}$$

$$n = \frac{(1.96)^2 0.24 (1 - 0.24)}{(0.05)^2}$$

$$= 280.28 = 281$$

Where,

n = sample size.

p = Prevalence of condom use among sample population derived from Report of regular Behavior Surveillance Survey, 2006 of functioning INGO (AMI, Aide Medicale Internationale, Dala) on condom use behavior among MSM in three townships of southern district of Yangon, Myanmar.

a = desired level of precision.

z= value from normal distribution associated with 95% confidence interval of 1.96.

Sample collected = 309 (281 + 10% expected refusal rate to respond to the questionnaires)

3.6. Study period

The study was conducted within a period of 10 months starting from the August, 2011 to May, 2012.

3.7. Sampling technique

Mandalay with its seven townships was chosen by purposive sampling due to its high prevalence of HIV among MSM. The MSM respondents were selected by using a

snow ball sampling technique. Sample size was 309. The head of the Mandalay based MSM support group “The Help” has already informally contacted and explained the research to one or two MSM in each of the seven townships and the initial MSM to be interviewed were not randomly chosen, (a choice impossible to carry out since there was no sample frame for MSM in Mandalay). These initial MSM already contacted by the head of the MSM support group have, in principle, agreed to present themselves to researcher to learn about the study objectives and design and upon this information to decide whether or not to consent to participate to the study. After they gave consent the researcher interviewed them using the questionnaire to collect the desired data. These initial MSM had also in principle agreed to serve as seed persons, to help identify other MSM to be included in the sample and to invite new MSM who agree to report to the researcher. The ‘seeds persons’ recruited a maximum of three more MSM in order to minimize their influence on the final sample composition. Limiting to three the number of MSM a seed person recruited expands the recruitment chains and increased the ‘reach’ of the sample into more hidden pockets of MSM. Every recruited MSM were offered the chance to answer the questionnaire and to act as seed person however he chose to answer the questionnaire only and did not act as seed person if he preferred to do so. Each seed person in turn was asked to introduce other MSM and the process continues until the target sample size of 309 has been reached.

3.8. Data collection tools

The data collection tools was a semi-structured questionnaire consisting of both structured as well as unstructured questions which was prepared in English language, then translated into Myanmar language by one who was expert in English and Myanmar language related to MSM group to ensure correspondence between English and Myanmar words. And then, back translation from Myanmar to English was done by a second expert in case of discrepancies between the translation of two experts and came together to agree on a common translation. Some of the questions about oral sex were translated into MSM slang such as “*Oral sex*” into “*Key*” and anal sex into “*Khaw kan*”.

Interview questionnaire for this study consisted five parts:

Part I Socio-Demographic Characteristics

- This part of the questionnaire is consisted with questions on the socio-demographic which includes current age, education level, occupation status, socio-economic status, marital status and current living status of MSM sample population in Mandalay city, Republic of Union of Myanmar.

Part II Sexual History

- This part of questionnaire consisted of questions on kind of MSM, sexual history of first sex, sexual history with steady partner, sexual history with casual partner, sex with alcohol, sex with drug abuse, place of sex with casual partner, benefits of respondents and partners, history of lubricant used and history of sexual abuse.

Part III Knowledge about HIV/AIDS prevention, transmission and condom use

- This part is consisted with 13 questions and designed to find out what extent the sample population has correct knowledge on HIV/AIDS prevention, transmission and condom use.
- A correct answer was given 1 score and 0 score for wrong answer, not sure and do not know. The score varied form 0-13 points and was classified into 3 levels as follows:

Low level (<70%) < 9 scores

Moderate level (70-80%) 9-10 scores

High level (80%) >10 scores

Part IV Attitude towards HIV/AIDS and condom use

- This part of question aimed to determine attitudes of the sample population toward HIV/AIDS and condom use by using Likert Scale. The answer was categorized as strongly agree, agree, neutral, disagree and strongly disagree. The rating scale was measured as follows;

Positive statement		Negative statement	
Choice	Scores	Choice	Scores
Strongly agree	5	Strongly agree	1
Agree	4	Agree	2
Neutral	3	Neutral	3
Disagree	2	Disagree	4
Strongly disagree	1	Strongly disagree	5

The scores varied from 1 to 35 and all individual answers were summed up for total scores and calculated for means. The scores were classified into 3 levels: low level, moderate level and high level).

Low level of attitude (<60%)	< 21
Moderate level of attitude (60-80%)	21-28
High level of attitude (>80%)	>28

Part V Life skills and condom use

This part of question was consisted with negotiation skill to use condom and self-esteem and coping with stress.

Part VI Access of MSM orientated service

This part of question aimed to know whether respondents had accessed to specific services for MSM given by organization and satisfaction upon these services. The rating scale was measured as follows,

Choice	Scores
Highest	4
High	3
Medium	2
Low	1
Lowest	0

The scores varied from 0 to 44 and all individual answers were summed up for total scores and calculated for means. The scores were classified into 2 levels: low level and high level.

Low level of satisfaction (60 - 80%)	26 - 35
High level of satisfaction (>80%)	>35

3.9. Data collection process

Data was collected by face to face interview with the respondents by the researcher and two other research assistants who understand Myanmar language very well. The research assistants were the health volunteers from other NGOs (not from “The Help”) who had experience in conducting face to face interview by using questionnaires previously. The interviewers were trained by the researcher one day prior to the data

collection on how to ask questions to get appropriate answers by using MSM slang language and making them willing to participate and to build trust before interview. Before conducting the interview, they explained the respondents about anonymity, confidentiality, free participation, freedom to withdraw, access to final report, and no use of data for other purposes. There was no name on the answered questionnaire. As soon as the questionnaire was completed, it was put in an envelope and the envelope was sealed in front of the respondent. The researcher only opened the envelope and used the questionnaire for data processing. The questionnaires were kept by the researcher in a locked drawer and destroyed when the thesis was completed. All data was presented with consolidated tables which did not make it possible to identify the persons who provided the information.

3.10. Reliability and Validity

The following activities were carried out to maintain the reliability and validity.

- A set of questionnaire was checked and verified by researcher supervisors and concerned teachers.
- The expert validity had been confirmed by three experts in MSM research for HIV. DR ALESSIO PANZA (former director of HIV/AIDS program in European Union of Southeast Asia), DR WAING (former director of STD Campaign, Upper Myanmar) and Ms PHYO (Director of “The Help” organization). For reliability, questions have been assessed for MSM research by the Thailand Ministry of Public Health-US Centre for Disease Control and Prevention Collaboration, Nonthaburi, 11000.
- A pretest was done at Sagaing city which is near to Mandalay city and located in Myanmar. Questionnaire was revised after the pretest.
- A 10% population of sample size was used for the pretest(pilot test) to maintain the reliability
- A Cronbach’s Alpha coefficient was used to test the reliability of the questionnaires.

3.11. Data entry and data Analysis Process

The researcher involved in data collection, data editing, data entry, and data analysis and data interpretation. The researcher edited and tabulated the data very clearly. Editing of the information was done at the same day of data collection. The interpretation of the collected data was presented by following way;

Descriptive statistics

The factors which were influencing in unprotected sex, mean and standard deviation with the help of percentage was calculated for the continuous data and mode, percentage and frequencies was calculated for categorical data and described by table.

Analytical statistics

Simple logistic regression analysis was adopted in the stage of bivariable analysis in order to select appropriate independent factors for further binary logistic analysis. At this stage, the significant value of 0.25 is applied. To further indicate factors independently associated with the outcome and to identify the relative importance among determinants, binary logistic regression analysis using ‘backward Wald’ stepwise method was used at significant level of 0.05(Hosmer & Lemenshow, 2000).

3.12. Limitation of the study

There were some limitations which influenced the result of this study. At first, this study got only few months to complete the whole thesis including data collection, entry, interpretation and presentation which were very difficult to finish in time and was not be able to cover other cities of Myanmar. MSM people in Myanmar are not as like as the other general people because they are not exposed as the MSM due to cultural and social barrier. They felt shy when answering the questionnaires so that the researcher could not get the whole information from them. The researcher interviewed only 309 MSM from network of MSM in Mandalay, so the result of this study could not be generalized as the whole nations MSM.

3.13. Ethical consideration

The approval of research was taken from the college of Public Health Sciences, Chulalongkorn University ethical consideration board. The researcher explained to the

participants the reasons, the benefits and the risks linked to this research. The same information was provided in written through the consent form. Participants were invited to ask for any additional information and clarification they need and then invited to decide whether they want to participate to the research or not. It was clearly explained to them that if they decline to participate they would not suffer any adverse event. After they accepted to participate they signed a written informed consent before starting the interview. They could also interrupt participating to the research at any moment and no questions were asked about the reasons for their interruption. Researcher assured them that the findings of this research helped them to address their needs and help to strengthen their behavior related to unprotected sex. The written informed consent contained the information which include confidentiality, free participation, freedom to withdraw and no use of data for other purposes and assured anonymity. The name appeared in the consent form was not linked to the questionnaires and everything was kept confidential. The response given by the MSM and name of the responder was kept confidential.

3.14. Benefits and outcomes

The result of this study was summarized and presented to NAP (National AIDS Program, Myanmar) and NGO. The findings of this study would help those organizations which are working on MSM issues to make future program oriented to MSM. Behind this, Myanmar government would aware about the factors that influence MSM to unprotected sex and may make some programs to protect from this.

CHAPTER IV RESULTS

Part I: Descriptive Findings

4.1. Socio-demographic Characteristics

Table 1 shows about the socio-demographic characteristics of the respondents in Mandalay, Myanmar. The mean current age of the respondents was 30 years which is range from 16 to 50 years. The age was categorized into 4 sub-groups: “≤ 19 years”, “20 to 24 years”, “25 – 35 years” and “≥ 36 years”. Majority of the respondents, 44% were in the age group “25 – 35 years”. Almost all of the participants were never married with 92.9%. As for the education status, more than half of the respondents, 52.2% were in the high and University level of education. A high percentage of the participants, 55.7% worked as Nat-Kadaw (Spirit medium) and worked in fashion sectors. Other of 26.5 % is waiters, carpenters, shopkeeper, dish washer and painters. 79.6% of the respondents owned a house while the rests could only rent a house. About two-thirds of the participants, 75.1% lived with their parents and relatives whereas only 11% stayed with their partners.

Table 23 Respondents by Socio-Demographic Characteristics (n=309)

Socio-demographic Characteristics		Number (n)	Percentage (%)
Current age group:	≤ 19 years	28	9.1
	20 - 24 years	56	18.1
	25 - 35 years	136	44.0
	≥ 36 years	89	28.8
Mean = 30.43, SD = 8.27			
Median = 30.00, Range = 16 - 50			
Marital status:	Never married	287	92.9
	Currently or formally		
	Married	22	7.1

Education level:	Primary education	40	12.9
	Middle education	108	35.0
	High education	88	28.5
	University education	73	23.6
Occupation:	Jobless	55	17.8
	Nat-Kadaw(Spirit medium)	32	10.4
	Work in fashion sector	140	45.3
	Others#	82	26.5
Socio-economic status:	Rent a house	63	20.4
	Own a house	246	79.6
Current Living Status:	Live alone	26	8.4
	Live with parents	200	64.7
	Live with relatives	32	10.4
	Live with partner	34	11.0
	Live with friends	17	5.5

#others – waiter, dish washer, carpenter, shopkeeper and house painter

4.2. Sexual history

Table 2 shows that about the sexual history of the respondents. Among 309 of respondents, 17.5 % was *Apone*, 62.1 % was *Apwint* whereas 20.4 % was *Tha Nge* as kinds of MSM. Majority of the respondents, 85.8% had first sexual intercourse with male. The mean age of first anal sex with a man was 15 years, ranged from 7 – 31 and more than half of the respondents were in the aged group “15 – 19 years. Only 23.9% of the respondents had first anal sex with a man with condoms. Out of 309 respondents, 61.2 % had steady sex partners and 81.2% had casual sexual partners. 87.3% of the respondents had sex with males as steady sex partners while 99.2% had sex with males as casual sex partners. More than 90% of the respondents had oral sex with both steady and casual partners. 23.4% of the respondents always used condoms during oral sex with

steady sex partners whereas 30% always used condoms during oral sex with casual sex partners. However, 21.1% never used condoms during oral sex with steady sex partner while 17% never used with casual sex partner.

Table 24 Respondents by Sexual History (n=309)

Sexual history		Number (n)	Percentage (%)
Kind of MSM:	<i>Apone</i> (Masculine MSM)	54	17.5
	<i>Apwint</i> (Feminine MSM)	192	62.1
	<i>Tha Nge</i> (Bisexual)	63	20.4
Type of sex partner at first sex with anyone	Male	265	85.8
	Female	44	14.2
Age at first anal sex with a man: (n = 309)	7 - 11years	62	20.1
	12 - 14 years	46	14.9
	15 - 19 years	165	53.3
	20 - 31 years	36	11.7
Mean = 15.49, SD = 4.13 Median = 16.00, Range = 7 - 31			
First anal sexual intercourse with a man using condom (n = 309)	Yes	74	23.9
	No	235	76.1
Respondents who have steady sex partner (n = 309) (n = 189)	Yes	189	61.2
	No	120	38.8
	With Male	165	87.3
	With Female	24	12.7
Oral sex with steady partner (n = 189)	Yes	171	90.5
	No	18	9.5
Oral sex with steady sex	Always	40	23.4

partner using condom(n=171)	Almost always	36	21.1
	Half of the time	7	4.1
	Some of the time	52	30.3
	Never	36	21.1
Respondents who have casual sex partner (n = 309)	Yes	251	81.2
	No	58	18.8
(n = 251)	With Male	249	99.2
	With Female	2	0.8
Oral sex with casual partner (n = 251)	Yes	247	98.4
	No	4	1.6
Oral sex with casual sex partner(n=247)	Always	74	30.0
	Almost always	75	30.4
	Half of the time	6	2.4
	Some of the time	50	20.2
	Never	42	17.0

4.3. Condom use

Table 3 reveals about condom use with sexual partner. More than half of the respondents, 56.6% always used condoms with any sexual partners in the past 4 months while 1.6% never used condom.

Table 25 Respondents by condom use in the past 4 months

	Frequency (n)	Percentage (%)
Condom use with steady sexual partner (n = 189)		
Always	90	47.6
Almost always	35	18.5
Half of the time	4	2.1
Some of the time	26	13.8
Never	34	18.0

**Condom use for anal sex with partner
in the past 4 months(n = 309)**

Always	175	56.6
Almost always	90	29.1
Half of the time	10	3.2
Some of the time	29	9.4
Never	5	1.6

4.4. Condom use after drinking alcohol and drug use

Table 4 shows that among 309 respondents 82.5% did not drink alcohol before sexual contact while 17.5% drank. Only 14.8% of the respondents always used condoms while having sex after drinking alcohol and 11.1% never used condoms on that occasion. 99.4% of the respondents did not use drugs before sex and 0.6% did not want to answer. More than half of the participants, 54.6% had sex in the dark place far from public area, 20.7% in the place where they lived and 17.5 % in hotel while only 0.8% had sex in the place where their partner lived. 29.8% of the respondents gave presents to have sex with partners while 14.9% received presents from partners to have sex. However, more than half, 55.3% did not gave or receive presents to have sex with partner.

Table 26 Respondents by condom use after drinking alcohol and drug use

Sexual history		Number (n)	Percentage (%)
Drinking alcohol before sex: (n = 309)	Yes	54	17.5
	No	255	82.5
Having sex after drinking alcohol using condom (n=54)	Always	8	14.8
	Almost always	24	44.4
	Half of the time	2	3.8
	Some of the time	14	25.9
	Never	6	11.1

Use of drug before sex: (n=309)	No	307	99.4
	Do not want to answer	2	0.6
Place to have sex with casual sexual partner(n = 251)	School or Work	4	1.6
	Hotel	44	17.5
	The place where you live	52	20.7
	The place where your partner live	2	0.8
	Park	0	0
	Toilet at disco or pub	12	4.8
	Dark place far from public area	137	54.6
Give or received presents to have sex with partner (n = 309)	No	171	55.3
	Yes, I gave	92	29.8
	Yes, I received	46	14.9

4.5. Lubricant use during anal sex

Table 5 describes that 83.2% of the respondents used lubricants for anal sex. Among those, 69.6% used water based gel and 30.4% used saliva as lubricants. 29.8% of the respondents always used lubricants during anal sex while 16.8% never used lubricants during anal sex.

Table 27 Respondents by lubricant used during anal sex

Sexual history		Number (n)	Percentage (%)
Use of lubricants for anal sex:	Yes	257	83.2
	No	52	16.8
Kind of lubricants commonly used during anal sex (n = 257)	Water based gel	179	69.6
	Saliva	78	30.4

Use of lubricants during anal sex (n = 257)	Always	92	29.8
	Almost always	116	37.5
	Half of the time	13	4.2
	Some of the time	36	11.7
	Never	52	16.8

4.6. Sexual abuse

Table 6 shows about sexual abuse of the respondents by man. Out of 309, 16.8% was forced to have sexual intercourse against their will. The mean age for forced sexual intercourse was 18 years, ranged from 10 to 34. 42.3% of aged 10-15 and 26.9% of aged 16-29 had forced sexual intercourse against their will. 100% of them were forced sexual intercourse by male and they never used condom on that occasion. 80.8% of the respondents had 1 – 3 times forced sexual intercourse against their will.

Table 28 Respondents by Sexual Abuse

Forced Sexual Intercourse		Number (n)	Percentage (%)
Forced to have sexual intercourse against will:	Yes	52	16.8
	No	257	83.2
Age of forced sexual intercourse (n=52)	10-15	22	42.3
	16-19	14	26.9
	≥ 20	16	30.8
Mean = 18.19, SD = 6.33 Median = 17, Range = 10-34			
Forced sexual intercourse by male or female	Male	52	100.0
Frequency of forced sexual intercourse against will (n = 52)	1 - 3 times	42	80.8
	4 - 6 times	10	19.2
Condom use while sexual intercourse against will: (n = 52)	Never	52	100.0

4.7. Life skills

Table 7 shows about life skills among the respondents. Among 309 respondents, more than 68% of the respondents have negotiation skills to use condom for prevention of HIV/AIDS transmission such as refuse undesired sex, resist pressure to use drugs, refuse to have sex without condom. 53.4% of the respondents were answered that they will seek trusted person when they were under stress and 33.7% are seeking friends for drinking. 9.1% of the respondents were in others such as meditation, travel around and watching movie when they are stressed.

Table 29 Respondents by Life Skills

Life Skills	Number (n)	Percentage (%)
Life skill to refuse undesired sex (n=309)	Always	261 84.5
	Sometimes	43 13.9
	Never	5 1.6
Life skills to resist pressure to use drugs (n-309)	Always	309 100.0
Propose action taken if partner refuses to use condom	Avoid sex	42 13.6
	Negotiate to use condom	213 68.9
	Have sex without condom	54 17.5
If you are under stress	Seek friends for drinking	104 33.7
	Seek trusted person for help	165 53.4
	Drink alcohol alone	12 3.9
	Others##	28 9.1

Others – Meditation, travelling, listening songs and watching movie

4.8. Knowledge on HIV/AIDS prevention and transmission

Table 8 shows the level of knowledge and number of correct and incorrect knowledge chosen by 309 respondents. 14.6% of respondents had high level of knowledge whereas 75.1% had moderate and only 10.3% of respondents had low level of knowledge.

The knowledge on HIV/AIDS prevention was in the first 10 questions and the rest 3 questions were about HIV/AIDS transmission. Results indicated that 91.6% knew that AIDS occurred only among men who had sex with men. 92.9% knew that HIV/AIDS would not be infected if they had sex without condom use only once. 93.5% thought that it was possible to get HIV/AIDS by having sex with a healthy looking person. 86.7% knew that there was no need to use condom with a steady partner. 97.4% knew that HIV/AIDS can be protected by using condom during anal sex. 79% thought that there was a cure for HIV infection that cleans the body from HIV. 87.1% knew that they need to use lubricants during sexual intercourse. Almost all of the respondents knew that HIV/AIDS can be transmitted by blood transfusion, sharing of needles/syringe and by tattooing.

Table 30 Respondents by Level of Knowledge (n = 309)

Level of knowledge (n = 309)	Number(n)	Percentage (%)
Low level of knowledge (< 70)	32	10.3
Moderate level of knowledge (70 - 80%)	232	75.1
High level of knowledge (> 80%)	45	14.6

Respondents by Knowledge on HIV/AIDS prevention and transmission.

Statement	Number (percentage)	
	Incorrect	Correct
AIDS occur only among men who have sex with men*	26(8.4)	283(91.6)
Having sex without condom use only once will not infect a person with HIV/AIDS*	22(7.1)	287(92.2)
It is possible to get HIV/AIDS by having sex with	20 (6.5)	289 (93.5)

a healthy looking person		
It is possible to protect oneself against HIV/AIDS by vaccination*	34(11.0)	275(89.0)
There is no need to use condom with a steady partner*	41(13.3)	268(86.7)
Having multiple sexual partners is high risk of HIV	8 (2.6)	301 (97.4)
Using condom during anal sex can protect risk of HIV	8 (2.6)	301 (97.4)
There is treatment for HIV infection that prolong healthy life	24 (7.8)	285 (92.2)
There is a cure for HIV infection that clean the body from HIV*	244(79.0)	65(21.0)
You need to use lubricants while you have sexual contact	40 (12.9)	269 (87.1)
By blood transfusion	0 (0)	309 (100.0)
By sharing needle/syringe	0 (0)	309 (100.0)
By tattooing	2 (0.6)	307(99.4)

*Negative statement

4.9. Attitude on HIV/AIDS

Table 9 shows the level of attitude among respondents. 57.3% of the respondents had high level of attitude while 37.5% had moderate level and 5.2% had low level of attitude.

Table 10 reveals that more than 78% of the respondents agreed that AIDS is a serious health problem among men who have sex with men, everyone has equal chance to get HIV/AIDS, it is easy to use condoms and it is easy to get condoms from everywhere. More than 65% of the respondents disagreed that it cause them to feel embarrassed to get condoms, to feel depressed when they have HIV and to feel embarrassed to go and take treatment at the clinic when they have HIV.

Table 31 Respondents by Level of Attitude

Level of attitude	Number(n)	Percentage (%)
Low level of attitude (< 60%)	16	5.2
Moderate level of attitude (60 - 80%)	116	37.5
High level of attitude (> 80%)	177	57.3

Table 32 Respondents by Attitude

Statement	Frequency (Percentage)				
	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
AIDS is a serious health problem among men who have sex with men	181 (58.6)	64 (20.7)	28 (9.1)	20 (6.4)	16 (5.2)
Everyone has equal chance to get HIV/AIDS	216 (69.9)	58 (18.8)	10 (3.2)	20 (6.5)	5 (1.6)
It is easy to use condoms	199 (64.4)	88 (28.5)	14 (4.5)	4 (1.3)	4 (1.3)
You can get condom easily from everywhere	183 (59.2)	92 (29.8)	16 (5.2)	10 (3.2)	8 (2.6)
You feel embarrassed to get condom*	22 (7.1)	54 (17.5)	16 (5.2)	82 (26.5)	135 (43.7)
You will feel depress when you have HIV*	18 (5.8)	40 (12.9)	48 (15.5)	64 (20.8)	139 (45.0)
You will feel embarrassed to go and take treatment at the clinic when you have HIV*	12 (3.9)	24 (7.8)	48 (15.5)	76 (24.6)	149 (48.2)

*Negative statement

4.10. Specific services for MSM used by respondents

Table 11 shows that all of the respondents heard that there is a service for specific MSM by organization and 76.7% used these services.

Table 33 Specific Services for MSM used by respondents

		Number (n)	Percentage (%)
Have you heard that there is a service for specific MSM by organization?	Yes	309	100
	No		
Do you usually use these services?	Yes	237	76.7
	No	72	23.3

4.11. Satisfaction upon specific services for MSM

Table 12 describes the level of satisfaction about specific services and satisfaction by the respondents. 89% of the respondents who used services for MSM had high level of satisfaction while the rests had low satisfaction.

More than 94% of the respondents highly satisfied about availability of information and health education including health education services, having enough space rooms for people with good lighting and ventilation, systematically arranged health education program, well-trained staffs and well-competent health education; and sufficient information and knowledge about HIV (poster, pamphlet, etc.). More than 99% of the respondents highly satisfied about counseling including privacy during counseling, well-trained counselors and no discrimination. More than 99% of the participants showed high satisfaction about distribution of condoms including easily available of condom, getting enough condoms and good quality of condoms. 99.2% of the respondents highly satisfied about timely referring.

Table 34 Level of Satisfaction and satisfaction by respondents on specific services for MSM by respondents (n = 237)

Level of satisfaction (n = 237)	Percentage	
	Number(n)	(%)
Low satisfaction (60 - 80%)	26	11.0
High satisfaction (> 80%)	211	89.0

	Frequency (percentage)				
	Highest	High	Medium	Low	Lowest
Health Education Services	179 (75.5)	36 (15.2)	22 (9.3)	0 (0)	0 (0)
Room has enough space for people with good lighting and ventilation	131 (55.3)	88 (37.1)	18 (7.6)	0 (0)	0 (0)
Health Education program are systematically arranged	133 (56.1)	86 (36.3)	18 (7.6)	0 (0)	0 (0)
Staffs are well trained and health education are well competent	153 (64.6)	68 (28.7)	16 (6.7)	0 (0)	0 (0)
Poster, pamphlet	173 (73.0)	46 (19.4)	18 (7.6)	0 (0)	0 (0)
Privacy during counseling	195 (82.3)	42 (17.7)	0 (0)	0 (0)	0 (0)
Counselors are well trained and no discrimination	189 (79.8)	46 (19.4)	2 (0.8)	0 (0)	0 (0)
Easily available of condom	194 (81.9)	41 (17.3)	2 (0.8)	0 (0)	0 (0)
Get enough condom	203 (85.7)	34 (14.3)	0 (0)	0 (0)	0 (0)
Good quality of condom	223 (94.1)	12 (5.1)	2 (0.8)	0 (0)	0 (0)
Timely referring	193 (81.5)	42 (17.7)	2 (0.8)	0 (0)	0 (0)

Part II: Bivariate analysis

4.12. Association between socio-demographic factors and condom use for anal sex with partner in the past 4 months

Table 13 shows the association between socio-demographic factors and condom use for anal sex with partner in the past 4 months.

There was no statistically significant association between dependent variable; condom use for anal sex with partner in the past 4 months and independent variables; current age group and education level.

However, marital status was strongly associated with condom use for anal sex with partner in the past 4 months ($p = 0.019$). Condom use was higher in respondents who were never married than those who were currently or formally married. Similarly, occupation was significantly associated with condom use ($p = 0.011$). Condom use was decreased in the other kinds of occupation in compared to Jobless. Socio-economic status was positively associated with condom use ($p = 0.003$) and respondent who owned a house used more condoms by 2.38 times than those who could only rent a house. There was also strong association between current living status and condom use ($p = 0.011$). Those who lived with parents & relatives used more condoms by 1.14 times than those who lived alone and those who lived with friends & partners used fewer condoms by 0.44 times than those who lived alone.

Table 35 Binary analysis of Socio-demographic factors associated with condom use for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Current age-group				
≤ 19 years			1 (ref:)	0.072
20 - 24 years	0.578	0.471	1.78 (0.71 - 4.49)	0.219
25 - 35 years	1.009	0.426	2.74 (1.19 - 6.33)	0.018
≥ 36 years	0.548	0.441	1.73 (0.73 - 4.11)	0.215
Marital status				
Never married			1 (ref:)	0.019*
Currently or formally married	-1.107	0.473	0.33 (0.13 - 0.84)	

Education level				
Primary education			1 (ref:)	0.133
Middle education	0.375	0.372	1.46 (0.7 - 3.02)	0.314
High education	-0.045	0.381	0.96 (0.45 - 2.02)	0.905
University	0.652	0.401	1.92 (0.88 - 4.21)	0.104
Occupation				
Jobless			1 (ref:)	0.011*
Nat-Kadaw (Spirit medium)	-0.856	0.466	0.43 (0.17 - 1.06)	0.066
Work in fashion sector	-0.635	0.348	0.53 (0.27 - 1.05)	0.068
Others #	-1.226	0.376	0.29 (0.14 - 0.61)	0.001
Socio-economic status				
Rent a house			1 (ref:)	0.003*
Own a house	0.865	0.289	2.38 (1.35 - 4.18)	
Current living status				
Live alone			1 (ref:)	0.011*
Live with parents & relatives	0.128	0.419	1.14 (0.5 - 2.58)	0.761
Live with partner & friends	-0.831	0.491	0.44 (0.17 - 1.14)	0.091

#others – waiter, dish washer, carpenter, shopkeeper and house painter

4.13. Association between sexual histories and condom use for anal sex with partner in the past 4 months

Table 14 describes the association between sexual histories and condom use for anal sex with partner in the past 4 months.

Age at first anal sex with a man was positively associated with condom use for anal sex with partner in the past 4 months ($p < 0.001$) and as the age- groups became older, the condom use was higher. There was strongly and negative association between type of steady sexual partner and condom use ($p = 0.028$) and respondents having females as their steady sexual partner used fewer condoms than those having steady sexual partner with males. Oral sex with steady partner using condom was positively and

strongly associated with condom use ($p = 0.004$). Respondents using condoms while oral sex with steady partner used more condoms by 2.63 times. Oral sex with casual partner using condom was positively and strongly associated with condom use ($p < 0.001$). Respondents using condoms while oral sex with casual partner used more condoms by 2.96 times.

There was no statistical significant association between dependent variable; condom use for anal sex with partner in the past 4 months and independent variables; kind of MSM, type of sex partner at first sex with anyone, first anal sex with a man using condom, respondents who have steady sexual partner, respondents who have casual sexual partner and type of casual sexual partner.

Table 36 Binary analysis of Sexual history associated with condom use for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Kind of MSM				
<i>Apone</i> (Masculine MSM)			1 (ref:)	0.685
<i>Apwint</i> (Feminine MSM)	0.262	0.309	1.3 (0.71 - 2.38)	0.396
<i>Tha Nge</i> (Bisexual)	0.149	0.372	1.16 (0.56 - 2.41)	0.689
Type of sex partner at first sex with anyone				
Male			1 (ref:)	0.339
Female	-0.312	0.326	0.73 (0.39 - 1.39)	
Age at first anal sex with a man				
7 - 11 years			1 (ref:)	<0.001*
12 - 19 years	1.276	0.307	3.58 (1.96 - 6.53)	<0.001
20 - 31 years	1.194	0.437	3.3 (1.4 - 7.77)	0.006
First anal sex with a man using condom				
No			1 (ref:)	0.272
Yes	0.300	0.273	1.35 (0.79 - 2.31)	

Respondents who have steady sexual partner				
No			1 (ref:)	0.243
Yes	0.275	0.235	1.32 (0.83 - 2.09)	
Type of steady sexual partner				
Male			1 (ref:)	0.028*
Female	-0.508	0.232	0.6 (0.38 - 0.95)	
Oral sex with steady sex partner using condom				
No			1 (ref:)	0.004*
Yes	0.966	0.332	2.63 (1.37 - 5.04)	
Respondents who have casual sexual partner				
No			1 (ref:)	0.964
Yes	-0.013	0.294	0.99 (0.56 - 1.78)	
Type of casual sexual partner				
Male			1 (ref:)	0.767
Female	0.086	0.291	1.09 (0.62 - 1.93)	
Oral sex with casual sex partner using condom				
No			1 (ref:)	<0.001*
Yes	1.085	0.270	2.96 (1.75 - 5.02)	

4.14. Association between sexual histories of alcohol drinking, place of sex, give or receive presents and condom use for anal sex with partner in the past 4 months

Table 15 shows the association between sexual histories of alcohol drinking, place of sex, give or receive presents and condom use for anal sex with partner in the past 4 months.

Drinking alcohol before sex was negatively and strongly associated with condom use for anal sex with partner in the past 4 months having p-value 0.002. Respondents who drank alcohol before sex used fewer condoms with their partners by 0.38 times. There was strongly association between place to have sex with casual sexual partner and condom use ($p = 0.008$). Respondents who had sex with their casual sexual partner in hotel used more condoms by 2.08 times than those who had sex in dark place far from public area.

There was no statistical significant association between independent variable; condom use while sex after drinking alcohol, giving or receiving presents to have sex with casual partner and dependent variable condom use for anal sex with partner in the past 4 months.

Table 37 Binary analysis of Sexual histories of alcohol drinking, place of sex, give or receive presents associated with condom use for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Drinking alcohol before sex				
No			1 (ref:)	0.002*
Yes	-0.969	0.310	0.38 (0.21 - 0.7)	
Condom use while sex after drinking alcohol				
No			1 (ref:)	0.222
Yes	0.730	0.597	2.07 (0.64 - 6.68)	
Place to have sex with casual partner				
Dark place far from public area			1 (ref:)	0.008*
Hotel	0.731	0.380	2.08 (0.99 - 4.37)	0.054
Place where you live	-0.095	0.327	0.91 (0.48 - 1.73)	0.771
Others	-1.502	0.593	0.22 (0.07 - 0.71)	0.011
Give or received presents to have sex with casual partner				
No			1 (ref:)	0.786

Yes, I gave	-0.056	0.261	0.95 (0.57 - 1.58)	0.830
Yes, I received	-0.231	0.333	0.79 (0.41 - 1.53)	0.487

4.15. Association between history of lubricant used and condom use for anal sex with partner in the past 4 months

Table 16 shows the association between history of lubricant used and condom use for anal sex with partner in the past 4 months.

Regarding the use of lubricants during anal sex, it was not significantly associated with use of condom for anal sex with partner in the past 4 months. But kind of lubricants commonly used during anal sex was strongly associated with condom use ($p < 0.001$). Respondents commonly used saliva as lubricants for anal sex which used fewer condoms for anal sex with partner in the past 4 months than those who commonly used water based gel as lubricants.

Table 38 Binary analysis of Sexual history associated with condom use for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Use of lubricants for anal sex				
No			1 (ref:)	0.866
Yes	-0.052	0.308	0.95 (0.52 - 1.74)	
Kind of lubricants commonly used during anal sex				
Water based gel			1 (ref:)	<0.001*
Saliva	-0.978	0.279	0.38 (0.22 - 0.65)	

4.16. Association between forced sex and condom use for anal sex with partner in the past 4 months

Table 17 shows the association between forced sex and condom use for anal sex with partner in the past 4 months. There was strongly and positively association between

forced to have sexual intercourse against will and condom use having p-value 0.010. Respondents who were forced to have sexual intercourse against will were more likely to use condoms for anal sex with partner in the past 4 months by 2.38 times.

Unlikely, there was no statistically significant association between independent variables; age and frequency of forced sexual intercourse against will and dependent variable condom use for anal sex with partner in the past 4 months.

Table 39 Binary analysis of Sexual history of forced sex associated with condom use for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Forced to have sexual intercourse against will				
No			1 (ref:)	0.010*
Yes	0.866	0.337	2.38 (1.23 - 4.6)	
Age of forced sexual intercourse				
10 - 15 years			1 (ref:)	0.665
16 - 19 years	0.154	0.748	1.17 (0.27 - 5.05)	0.837
≥ 20 years	0.704	0.787	2.02 (0.43 - 9.46)	0.371
Frequency of forced sexual intercourse against will				
1- 3 times			1 (ref:)	0.306
4 - 6 times	-0.758	0.740	0.47 (0.11 - 2)	

4.17. Association between knowledge, attitude and condom use for anal sex with partner in the past 4 months

Table 18 shows the association between knowledge, attitude and condom use for anal sex with partner in the past 4 months. There was no statistical significant association between knowledge and attitude on HIV/AIDS with condom use for anal sex with partner in the past 4 months.

Table 40 Binary analysis of Knowledge, Attitude associated with condom use for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Knowledge on HIV/AIDS				
Low level			1 (ref:)	0.753
High level	-0.073	0.231	0.93 (0.59 - 1.46)	
Attitude towards HIV/AIDS				
Low level			1 (ref:)	0.917
Moderate level	-0.044	0.537	0.96 (0.33 - 2.75)	0.935
High level	0.056	0.526	1.06 (0.38 - 2.97)	0.915

4.18. Association between life skills and condom use for anal sex with partner in the past 4 months

Table 19 reveals the association between life skills and condom use for anal sex with partner in the past 4 months.

Regarding dependent variable, condom use for anal sex with partner in the past 4 months, it was strongly associated with the life skills of proposing action if partner refused to use condom ($p < 0.001$). “Respondents who were able to avoid sex if partner refused to use condom” used more condom than those who negotiated to use condom and had sex without condom. Similarly, life skills of action taken to relieve stress was strongly associated with condom use for anal sex with partner in the past 4 months ($p = 0.016$). Respondents drinking alcohol alone if under stress used more condoms by 1.25 times than those who sought friends for drinking.

However, refusing undesired sex was not significantly associated with condom use for anal sex with partner in the past 4 months.

Table 41 Binary analysis of Life skills associated with condom use for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Life skills to refuse undesired sex				
No			1 (ref:)	0.187
Yes	0.416	0.315	1.52 (0.82 - 2.81)	
Life skills to proposing action if partner refuses to use condom				
Avoid sex			1 (ref:)	<0.001*
Negotiate to use	-0.334	0.362	0.72 (0.35 - 1.46)	0.357
Have sex without condom	-1.758	0.451	0.17 (0.07 - 0.42)	<0.001
Life skill to relieve stress				
Seek friends for drinking			1 (ref:)	0.016*
Seek trusted person for help	-0.506	0.255	0.6 (0.37 - 0.99)	0.047
Drink alcohol alone	0.223	0.645	1.25 (0.35 - 4.42)	0.729
Others##	0.829	0.503	2.29 (0.86 - 6.14)	0.099

Others – Meditation, travelling, listening songs and watching movie

4.19. Association between the used of specific services for MSM associated with condom use for anal sex with partner in the past 4 months

Table 20 shows the association between the used of specific services for MSM associated with condom use for anal sex with partner in the past 4 months.

There was positively and strongly significant association between use of services and condom use ($p < 0.001$). Respondents using specific services for MSM used more condoms by 2.77 times than those who did not use services.

Table 42 Binary analysis of Use of specific services for MSM associated with condom use for anal sex with partner in the past 4 months

	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Use of specific services given by organization for MSM				
No			1 (ref:)	<0.001*
Yes	1.019	0.278	2.77 (1.61 - 4.78)	

4.20. Association between the level of satisfaction on specific services for MSM and condom use for anal sex with partner in the past 4 months

Table 21 shows the association between the level of satisfaction on specific services for MSM and condom use for anal sex with partner in the past 4 months. There was no association between level of satisfaction and condom use.

Table 43 Binary analysis of Level of satisfaction on specific services for MSM associated with condom use for sexual intercourse with partner in the past 4 months

	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Level of satisfaction on specific services for MSM				
Low			1 (ref:)	0.451
High	-0.338	0.448	0.71 (0.3 - 1.72)	

Part III: Multiple logistic regression

4.21. The final model for the association between each independent variables and condom use for anal sex with sexual partner in the past 4 months

Table 22 shows that the final model for the association between each independent variables and condom use for anal sex with sexual partner in the past 4 months. Twenty variables whose p-value was less than 0.25 were put into the logistic regression analysis to find the association with condom use. After running the first step of logistic regression, 12 variables which p-value was greater than 0.05 were excluded from the analysis to get the final model as below.

Table 44 Logistic regression analysis of factors associated with the use of condoms for anal sex with partner in the past 4 months

Variables	Condom use for anal sex with partner in the past 4 months			
	B	S.E	Crude OR (95% CI)	p-value
Current age-group				0.039*
≤ 19 years			1 (ref:)	
20 - 24 years	0.883	0.698	2.42 (0.62 - 9.49)	0.206
25 - 35 years	1.445	0.658	4.24 (1.17 - 15.4)	0.028
≥ 36 years	0.736	0.695	2.09 (0.53 - 8.16)	0.290
Marital status				0.014*
Never married			1 (ref:)	
Currently or formally married	-0.460	0.746	0.63 (0.15 - 2.72)	0.537
Socio-economic status				0.001*
Rent a house			1 (ref:)	
Own a house	1.442	0.414	4.23 (1.88 - 9.53)	0.001
Respondents who have steady sexual partner				0.188
No			1 (ref:)	
Yes	-0.115	0.738	0.89 (0.21 - 3.79)	0.877

Type of steady sexual partner				0.015*
Male			1 (ref:)	
Female	-0.888	0.749	0.41 (0.1 - 1.79)	0.236
Drinking alcohol before sex				<0.001*
No			1 (ref:)	
Yes	-1.063	0.430	0.35 (0.15 - 0.8)	0.013
Place to have sex with casual sexual partner				0.004*
Dark place far from Public area			1 (ref:)	
Hotel	1.210	0.448	3.35 (1.39 - 8.08)	0.007
Place where you live	0.056	0.410	1.06 (0.47 - 2.36)	0.891
Others	-1.156	0.702	0.32 (0.08 - 1.25)	0.100
Forced to have sexual intercourse against will				0.009*
No			1 (ref:)	
Yes	0.905	0.423	2.47 (1.08 - 5.66)	0.032

Current age was that was not significant at p value of <0.05 associated in bi-variate become to be positively associated with the use of condoms with sexual partner (p = 0.039) and the condom use seemed to be increased as the age-group became older but less used in elder group.

Marital status maintained significant with condom use (p = 0.014) and currently or formally married respondents were less likely to use condoms by 0.63 times than never married ones.

Socio-economic status also maintained significant with condom use (p = 0.001). Respondents who owned a house used more condoms with partner by 4.23 times than those who could only rent a house.

Type of steady sexual partner was strongly associated with condom use with partner (p = 0.015) which maintained significant. Respondents who had males as steady sexual partner were less likely to use condom by 0.41 times than those who had females as steady sexual partner.

Drinking alcohol before sex also maintained and it was negatively and strongly associated with condom use ($p < 0.001$) and respondents who drank alcohol before sex were less likely to use condoms by 0.35 times than those who did not drink alcohol before sex.

There was strongly significant association between “places to have sex with casual sexual partner” with condom use ($p = 0.004$). Respondents having sex with their casual partners in hotel were more likely to use condoms with partner 3.35 times than those having sex in dark place far from public area.

There was also strong and positive significant association between “forced to have sex against will” and condom use ($p = 0.009$). Respondents who were “forced to have sexual intercourse against will” used more condoms with partner by 2.47 times than those who did not have forced sex against will.

But there was no significant association between having steady sexual partner and condom use for anal sex with partner in the last 4 months.

CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1. Discussion

This study was cross-sectional analytical study carried out on 309 MSM (Men who have sex with men) residing in Mandalay city, Myanmar. The study was conducted to describe the socio-demographic characteristics, sexual history, Knowledge about HIV/AIDS prevention and transmission, attitudes, life skills and access to MSM orientated services among MSM, and to assess any association of these independent variables with dependent variable (condom use with steady and casual partner) and to estimate the prevalence of condom use among MSM in Mandalay, Myanmar.

The principal finding of the dependent variable indicates that always condom use for anal sex with any partner in the past 4 months was only 56.6%. Complete, correct condom use all the times is the only protective measure against HIV infection and other STI available to MSM in Myanmar at present. The fact that about 57% of MSM in Mandalay use condoms all the times explains the reason for high HIV prevalence among them as reported in NAP 2009b [(50% HIV prevalence among “*Apwint*” (Feminine) and 20% among “*Apone*” (Musculine)]. This study has not specifically investigated the reason for non condom use in the sample population; however, NAP 2009b again reports that non availability is the main reason for no condom use followed by the small number of organizations that provide preventive services (including condom distribution) to MSM (NAP,2009b). During this research informal conversations with some participants have also pointed out that condoms are of one size only and not accompanied by packet of lubricants. This can be a reason for reduced condom use and the scarce availability of lubricant is well documented in NAP2009b as well. Additionally conversations have pointed out that although condoms are available in many places (street vendors, pharmacies, convenience stores) through social marketing, participants do not think to buy them ahead of a sexual encounter, when sometimes, they receive condom free from

the MSM organization, however, they carry these condom with them and use till they are finished. Other forms of HIV prevention such as the pre-exposure prophylaxis with antiretroviral (e.g. Truvada) is not yet feasible in Myanmar and still very much debated even in high income countries (Jessie L et al., 2012).

The remaining part of the discussion will deal with findings related to the independent variables and associations between dependent and independent variables.

Socio-demographic characteristics

In this study, the majority of the respondent was 25-35 years old, never married, had attained middle education, worked in fashion sector, owned a house and live with parents. A greater proportion of unmarried youths were engaged in sexual activity before the age of 20 years and that condom-use was also inconsistent.

In bi-variate analysis, current age was not significantly associated with condom use and the young aged of less than 19 years were less likely to have safe sex by using fewer condoms. This is consistence with the study which showed that young aged of between 15-24 who have temporary partners were more likely to perceive the risks associated with HIV/AIDS in relation to using condom (Mohammad Raisul Haque & Amara Soonthorndhada, 2009). In multi-variable analysis, current age-group became positively associated with condom use with sexual partner ($p = 0.039$) and the condom use seemed to be increased as the age-group became older which is the same with the study of Larmarange, the probability for not condom use was significantly ($p < 0.05$) higher when the male partner was young (19years or under), among the younger age group (18-24years) and among the older age group (35years and over) (Larmarange J et al., 2010).

In marital status, 7.1% are currently or formally married and most are bisexual MSM. Marital status was strongly associated with condom use with sexual partner ($p = 0.019$) in bi-variate analysis and the respondents who never married were able to use more condoms for safe sex than the currently or formally married ones which is likely in the way of the study among 896 adult males in China; one third had ever been married,

71.9% was reported as high prevalence of inconsistent condom use among MSM. Those who did not use condoms with MSM partners were also more likely than others to not use condoms with their female sex partners (Lau JT et al., 2008). They are the bridge of HIV infection to the general population and some MSM get infected HIV from bisexual. In multi-variable analysis, there was still strongly association between marital status and condom use with partner ($p = 0.014$) and currently or formally married respondents were less likely to use condoms by 0.63 times than never married ones.

Occupation was associated with condom use ($p = 0.011$) in bi-variate analysis. Condom use was decreased in the other kinds of occupation (worker in the fashion sector and spirit medium) in compared to Jobless (dependent). This could be explained by the fact that the other kind of occupations are in the great majority of the feminine type (*Apwint*) of MSM. Being feminine they have a less power in the sexual relation and the decision to use condom is left to their masculine sexual partner (*Apone*). The author could not find references in the literature about power roles among feminine and masculine MSM in Myanmar and qualitative research is needed in this area to clarify this research finding of less condom use in worker in the fashion sector and spirit medium.

There was a increase in condom use with sexual partners in university education level by 1.92 times although there was no significant association and this is consistent with the study in which a significant increased in condom use was seen in higher level educational status (Lagarde et al., 2001).

There was strong and positive association between socio-economic status and condom use with sexual partner ($p = 0.003$) and the condom use was high in better socio-economic by 2.38 times. This is similar to the study which mentioned that the condom use among MSM is low according to poor socio economics status among MSM in India (Bertozzi SM et al., 2004) and the study which shows that the high socio-economic status of respondents associated with consistent condom use (Gutierrez JP et al., 2006). In multi-variable analysis, socio-economic status was strongly and positively associated with condom use ($p = 0.001$). Respondents who owned a house used more condoms with sexual partner by 4.23 times than those who could only rent a house.

Sexual history

Among three kinds of MSM in this study, most of MSM are “*Apwint*” (Feminine MSM) and least is “*Apone*” (Masculine MSM). The high percentage may not be the truth of Feminine MSM in Mandalay city. 62% of “*Apwint*” is likely the result of my snow ball sampling technique which detect Feminine MSM easily and cannot detect other kinds because they are hidden due to cultural and social barrier. Other research methods used for difficult to reach population such as *venue based interviewing* or modification of snow ball technique such as *respondent driven interviewing* can detect difficult to reach proportions of MSM types such as bisexuals and masculine MSM (van Griensven F et al., 2009). Future research using these methods may give different and more reliable results on the proportion of the three MSM groups in Mandalay.

According to types of sex partner at first sex with anyone, 85.8% is with male and 14.2% is first time they have sex with female. Most of 14.2% are bisexual and they are bridge of HIV infection to generalization. Half of MSM is 15 – 19 years while aged at first anal sex with man followed by 20% aged of 7 – 11 years. This age group is very young compared to Thailand which is 18 years when they have first sex (Durex, 2005). Among 309 respondents, 61.2% have steady sexual partner. 81.2% have casual sexual partner which is a high percentage like other countries.

Almost all of the respondents have risk behavior of oral sex with not only steady but also casual partner and about one-third of them always used condoms on that occasion. Out of 309, 17.5% drank alcohol before sex but condom use was only 14.8% and this shows the high risk behavior to unprotected sex. 54.6% of respondents in this study had sex with casual partner at dark place far from public area and they could not get a chance to use condom even if they know to use condom. Among 309 respondents, more than half of them did not give or receive presents to have sex which is not sure whether they actually give or receive presents. 83.2% of MSM used lubricants during anal sex. Most of them used water based gel but one third used saliva as lubricant which is a wrong practice to get unprotected sex. Out of 309, 16.8% have sexual abuse and all

of them did not use condom during that occasion and these histories are at a greater risk for HIV infection and higher rates of HIV sexual risk behavior (Mimiaga MJ et al., 2009).

In bi-variate analysis, age of anal sex with a man was positively and strongly associated with condom use with sexual partner ($p < 0.001$) and the older age-groups, “12 – 19 years” and “20 – 31 years”, were more likely to use more condoms with sexual partner by 3.58 and 3.3 times respectively when compared to 7 to 11 age-group. This is consistent with the study showing that age of 25-29 was less likely to report unprotected anal sex compared to aged 18-24 among MSM (Mansergh G et al., 2006).

In bi-variate analysis, having steady partner was not significantly associated with condom use with sexual partner but those having steady partner were more likely to have unprotected sex. This result is quite similar to the study in which youths having temporary partners were more likely to perceive risk and reason for using a condom than when with their regular partner (Mohammad Raisul Haque & Amara Soonthorndhada, 2009). In multi-variable analysis, there was no significant association between having steady sexual partner and condom use with sexual partner.

Type of steady partner was significantly associated with condom use with sexual partner and those having steady partner as females were less likely to have safe sex with partner than those having steady partner as males. This is consistent with the study which found out that those who did not use condoms with MSM partners were also more likely than others to not use condoms with their female sex partners (Lau JT et al., 2008). In multi-variable analysis, type of steady sexual partner was strongly associated with condom use with sexual partner ($p = 0.015$). Respondents who had males as steady sexual partner were less likely to use condom by 0.41 times than those who had females as steady sexual partner.

In bi-variate analysis, there was strongly and negatively association between alcohol drinking before sex with condom use with sexual partner and those who drank alcohol before sex were less likely to use condoms by 0.38 times. This result is almost similar to the study showing that habit of alcohol drinking was associated with condom

use and the quantity of alcohol consumed was associated with reduced in condom use (Ford K & Norris AE, 1998). In multi-variable analysis, drinking alcohol before sex was still negatively and strongly associated with condom use with sexual partner ($p < 0.001$) and respondents who drank alcohol before sex were less likely to use condoms by 0.35 times than those who did not drink alcohol before sex.

In bi-variate analysis, there was strongly and positive association between sexual abuse and condom use with sexual partner and respondents who had sexual abuse used more condoms with sexual partner by 2.38 times. This result is quite similar to the study which showed that the prevalence of childhood sexual abuse (CSA) among men who have sex with men is significantly higher than those in the general male population in previous studies of United States (Mimiaga MJ et al., 2009). A possible reason for so much sexual abuse among MSM in Myanmar is the high discrimination and stigmatization by the general society because of social and cultural barrier. So, they have to hide their sexual behavior and this make it extremely difficult to report sexual abuse to the police and therefore get protection from further abuse. In multi-variable analysis, there was also strong and positive significant association between “forced to have sex against will” and “condom use with sexual partner” ($p = 0.009$). Respondents who were “forced to have sexual intercourse against will” used more condoms with steady partner by 2.47 times than those who did not have forced sex against will.

There are many laws and practices all over the world for MSM. For instance, some 80 countries criminalize some form of sexual behavior between men who have sex with men (MSM). On this front, some 20 countries can impose very serious sanctions ranging from long term prison sentences to capital punishment. MSM are suffering from sexual discrimination worldwide because of police corruption, violence and abuse of police powers and the practice of police against MSM are different to the law because no MSM go to prison (BICC, 2009).

Unlike many other countries there is no specific against sexual abuse in Myanmar and this makes it difficult to protect and prevent sexual abuse among all kind of citizen including MSM.

The Legal situation and Law Enforcement Authorities for MSM in Myanmar include

- Sex between males is illegal with punishable of death or life long imprisonment(Penal Code of 1882-1888)
- Sex work is illegal for males and females
- There are no laws protecting MSM and there are no laws against discrimination on the basis of HIV status
- The legal system has been classified as “highly repressive” and “prohibitive in high intensity” for MSM (WHO, 2010).

Knowledge and Attitude towards HIV/AIDS

Out of 309, 75.1% had moderate level of knowledge which seems to be adequate knowledge but 79% of the respondents gave wrong answer in the question of “there is a cure for HIV infection that cleans the body from HIV”. Although knowledge about HIV and AIDS is high a significant minority (23%) of MSM in our sample still have wrong knowledge about having sex without condom use only once and no risk to get infected by a person with HIV/AIDS, about no need to use condom with a steady partner, and about the high risk of HIV infection when having multiple sexual partner. Although multiple sexual partners is not a risk of HIV infection if condom is used every time consistently with all the sexual partners, are more likely to have unprotected sex because among many sexual partners it is more likely to have some of them who are stronger and can impose their will not to use condom during sex.

These different aspects of wrong knowledge can lead MSM to get infected by HIV/AIDS among themselves, and being a bridge for generalization of HIV infection among heterosexual population. Other research among MSM conducted in Asia (Lau JT et al., 2004) has shown that still there is a large minority of MSM with wrong knowledge about practices linked to HIV infection.

In bi-variate analysis, knowledge was not associated with condom use with sexual partner. However, those with high knowledge level seemed to use fewer condoms than

those with low knowledge showing that the higher knowledge on HIV/AIDS did not influence the condom use with sexual partner. This is inconsistent with the study which showed that the greater of knowledge about HIV/AIDS was also significant in condom use among MSM (Lance Coleman C, 2007) and the lack of knowledge is one of the barriers in condom use.

Life skills

In bi-variate analysis, the life skills of proposing action if a partner refuses to use condom was strongly associated with condom use. This result is similar to the study which showed that the most important correlates of condom use were high life-skills rating (Gutierrez J P et al., 2006).

Access to MSM services

Regarding use of services for MSM, all respondents heard about these services and 76.7% used them and are very satisfied with them. (73% to 81% satisfaction depending on the services). In bi-variate analysis, use of these services for MSM was strongly and positively associated with condom use ($p < 0.001$) and respondents using these services were more likely to use condoms by 2.77times. It is the same like in the study of Gutierrez, have shown the positive association of condom use and the availability of community base MSM organization services as reported in India (Gutierrez J P et al., 2010). Access to services is 100% and this is most probably due to the result of Snow ball sampling technique, many MSM may not have access which are not including in my study interview.

5.2. Conclusion

The result of this study showed that high socio-economic status, single-never married, jobless (dependent) MSM significantly use more condom with their partner as well in the current age group of older people and higher education level also use more condom although these variables were not associated. This result is a guide for any

organization which provides health promotion to direct their service to these particular groups of MSM in Mandalay city, Myanmar.

In this study, there was high Knowledge was obviously among MSM regarding HIV/AIDS prevention except for the wrong knowledge that there is a cure for AIDS. In the results, there was no statistically significant association between condom use and knowledge and attitudes of respondents. It is clear that improving knowledge alone would not be enough for increasing condom use among MSM. On the other end Life skills were significantly associated with condom use.

There was no use of drugs before having sex among MSM in the result. This may be the appropriate answer to them because this kind is very sensitive to law upon drug use.

Among 309 respondents, 16.8% had been sexually abused by man and forced into anal sex. Almost half of them (42.3%) were at the age of 10-15 at that time. There was no condom use in all cases of sexual abuse.

For the service satisfaction given by the organization is highly satisfied by the respondents but there is still need to provide focused information and life skills training.

5.3. Recommendations

Recommendations for HIV/AIDS programme among MSM in Mandalay, Myanmar

Organizations working with MSM, with support from the National AIDS programme should:

1. Offer health education to MSM
 - Regarding the availability of treatment for HIV infection but not it is cure, the risk of HIV infection from a steady partner, and from even a single unprotected sexual intercourse.
 - Inclusive of life skills development in particular negotiation and refusal skills.
 - Inclusive of life skills to avoid situations that put MSM in the risk of forced sex.
2. Make condom and lubricants more available through direct distribution within the MSM organizations in Mandalay.

3. MSM organizations should involve *Apwint* (Feminine MSM) in their work more extensively. *Apwint* are the best channel to convey information and distribute condom among *Apone* (Musculine MSM) and *Tha Nge* (Bisexual MSM) for because these two kinds of MSM are hidden among MSM society in Mandalay and can easily be reached by *Apwint* only.
4. NAP and MSM organization should cooperate with other sectors such as police to protect MSM from sexual abuse and take steps to decriminalize MSM and reduce the barriers MSM face in reporting crimes against them (including sexual violence)

Recommendations for further research

1. Conduct qualitative research on the reasons behind very low condom use among worker in the fashion sector and spirit medium.
2. Investigate the reasons for non condom use among MSM by using qualitative research and specific questions in questionnaire based quantitative research. It is necessary to update published information about the reasons for no condom use because these reasons keep change over time.

REFERENCES

- AMI. (2006), *Behavioral Surveillance Survey report*, Aide Medicale Internationale, Dala, Health promotion centre, Health education team (Intra-organizational report)
- AVERT. (2011), [Online]. *HIV, AIDS and Men Who Have Sex with Men*. Available from: <http://www.avert.org/men-sex-men.htm> [2011]
- Baral S. et al. (2007), Elevated Risk for HIV Infection among Men Who Have Sex with Men in Low- and Middle-Income Countries 2000–2006: *A Systematic Review*. *PLoS Med* 4(12): e339.
- Bertozzi S M. et al. (2004), *Condom use among Indian MSM is associated with higher socioeconomic status*. Poster Exhibition: The XV International AIDS Conference: Abstract no. WePeC6121.
- BICC.(2009), Symposium report, Overcoming legal barriers to comprehensive prevention among MSM and TG in Asia Pacific, *9th International Congress on AIDS in Asia and the Pacific*, Bali International Conference Center. 11 Aug. 2009.
- David Lewis. (2009), *Nongovernmental Organizations, Definition and History*, Springer-Verlag Berlin Heidelberg 2009.
- Durex. (2005), Global Sex Survey, [Online]. Available from: <http://data360.org/pdf/20070416064139.Global%20Sex%20Survey.pdf>.

- FHI. (2009), *Integrated bio-behavioral survey among men who have sex with men in Kathmandu Valley*: Family Health International, round III. Kathmandu, Nepal, 2009.
- Ford K & Norris AE. (1998), Alcohol use, perceptions of the effects of alcohol use, and condom use in urban minority youth, *J Acquir Immune Defic Syndr Hum Retrovirol.* 1998 Mar 1;17(3):269-74.
- Gutierrez J P. et al. (2006), Correlates of condom use in a sample of MSM in Ecuador, *BMC Public Health.* 2006 Jun 12; 6:152.
- Gutierrez J P. et al. (2010), Community based prevention leads to an increase in condom use and a reduction in sexually transmitted infections(STIs) among men who have sex with men(MSM) and female sex workers(FSW): the Frontiers Prevention Project(FPP) evaluation results, *BMC Public Health 2010*, 10:497
doi:10.1186/1471-2458-10-497.
- Hosmer & Lemenshow. (2000), *Applied logistic regression*. New York: John Loiley and sons; 2000
- Jessie L. et al. (2012), The Cost-Effectiveness of Pre-exposure Prophylaxis for HIV Prevention in the United States in Men Who Have Sex with Men, *Annals of Internal Medicine*, 2012; 156(8):541-550.
- Kelly J A. et al. (1995), Factors predicting continued high risk behavior among gay men in small cities: Psychological, behavioral and demographic characteristics related to unsafe sex. *Journal of Conduiting and Clinical Psychology*, 1995; 63(1):101-107.

- Lagarde. et al. (2001), Educational level is associated with condom use within non-spousal partnerships in four cities of sub-Saharan Africa, *AIDS*. 2001 Jul 27;15(11):1399-408.
- Lance Coleman C. (2007), Health beliefs and high-risk sexual behaviors among HIV infected African American men, *Appl Nurs Res*. 2007 Aug;20(3):110-5
- Larmarange J. et al. (2010), Men Who Have Sex with Men (MSM) and Factors Associated with Not Using a Condom at Last Sexual Intercourse with a Man and with a Woman in Senegal. *PLoS ONE* 5(10): e13189.
doi:10.1371/journal.pone.0013189.
- Lau JT. et al. (2004), HIV related behaviors and attitudes among Chinese men who have sex with men in Hong Kong: a population based study, *Sex Transm Infect*. 2004 Dec; 80(6):459-65.
- Lau JT. et al. (2008), Prevalence of bisexual behaviors among men who have sex with men (MSM) in China and associations between condom use in MSM and heterosexual behaviors, *Sex Transm Dis*. 2008 Apr;35(4):406-13.
- Mansergh G. et al. (2006), Inconsistent condom use with steady and casual partners and associated factors among sexually-active men who have sex with men in Bangkok, Thailand, *AIDS Behav*. 2006 Nov; 10(6):743-5.
- Mimiaga MJ. et al. (2009), Childhood sexual abuse is highly associated with HIV risk-taking behavior and infection among MSM in the EXPLORE Study, *J Acquir Immune Defic Syndr*. 2009 Jul 1; 51(3):340-8.

MOH. (2010), *Myanmar National Strategic Plan on HIV and AIDS 2006-2010*, Yangon, Ministry of Health, Union of Myanmar.

Mohammad Raisul Haque & Amara Soonthorndhada. (2009), Risk perception and condom use among Thai youths: Findings from kanchanaburi demographic surveillance system site in Thailand, *J Health Popul Nutr* 2009 December, 27(6): 772-783.

Moreau-Gruet F. et al. (2001), Management of the risk of HIV infection in male homosexual couples, *AIDS* 2001; 15:1025-35.

MSMGF. (2011), *Top Ten Key Global Policy Developments in 2010: Reflections from the Global Forum on MSM & HIV (MSMGF)*, [Online]. Available from: <http://www.msmsgf.org/index.cfm/id/11/aid/3027/langID/1/>

NAC. (2008), *UNGASS country report (2006–2007)*. National AIDS Commission, Jakarta, Republic of Indonesia, 2008.

NACO. (2007), *HIV sentinel surveillance and HIV estimation in India 2007*: National AIDS Control Organization, a technical brief. New Delhi, 2007.

NAP. (2009a), *Integrated biological and behavioral survey (IBBS) on truckers and men who have sex with men 2008-2009*. Yangon, National AIDS Programme, Department of Health, Ministry of Health, (draft, unpublished).

NAP. (2009b), *Behavioral survey in Mandalay*, National AIDS Programme, Department of Health, Ministry of Health.

PSI. (2005), *History of PSI Myanmar*, NGO, Population Services International PSI Myanmar

Ramirez J. et al. (1994), AIDS knowledge and sexual behavior among Mexican gay and bisexual men, *AIDS Educ Prev.* 1994 Apr; 6(2):163-74.

Shah Anup. (2009), “AIDS around the world”. *Global Issues.* 29 Nov. 2009. Web. 06 May. 2012. [Online]. Available from :
<http://www.globalissues.org/article/219/aids-around-the-world>

Thongdee W & Kuttiyavitayakul V. (2011), HIV prevalence and risky behavior among men who have sex with men in Nakhon Ratchasima Province. *J. Pub. Health Dev.* 2011; 9(2): 178-91.

UNAIDS. (2009),”*UNAIDS Action Framework: Universal Access for Men who have Sex with Men and Transgender People*” (15th May 2009). [Online]. Available from:
<http://www.unaids.org/en/Resources/PressCentre/Featurestories/2009/May/20090515ActionFramework/>.

UNAIDS. (2010), *Global report, UNAIDS report on the global AIDS epidemic 2010*, “UNAIDS/10.E/JC1958E” [online]. Available from:
http://www.unaids.org/globalreport/documents/20101123_GlobalReport_full_en.pdf

UNAIDS. (2011), *UNAIDS Terminology Guidelines, October 2011*. [Online]. Available from:
http://www.unaids.org/en/media/unaids/contentassets/documents/document/2011/jc1336_unaids_terminology_guide_en.pdf.

van Griensven F. et al. (2009), Trends in HIV Prevalence, Estimated HIV Incidence, and Risk Behavior Among Men Who Have Sex With Men in Bangkok, Thailand, 2003-2007, *J Acquir Immune Defic Syndr*. 2009 Nov 5.

Wade A.S, et al. (2005), HIV infection and sexually transmitted infections among men who have sex with men in Senegal. *AIDS*,19(18): 2133-2140.

WHO. (2009), *Report of the HIV sentinel sero-surveillance survey 2008, Yangon*. National AIDS Programme, Department of Health, Ministry of Health. [March, 2009].

WHO. (2010), SEARO, The current situation and national responses, *HIV/AIDS among men who have sex with men and transgender populations in South East Asia*.

WHO. (2012), Health Topics [online]. Available from :
http://www.who.int/topics/hiv_aids/en/.

APPENDICES

APPENDIX A: QUESTIONNAIRE

Part I

Socio-Demographic characteristics

Explanation; Please mark into the gap () or add the actual text into the gap.

1. How old are you?years (completed birthday) []

2. Where do you live?

..... (Specify township)

3. What is the highest grade of education you attended? []

() 1. Primary education

() 2. Middle education

() 3. High education

() 4. University

4. What is your occupational status? []

() 1. Non Occupation

() 2. Nat Kadaw (Spirit medium)

() 3. Work in the fashion sector (Hair style, Make-up, dress designer)

() 4. Others (Specify)

5. What is your socio- economic status? []
- () 1. Rent a house
- () 2. Own a house
6. What is your current living situation? []
- () 1. Live alone
- () 2. Live with parents
- () 3. Live with a relative (brother, sister, aunt etc)
- () 4. Live with partner
- () 5. Live with friends
7. What is your current marital status? []
- () 1. Single – never married
- () 2. Currently or formally married

Part II

Sexual History

1. What kind of MSM you are? []
- () 1. *Apone* (Masculine MSM)
- () 2. *Apwint* (Feminine MSM)
- () 3. *Tha Nge* (Bisexual MSM)
2. When you had first sex with anyone, was this partner a male or a female? []
- () 1. Male
- () 2. Female

3. Have you ever had an anal sexual intercourse with a man? []

(Anal sexual intercourse means that your/his penis entered your/his anus)

() 1. Yes

() 2. No

3.1 How old were you the first time you had anal sex intercourse with a man []

(Anal Sexual intercourse means that his/your penis was entered in your/his anus)

.....Years

3.2 Did you use a condom on first anal sex intercourse with a man? []

() 1. Yes

() 2. No

4. During the past 4 months did you have a steady sexual partner? []

*(Steady partner is somebody you know for more than two months,
have sex with regularly and feel an emotional bond with)*

() 1. Yes

() 2. No

4.1 Is this steady partner []

() 1. Male

() 2. Female

4.2 When you had sexual intercourse with your steady partner(s) in the past 4 []
months, how often did you use condom (from start to finish)?

() 1. Always

() 2. Almost always

- () 3. Half of the time
- () 4. Some of the time
- () 5. Never

4.3 Do you have oral sex with this partner? []

- () 1. Yes
- () 2. No

4.3.1 If you have oral sex with this partner, how often do you use a condom (from start to finish) in the past 4 months? []

- () 1. Always
- () 2. Almost always
- () 3. Half of the time
- () 4. Some of the time
- () 5. Never

NOTE: the following questions will only appear if the respondent has casual partners

5. During the past 4 months did you have any casual partner? []
(*casual partner is somebody you have sex with only, and without pay*)

- () 1. Yes, I had more than one steady partner at the same time
- () 2. No, I had only one steady sexual partner

5.1 Is this casual partner []

- () 1. Male

2. Female

5.2 Do you have oral sex with this partner? []

1. Yes

2. No

5.3 If you have oral sex with this partner, how often do you use a condom (from start to finish) in the past 4 months? []

1. Always

2. Almost always

3. Half of the time

4. Some of the time

5. Never

6 When you had anal sex with your partner(s) in the past 4 months, how often did you use condoms? []

1. Always

2. Almost always

3. Half of the time

4. Some of the time

5. Never

7 Did you ever get drunken alcohol in your life time before sex? []

1. Yes

2. No

3. Do not want to answer

7.1 If yes did you use condom when you had sex after drinking alcohol? []

- 1. Always
- 2. Almost always
- 3. Half of the time
- 4. Some of the time
- 5. Never

8 Did you ever use drug in your life time before sex? []

- 1. Yes
- 2. No
- 3. Do not want to answer

8.1 If yes, did you use condom when you had sex after taking drugs? []

- 1. Always
- 2. Almost always
- 3. Half of the time
- 4. Some of the time
- 5. Never

9 Have you ever used lubricants for anal sex? []

- 1. Yes
- 2. No

9.1 Which lubricants do you commonly use during anal sex? []

- 1. Water based Gel

- 2. Saliva
- 3. Vaseline
- 4. Hand lotion
- 5. Baby oil
- 6. Cooking oil
- 7. Others (Specify).....

9.2 How often have you used lubricants during anal sex in the past 4 months? []

- 1. Always
- 2. Almost always
- 3. Half of the time
- 4. Some of the time
- 5. Never

10 Where did you go to have sex with your casual sexual partners? []

- 1. School or work
- 2. Hotel
- 3. The place where you live
- 4. The place where your partner lives
- 5. Park
- 6. Toilet at disco or pub
- 7. Dark Place far from public area

11 Did you give or receive any presents to have sex with casual partner? []

() 1. Yes, I gave

() 3. Yes, I received

() 5. None of above

12 Were you ever forced (physically or mentally) to have sexual intercourse against your will? []

() 1. Yes

() 2. No

13. At what age did this happen for the first time? [][]

13.1 Did this involve sexual intercourse? []

() 1. Yes

() 2. No

13.2 How often did men force you to have sex against your will in your life time? []

() 1. 1-3 times

() 2. 4-6 times

() 3. More than 6 times

13.3 Was a condom used on that occasion (from the beginning to the end)? []

() 1. Always

() 2. Almost always

() 3. Half of the time

() 4. Some of the time

() 5. Never

Part III

Knowledge about HIV/AIDS prevention and transmission

Explanation: Please mark () into the gap that you think the most accurate.

If answer is correct, it is equal one, and incorrect answer is zero.

Knowledge	Correct	Incorrect	Not Sure	Unknown
Knowledge on HIV/AIDS prevention				
AIDS occur only among men who have sex with men				
Having sex without condom use only once will not infect a person with HIV/AIDS				
It is possible to get HIV/AIDS by having sex				

with a healthy looking person				
It is possible to protect oneself against HIV/AIDS by vaccination				
There is no need to use condom with a steady partner				
Having multiple sexual partners is high risk of HIV				
Using condom during anal sex can protect risk of HIV				
There is treatment for HIV infection that prolong healthy life				
There is a cure for HIV infection that clean the body from HIV				
You need to use lubricants while you have				

sexual contact				
HIV/AIDS can be transmitted by				
By blood transfusion				
By sharing needle/syringe				
By tattooing				

Part IV

Attitude towards HIV/AIDS and condom use

Please mark () in the box that matches the ideas and feeling of yours.

Strongly agree means that respondents agree with the question significantly.

Agree means that respondents agree with the question.

Unsure means that respondents are not sure about the question.

Disagree means that respondents disagree with the question.

Strongly disagree means that respondents disagree with the questions significantly.

Question	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
AIDS is a serious health problem among men who have sex with men					
Everyone has equal chance to get HIV/AIDS					
It is easy to use condoms					
You can get condom easily from everywhere.					
You feel embarrassed to get condom					
You will feel depress when you have HIV.					

<p>You will feel embarrassed to go and take treatment at the clinic when you have HIV</p>					
---	--	--	--	--	--

Part V

Life skills and condom use

Please give answers that represent your situations in regard with the following statements

1. Able to refuse undesired sex! []
 - () 1. Always
 - () 2. Sometimes
 - () 3. Never

2. Able to resist pressure to use drug! []
 - () 1. Always
 - () 2. Sometimes
 - () 3. Never

3. What do you do if your partner refuses to use condom? []
 - () 1. Avoid sex
 - () 2. Negotiate to use
 - () 3. Have sex without condom

4. What do you do when under stress? (can answer more than one) []
- () 1. Seek friends for drinking
- () 2. Seek trusted person for help
- () 3. Drink alcohol alone
- () 4. Take drug with friends (eg. Methamphetamines-yaa baa or other drugs)
- () 5. Take drug alone (eg. Methamphetamines-yaa baa or other drugs)
- () 6. Other..... (Specify)

Part VI

Access of MSM orientated services

1. Have you ever heard that there is a service for specific MSM by organization? []
- () 1. Yes
- () 2. No
2. If yes, do you usually use these services? []
- () 1. Yes
- () 2. No
3. If you use these services,
Please mark () according to your satisfaction.

Highest level means that respondents are satisfied with the service the most.

High level means that respondents are satisfied with the service.

Medium level means that respondents are satisfied with the service medium.

Low level means that respondents are satisfied with the service less.

Lowest level means that respondents are satisfied with the service lowest.

	indicators	Levels of Satisfaction				
		Highest	High	Medium	Low	Lowest
1. Availability of information and health education	Health Education Services					
	Room has enough space for people with good lighting and ventilation					
	Health Education program are systematically arranged.					
	Staffs are well trained and health education are well competent					
	They provide sufficient information and knowledge about HIV (Eg. Poster, pamphlet etc)					

2.Counseling (Pre-Test and Post-Test)	Privacy during counseling					
	Counselors are well trained and no discrimination					
3. Distribution of condom	Easily available of condom					
	Get enough condom					
	Good quality of condom					
4.Referral to public clinic	Timely referring					

Appendix: B

Time Schedule

Research process/ activities	2011					2012				
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Research question formulation and literature review										
Proposal writing										
Formatting of measurement tools (questionnaire)										
Ethical approval										
Field work: data collection (mid- march)										
Data analysis										
Report writing and presentation										

APPENDIX: C**BUDGET**

S.N	Activities	Cost in Bath
1	Tools development(paper+printing) 700pages	3000
2	Stationary 2 sets	600
3	Binding paper 6sets	1200
4	Assistant training cost 1000Bath/day 3 days	3000
5	Data collecting interviewing cost 300Bath/day 3person* 14 days	12600
6	Data processing 200Bath/day 14 days	2800
7	Pretest 800Bath/day	800
8	Souvenir for respondents 50Bath/set 350 sets	17500
9	Data collection(typing, photocopy questionnaires) 10Bath/set 350 sets	3500
10	Transportation cost 150Bath/day 14days	2100
11	Accommodation cost 500Bath/day 14days	7000
12	Rapport build up and food 50Bath/person 3person	150
13	Publication	2000
	TOTAL	56250

APPENDIX: D

Pictures

Training of how to conduct interview



Interviewing



CURRICULUM VITAE

Personal Details

Name : Mr Myo Zin Oo

Date of Birth : July 17, 1987

Nationality : Myanmar

Place of Birth : Mandalay, Myanmar

Marital Status : Single

Address : 77/I, Btw 73rd and 74th, Btw 32nd and 33rd street,
Chanayetharzan Township, Mandalay, Myanmar

Telephone (Mobile) : +959 206 0956

EDUCATION AND QUALIFICATION

M.B., B.S (Mdy)

(Medicine, Surgery, Obstetrics & Gynecology, Child)

WORK EXPERIENCE

One year internship at Sao San Htun General Hospital and Women and Children Hospital Taunggyi in 2010

Volunteer Counselor for pre-test, post test and treatment of HIV/AIDS at Sao San Htun Hospital, Taunggyi, Myanmar in 2010