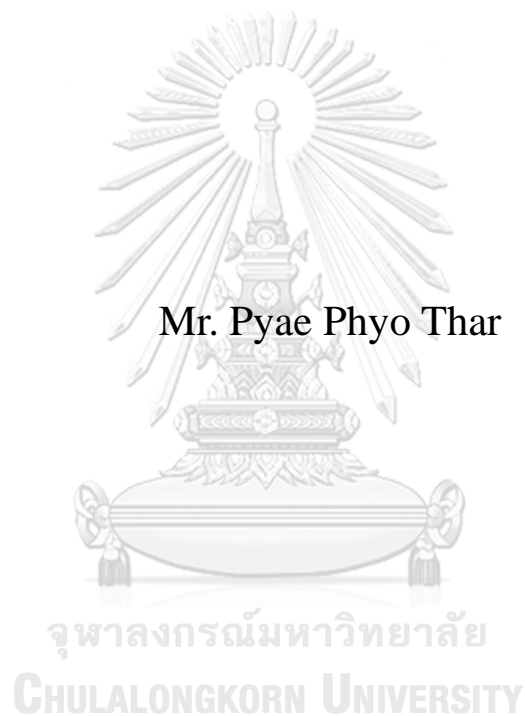


**FACTORS ASSOCIATION OF DISCRIMINATORY  
ATTITUDES TOWARD PEOPLE LIVING WITH HIV/AIDS  
AMONG ADULT CITIZENS IN MYANMAR: AN ANALYSIS  
OF 2015-2016 MYANMAR DEMOGRAPHIC AND HEALTH  
SURVEY**



**A Thesis Submitted in Partial Fulfillment of the Requirements  
for the Degree of Master of Public Health in Public Health  
COLLEGE OF PUBLIC HEALTH SCIENCES  
Chulalongkorn University  
Academic Year 2022  
Copyright of Chulalongkorn University**

ปัจจัยความสัมพันธ์ต่อทัศนคติการเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวี/เอดส์ในพลเมืองผู้ใหญ่  
ประเทศเมียนมา: การวิเคราะห์จากสำรวจประชากรศาสตร์ และสุขภาพของประเทศเมียนมา  
พ.ศ. 2558-2559



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต  
สาขาวิชาสาธารณสุขศาสตร์ ไม่สังกัดภาควิชา/เทียบเท่า  
วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย  
ปีการศึกษา 2565  
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย



พย เทียว ทา : ปัจจัยความสัมพันธ์ต่อทัศนคติการเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวี/เอดส์ในพลเมืองผู้ใหญ่ ประเทศ  
 เมียนมา: การวิเคราะห์จากสำรวจประชากรศาสตร์ และสุขภาพของประเทศเมียนมาพ.ศ. 2558-2559. ( **FACTORS ASSOCIATION OF DISCRIMINATORY ATTITUDES  
 TOWARD PEOPLE LIVING WITH HIV/AIDS AMONG ADULT  
 CITIZENS IN MYANMAR: AN ANALYSIS OF 2015-2016 MYANMAR  
 DEMOGRAPHIC AND HEALTH SURVEY**) อ.ที่ปรึกษาหลัก : ผศ.ประมณฑ์ วิวัฒนกุล  
 วานิชPh.D

เมียนมาเป็นประเทศกำลังพัฒนาที่ยังคงเป็นหนึ่งในประเทศที่มีความชุกของการติดเชื้อเอชไอวีสูงสุด ความเข้าใจ  
 ผิด การตีตรา และการเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวีเป็นปัจจัยสำคัญที่มีผลเกี่ยวข้องกับการป้องกัน การแพร่เชื้อ และการรักษา  
 เอชไอวี ดังนั้นการตีตราและการเลือกปฏิบัติที่เกี่ยวข้องกับผู้ติดเชื้อเอชไอวีจึงเป็นประเด็นสำคัญที่ส่งผลกระทบต่อความพยายาม  
 ด้านสาธารณสุขในการป้องกันการแพร่กระจายของเชื้อเอชไอวีและการสนับสนุนการอยู่ร่วมกันกับผู้ติดเชื้อไวรัส  
 ดังกล่าว ถึงแม้สิ่งเหล่านี้จะมีความสำคัญ แต่ปัญหาการตีตราและการเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวี มักถูกมองข้ามในการ  
 แก้ไขปัญหาในระดับชาติ ทั้งนี้ประเทศเมียนมามีการศึกษาที่จำกัดเกี่ยวกับการเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวี/เอดส์ ซึ่ง  
 จำเป็นต้องเข้าใจสถานการณ์ดังกล่าวเพื่อนำไปสู่แนวทางแก้ปัญหา ดังนั้นงานวิจัยนี้จึงมีวัตถุประสงค์เพื่อประเมินระดับความรู้  
 และทัศนคติการเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวี/เอดส์ในพลเมืองผู้ใหญ่ชาวเมียนมา และระบุปัจจัยสำคัญที่มีอิทธิพลต่อทัศนคติ  
 การเลือกปฏิบัติ ระเบียบวิธีวิจัยนี้ใช้การวิเคราะห์ข้อมูลทุติยภูมิจากแบบสำรวจภาคตัดขวางประชากรและสุขภาพของประเทศ  
 เมียนมา ที่ดำเนินการในปีพ.ศ. 2558-2559 โดยประชากรที่ทำการศึกษาเป็นชายและหญิงอายุ 15-49 ปี ที่เคยได้ยิน  
 เรื่องโรคเอดส์และแสดงทัศนคติที่ยอมรับหรือเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวี/เอดส์ การศึกษาใช้การวิเคราะห์ถดถอยโลจิสติก  
 แบบพหุเพื่อหาปัจจัยที่เกี่ยวข้องกับตัวแปรตาม โดยกำหนดค่านัยสำคัญ < 0.05 การศึกษานี้ มีผู้เข้าร่วม 13,978 คน โดย  
 แบ่งเป็นผู้หญิง 70% และผู้ชาย 30% อายุเฉลี่ย 31.77 ปี (ส่วนเบี่ยงเบนมาตรฐาน  $\pm 9.77$ ) พบว่าผู้เข้าร่วม 79% มี  
 ทัศนคติการเลือกปฏิบัติต่อผู้ติดเชื้อเอชไอวี การศึกษานี้ยังพบว่าอายุ สถานภาพสมรส ระดับการศึกษา ช่องทางการรับสื่อ ที่ตั้ง  
 ทางภูมิศาสตร์ และความรู้เรื่องเอชไอวี/เอดส์มีอิทธิพลต่อทัศนคติการเลือกปฏิบัติอย่างมีนัยสำคัญ โดยเฉพาะกลุ่มสูงอายุ  
 (AOR 0.72; 95% CI 0.56-0.91,  $p=0.006$ ) กลุ่มที่มีระดับการศึกษาสูง (AOR 0.41; 95% CI 0.27-0.60,  $p<0.001$ ) กลุ่มที่มีฐานะทางเศรษฐกิจที่มั่งคั่งที่สุด (AOR 0.65; 95% CI 0.50-0.85,  
 $p=0.002$ ) และบุคคลที่มีความรู้เรื่องเอชไอวี/เอดส์ในระดับปานกลางถึงสูง (AOR 0.26; 95% CI 0.19-0.35,  
 $p<0.001$ ) แสดงทัศนคติการเลือกปฏิบัติที่ต่ำกว่า เหตุผล 3 อันดับแรกของทัศนคติการเลือกปฏิบัติ ได้แก่ 1) ระดับความรู้  
 ต่ำ 2) ระดับการศึกษาต่ำ และ 3) สถานะทางเศรษฐกิจต่ำ การศึกษานี้เผยให้เห็นถึงความต้องการสร้างโปรแกรมเพื่อจัดการปัญหา  
 นอกจากนี้ผลการศึกษานี้แสดงให้เห็นว่าปัจจัยทางสังคมและประชากรและความรู้เรื่องเอชไอวี/เอดส์มีผลต่อทัศนคติการเลือก  
 ปฏิบัติดังนั้นเพื่อจัดการกับปัญหานี้ การศึกษานี้จึงเสนอการจัดการแบบบูรณาการซึ่งประกอบด้วยโปรแกรมการให้ความรู้และ  
 นโยบายด้านสาธารณสุขเพื่อลดการตีตราต่อผู้ติดเชื้อเอชไอวี/เอดส์ นอกจากนี้ความร่วมมือของสื่อในการนำเสนอเพื่อเปลี่ยน  
 มุมมองทางสังคมเกี่ยวกับผู้ติดเชื้อเอชไอวี/เอดส์ สิ่งเหล่านี้จะเป็นส่วนสำคัญต่อการปรับเปลี่ยนการตอบสนองของสังคมและ  
 ส่งเสริมคุณภาพชีวิตที่ดีขึ้นของผู้ป่วยเอชไอวี/เอดส์ในเมียนมา

สาขาวิชา สาธารณสุขศาสตร์  
 ปีการศึกษา 2565

ลายมือชื่อนิติ .....  
 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

# # 6574032453 : MAJOR PUBLIC HEALTH

KEYWORD: Discriminatory Attitudes, Stigma, HIV, AIDS, Myanmar

Pyae Phyo Thar : FACTORS ASSOCIATION OF DISCRIMINATORY ATTITUDES TOWARD PEOPLE LIVING WITH HIV/AIDS AMONG ADULT CITIZENS IN MYANMAR: AN ANALYSIS OF 2015-2016 MYANMAR DEMOGRAPHIC AND HEALTH SURVEY. Advisor: Asst. Prof. Pramon Viwattanakulvanid, Ph.D.

Myanmar, a developing nation, is still among the countries with the highest prevalence of HIV infection. Misconceptions, stigmatisation, and discrimination towards people living with HIV/AIDS (PLHIV) are significant factors that contribute to the prevention, transmission, and treatment of HIV. So, PLHIV-related stigma and discrimination are pervasive issues that significantly undermine public health efforts to prevent the spread of HIV and provide support for those living with the PLHIV. Despite its importance, the stigma and discrimination issues are often overlooked in national responses to PLHIV. In Myanmar, there are limited studies on discrimination against people living with HIV/AIDS, and it requires understanding the situation and proposing the implications. This study aims to assess the knowledge level and discriminatory attitudes toward people living with HIV/AIDS among Myanmar adult citizens and identify factors that influence discriminatory attitudes. The research methodology involved a secondary data analysis of the cross-sectional Myanmar Demographic and Health Survey (MDHS) carried out in 2015-2016. The study population comprised men and women aged 15-49 who had heard of AIDS and expressed accepting or discriminatory attitudes toward people living with HIV/AIDS. The study employed multiple logistic regression to determine the factors associated with the dependent variable, with a significant value of  $<0.05$ . The study involved 13978 participants, with a weighted distribution of 70% females and 30% males. The mean age of the participants was 31.77 years ( $SD \pm 9.77$ ). Of the participants, 79% exhibited discriminatory attitudes towards PLHIV. This study revealed that age, marital status, education level, media exposure, geographical location, and HIV/AIDS knowledge significantly influenced discriminatory attitudes. Specifically, older age groups (AOR 0.72; 95% CI 0.56-0.91,  $p=0.006$ ), those with higher education levels groups (AOR 0.41; 95% CI 0.27-0.60,  $p<0.001$ ), those with the wealthiest economic group groups (AOR 0.65; 95% CI 0.50-0.85,  $p=0.002$ ) and individuals with moderate to high HIV/AIDS knowledge groups (AOR 0.26; 95% CI 0.19-0.35,  $p<0.001$ ) exhibited lower discriminatory attitudes. Top 3 reasons for discriminatory attitudes are 1) low level of knowledge, 2) low education level, and 3) low economic status. Our study reveals a high prevalence (80%) of discriminatory attitudes towards individuals living with HIV/AIDS among adult citizens in Myanmar, highlighting the critical need for targeted interventions. Our findings emphasise the importance of sociodemographic factors and HIV/AIDS knowledge in forming these attitudes. To solve this issue, the study proposes an integrated strategy consisting of comprehensive educational programmes and a public health policy to reduce the stigma associated with PLHIV. In addition, effective media engagement is required to alter societal perspectives of PLHIV. These initiatives are essential for nurturing a more inclusive societal response, thereby enhancing the quality of life for HIV/AIDS patients in Myanmar.

Field of Study: Public Health  
Academic Year: 2022

Student's Signature .....  
Advisor's Signature .....

## ACKNOWLEDGEMENTS

I am supported by many people whose inspiration, assistance, and wise counsel have helped my thesis become a reality. I want to thank each and every one of them sincerely.

First and foremost, I want to express my sincere thanks to my parents, my wife and my guided uncle. They have been my rock throughout this journey, giving me never-ending support. It has been nothing short of energising that they believe in me.

I would like to express my profound gratitude to Dr Pramon Viwattanakulvanid, PhD, my outstanding academic adviser. This study has been shaped and directed in large part by his knowledgeable direction, priceless recommendations, and unwavering support. The successful completion of this thesis would not have been possible without his steadfast commitment.

I also want to express my gratitude to the members of my thesis exam committee. The external examiner, Dr Nipunporn Voramongkol, M.D., M.P.H., and the chairman, Dr Nutta Taneepanichskul, PhD, provided essential time, detailed direction, and insightful comments that significantly improved the thesis.

Special thanks are due to Dr Nyan Linn, MBBS, M.P.H., whose help with the statistical analysis was very helpful. Additionally, I would like to thank Prof. Dr Chitlada Areesantichai, PhD, and the whole professors and staff of the Chulalongkorn University College of Public Health Sciences for fostering a positive learning environment during my MPH programme.

For their moral support, friendship, and shared delight during this process, I sincerely thank my senior classmates, coworkers, and friends. Their assistance has been a guiding light through dark times.

Finally, I'd like to express my gratitude to the DHS program's decision-makers and the DHS user forum. Their consent to the use of the datasets and priceless advice on the administration of the datasets have been crucial to my study. I shall always be grateful for their willingness to assist.

I extend my sincere appreciation to everyone who was named, as well as anybody else who helped in any way. This thesis has been made feasible by our combined efforts.

Pyae Phyoo Thar

# TABLE OF CONTENTS

	<b>Page</b>
.....	iii
ABSTRACT (THAI) .....	iii
.....	iv
ABSTRACT (ENGLISH) .....	iv
ACKNOWLEDGEMENTS .....	v
TABLE OF CONTENTS .....	vi
List of tables.....	x
List of figures.....	xi
LIST OF ABBREVIATIONS .....	1
CHAPTER I.....	2
Introduction.....	2
1.1: Background and Rationale.....	2
1.2: Research questions .....	7
1.3: Research objective.....	7
1.4: Research Hypothesis.....	7
1.5: Research Gap.....	7
1.6: Conceptual Framework.....	9
1.7: Operational Definitions .....	10
1.8: Benefits and application .....	13
CHAPTER II.....	15
LITERATURE REVIEW .....	15
2.1: Etiology of HIV/AIDS.....	15
2.2: HIV Routes of Transmission .....	17
2.3: HIV/AIDS prevention and treatment.....	19
2.3.1: HIV/AIDS prevention .....	19

2.3.2: HIV Treatment.....	21
2.4: HIV situation in the world.....	22
2.5: HIV situation in Myanmar.....	23
2.6: Knowledge and Misconception of HIV.....	24
2.7: Socio-economic and demographic factors and discriminatory attitudes.....	25
2.8: Theory of Stigma and Discrimination.....	26
2.9: Previous researchers related to discriminatory attitudes toward people living with HIV/AIDS.....	28
2.9.1: Harmful effect of discrimination toward people living with HIV and AIDS.....	28
2.9.2: Prevention and intervention of HIV-related stigma and discrimination..	31
CHAPTER III.....	37
METHODOLOGY.....	37
3.1: Study Design.....	37
3.2: Study Area.....	37
3.3: Study Population.....	37
3.4: Sampling Design and Sample size calculation of DHS.....	37
3.5: Survey Data.....	39
3.6: Data Management.....	40
3.6.1: Inclusion Criteria.....	40
3.6.2: Merging Data Sets from the 2015-2016 MDHS.....	40
3.6.3: Data Cleaning Process.....	41
3.6.4: Recoding of variables.....	42
3.7: Data entry and analysis.....	46
3.8: Statistical Analysis.....	46
3.9: Ethical Consideration.....	48
3.10: Reliability and validity.....	48
CHAPTER IV.....	49
RESULTS.....	49
4.1. Descriptive Findings.....	50



4.1.1. Socio-demographic characteristics of adult citizens in Myanmar.....	50
4.1.2 Level of knowledge related to HIV/AIDS among adult citizens in Myanmar .....	53
4.1.3 Discriminatory attitudes toward people living with HIV/AIDS in Myanmar (N= 13978) (weighted) .....	54
4.2 Inferential Findings.....	56
4.2.1 Simple Logistic Regression Analysis .....	56
4.2.2. Multiple Logistic Regression Analysis.....	62
CHAPTER V .....	68
DISCUSSION .....	68
5.1 Proportion of discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar .....	68
5.2 Individual Socio-demographic characteristics of the adult citizens in this study. .....	70
5.3 Level of HIV-related knowledge of the participants in this study .....	72
5.4 The association between socio-demographic characteristics and level of knowledge with discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar .....	75
5.5 Conclusion .....	79
5.6. Strengths and Limitations .....	80
5.6.1. Strengths of the study .....	80
5.6.2. Limitations of this study .....	80
5.7 Recommendation .....	81
5.7.1. Recommendations for the service delivery .....	81
5.7.2. Recommendations for policy.....	82
5.7.3. Recommendations for further research .....	82
REFERENCES .....	83
Appendix.....	93
Appendix A: Data map to MDHS 2016 questionnaire and dataset .....	93
Appendix B: MDHS Women’s Questionnaire .....	95
Appendix C: MDHS Men’s questionnaire.....	99

Appendix D: Authorization Letter .....	105
Appendix E: Ethical Approval of Chulalongkorn University.....	106
Appendix F: Timeline of the Research Activity .....	107
Appendix G: Budgets .....	108
VITA .....	109



## List of tables

	<b>Page</b>
Table 1 Operational Definitions of Individual Characteristics .....	10
Table 2 Operational Definitions of Demographic Characteristics .....	11
Table 3. Operational Definition of Knowledge level .....	12
Table 4. Operational definition of Discriminatory attitude.....	12
Table 5. Recoding of Dependent Variables .....	42
Table 6. Recoding of Individual Characteristics of the Participants.....	43
Table 7. Recoding Demographic Characteristics of the participant.....	45
Table 8. Socio-demographic characteristics in Myanmar (N= 13978) (weighted).....	51
Table 9. Percentage of incorrect and correct answers of participants in HIV-related knowledge questions .....	53
Table 10. Level of knowledge about HIV in Myanmar (N= 13978) (weighted).....	54
Table 11. Discriminatory attitudes toward people living with HIV/AIDS in Myanmar (N= 13978) (weighted) .....	55
Table 12. Bivariate analysis of the association between socio-demographic characteristics, level of knowledge and discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar. ....	57
Table 13. Multiple logistic regression of factors associated with discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar ....	63

## List of figures

	<b>Page</b>
Figure 1 Human Immunodeficiency Virus (WELSH, 2011) .....	16
Figure 2 Typical Course of untreated HIV infection (Galvis, 2014) .....	17
Figure 3 Diagram of HIV life cycle and site of action of ART drugs (De_Boer, 2013) .....	22
Figure 4 Data Cleaning Process .....	42



## **LIST OF ABBREVIATIONS**

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Treatment
GRID	Gay-Related Immune Deficiency
MDHS	Myanmar Demographic and Health Survey
MSM	Men who have sex with Men
NAP	National AIDS Program
NGOs	Non-government Organisations
OST	Opioid Substitution Therapy
PEP	Postexposure Prophylaxis
PLHIV	People or Persons living with HIV/AIDS
PPS	Probability Proportional to Size
PrEP	Pre-exposure Prophylaxis
PSU	Primary Sampling Unit
PWID	People Who Inject drugs
RNA	Ribonucleic Acid
SIV	Simian Immunodeficiency Virus
STI	Sexually Transmitted Infection
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organization

# CHAPTER I

## Introduction

### 1.1: Background and Rationale.

Since the beginning of the HIV epidemic, stigma, discrimination, and gender inequality have created a significant barrier to effective HIV testing, prevention, care and treatment. Although HIV-related stigma and discrimination are pervasive in national HIV epidemics and negatively impact public health and human rights, most national responses to HIV still pay too little attention to these issues (UNAIDS, 2007). HIV infection in the world is still high, and HIV new cases will exceed 1.5 million by 2021, and it remains one of the significant public health issues (WHO, 2022b). The lack of adequate knowledge regarding HIV/AIDS, coupled with the presence of stigma and discrimination, are considered to be the primary factors that contribute to the increase in newly reported cases of HIV infections (Agegnehu et al., 2020). Therefore, the fast-track target of the UNAIDS is the 95-95-95 programme (95% of people living with HIV (PLHIV) know their status, 95% of those with the disease receive treatment, and 95% of those on treatment have an undetectable viral load). It will not be possible to achieve the main 2030 target unless it addresses stigma and discrimination (UNAIDS, 2020).

The adverse consequences of discrimination against individuals living with HIV are twofold: it not only causes harm to those affected but also harms public health initiatives aimed at preventing the transmission of HIV and providing support to those living with the virus. It is crucial to provide accurate information regarding HIV/AIDS and to challenge the misconceptions and prejudices contributing to discrimination. This can help create a more supportive and inclusive environment for PLWHA and improve public health outcomes for all (Cloete et al., 2010).

HIV is one of the most common communicable diseases in modern times, is the human immunodeficiency virus. HIV can be mainly transmitted from blood and fluid from the genital organs, but the virus is not transmitted by air or water, saliva, sweat, tears, closed-mouth kissing, insects or pets, or sharing toilets, food, or drinks. It is a virus that majorly attacks our primary bodyguards, known as the white blood cell or CD4 cell, weakening our immune system. That feeble immune system lets enter

opportunistic infections such as Tuberculosis, Pneumocystis carinii pneumonia, several bacterial infections, fungal infection, and Kaposi's sarcoma. (WHO, 2022a)

Acquired immunodeficiency syndrome (AIDS) is a syndrome that stems from a severe form of HIV infection and leads to life-threatening conditions and some types of cancer. The origin of HIV is traced to the Simian immunodeficiency virus (SIV), which was found in chimpanzees and spread to humans by hunting and eating two smaller species of apes. According to other researchers, it is believed that human hunters from Africa contracted the infection through contact with infected blood via open wounds (Editors, 2022).

In humans, the first case of HIV occurred in a young gay man from the US who developed symptoms of rare pneumonia and cancer in 1981. Because it only affected gay men then, the disease used to be called gay-related immunodeficiency (GRID). However, scientists from Canada found that women could also be infected, and some cases were reported through blood transfusions. They, therefore, concluded that HIV could also be transmitted sexually and changed the name in March 1982 to AIDS (research, 2021).

HIV's history is uncomplicated, but no one believes the virus will become a global pandemic and a pandemic disease in every region. Since 1981, the global incidence of AIDS has affected over 84 million individuals, with a mortality rate of approximately 40.1 million individuals. As per the data provided by UNAIDS/WHO, the global prevalence of HIV/AIDS in 2021 was approximately 40 million people, with an estimated 1.5 million new cases reported during the same year (UNAIDS, 2021a).

The UNAIDS global statistics report states that 79.3 million people worldwide have been affected by the pandemic so far (55.9 million-110 million). Since the beginning of the pandemic, about half of them - about 36.3 million people - have died from diseases linked to AIDS. Of the 40 million infected today, over 36 million are adults, and almost 2 million are children. Thus 53% of the total HIV-infected population are women and children(UNAIDS, 2021b).

Antiretroviral therapy is now widely available. As of 30 June 2021, 28.2 million people with HIV received antiretroviral treatment. This is a significant increase from 7.8 million in 2010. UNAIDS data for 2020 show that 73% of the total infected population receives antiretroviral therapy, compared to 74% for adults and 54% for children under 15. This effective antiretroviral therapy also prevented vertical transmission from mother to child by about 85% in 2020(UNAIDS, 2021b)

The remarkable efficacy of antiretroviral therapy in mitigating AIDS-related mortality has resulted in a substantial reduction in deaths, with a decline of approximately 64% and 47% from 1.9 million in 2004 to 1.3 million in 2010, respectively. As of 2020, the number of AIDS-related deaths has further decreased to approximately 680,000. This shows that the mortality rate from AIDS-related diseases among HIV-positive people (53% women and girls and 41% men and boys) have decreased compared to 2010 (UNAIDS, 2021b).

According to WHO, about 3.5 million cases of AIDS were reported in the Southeast Asian region in 2015. This makes it the second most affected region in the world after sub-Saharan Africa. Southeast Asia is one of the places where AIDS is most prevalent. India, Indonesia, Thailand, Myanmar and Nepal are the most affected countries in Southeast Asia, with 60%, 20%, 13%, 6% and 1% of the population living in these countries, respectively. (Regional Office for South-East Asia, 2016)

The initial detection of HIV in Myanmar dates back to 1988. According to recent data, in 2015, Myanmar had a total of 224,794 individuals who were diagnosed with HIV. Over the years, the number of reported cases has continued to rise, with the most recent figures indicating that the number of cases has surpassed 27,000 in 2021 (*WHO, Myanmar HIV Country Profile, 2022*). The mortality rate resulting from AIDS-related illnesses was observed to have decreased significantly from 15,601 in 2011 to 9,675 in the current year. In 2021, there were 11,000 reported cases of infection, which is equivalent to the number of cases reported in 2015. This translates to an average of 30 new cases per day (Ministry of Health and Sports, 2016; *WHO, Myanmar HIV Country Profile, 2022*).

The study conducted in Myanmar revealed that a significant proportion of HIV/AIDS patients are aware of their condition. However, the percentage of patients receiving antiretroviral therapy (ART) is comparatively lower, with only 70% receiving the recommended treatment. The key populations include individuals engaged in sex work, homosexual men, other men who have sex with men, individuals who inject drugs, and those who are imprisoned. The HIV prevalence rate among individuals who inject drugs is 19%, whereas, for homosexual men and other men who have sex with men, it is 8.8%. The prevalence of sex workers is 8.3%, distinct from men who have sex with men (MSM) (*WHO HIV Testing Services Dashboard, Myanmar, 2022*).

In order to develop effective HIV programming, it is crucial to take into account various significant factors, such as stigma and discriminatory attitudes. Discrimination can be defined as a specific response or conduct directed towards an individual who is stigmatised,



and is based on certain attitudes and perceptions. HIV-related stigma pertains to negative cognitions, unpleasant thoughts, emotions, beliefs, and perspectives directed towards individuals who have been diagnosed with HIV (Morrison, 2006). According to findings from a study conducted in sub-Saharan Africa, sexual contact has been identified as the predominant mode of HIV transmission. The prevalent concept that HIV infection arises from prostitution has led to significant social stigma against individuals living with the disease, irrespective of the mode of transmission (Nattabi et al., 2012). Evidence from the past in several regions of Africa indicated that HIV-related stigma and discriminatory attitudes were very significant. 60% of people in Botswana said they would not buy meat and vegetables from a shopkeeper who had HIV/AIDS (Letamo, 2003). In Nigeria, 40% of the population did not want teachers with HIV to teach their children, and half did not want to buy from an HIV-positive shopkeeper (Dahlu et al., 2015). According to studies conducted in Ethiopia in 2015 and 2020, more than 70% of the population had discriminatory attitudes towards HIV-infected people (Diress et al., 2020; Gurmu & Etana, 2015).

People's willingness to undergo HIV testing may be affected by widespread stigma and discrimination in the population (Chimoyi et al., 2015). Because of the potential injustice and discrimination they may experience, people living with HIV are sometimes fearful and anxious about the possibility of disclosing their disease in their community. This can lead to self-stigma, isolation, shame, despair and fear of disclosure for 8 out of 10 people living with HIV. People living with HIV may internalise the prejudice and stigma they experience, which can lead to poor self-image (Control, February, 2018). Therefore, stopping discrimination at the lowest level in a community is an essential indication of the success of HIV/AIDS prevention programs and controls, such as enhancing HIV testing (Young et al., 2010).

Several studies have examined the factors associated with discriminatory attitudes towards people living with HIV/AIDS. These include socioeconomic and demographic factors such as age, education level, wealth quintile, media exposure and place of residence (Genberg et al., 2009; Ulasi et al., 2009). The most critical factor in HIV transmission is the lack of HIV knowledge. The main causes of HIV stigma are fear of the virus and ignorance of how the disease spreads. (Agegnehu, 2020). Knowledge includes communication, prevention methods, how and where to get tested for HIV, how to live with HIV/AIDS patients and personal ethics towards HIV patients. According to a study conducted in Botswana, HIV knowledge is closely related to HIV-related stigma and discrimination. Therefore, programmes and interventions that raise HIV/AIDS awareness can reduce the

prevailing mistrust, blame and stigmatising attitudes towards PLWHA (Letshwenyo-Maruatona et al., 2019).

Currently, individuals who are living with HIV/AIDS are facing significant challenges related to discrimination and stigma within their professional and socioeconomic areas globally. These issues are having a profound impact on people living with HIV/AIDS (Khan, 2017; Simbayi et al., 2007). HIV stigma frequently prevents people from getting tested for the virus, getting treatment, or sticking with it, especially in low- and middle-income nations like Myanmar. People living with HIV face stigma and discrimination from their family members, friends, and the working environment because of the misunderstanding of transmission and prevention of HIV. The persistence of negative attitudes towards individuals living with HIV may be attributed to inadequate sexual and health education. Misconceptions surrounding the transmission of HIV, particularly the incorrect assumption that sex workers are the primary source of infection, may contribute to stigmatisation and the attribution of negative character traits to those living with the virus. The prevailing circumstances in Myanmar pose significant challenges to the processes of HIV testing, initiation of antiretroviral therapy (ART), and the provision of effective treatment. Therefore, in order to reduce HIV-related stigma and discrimination, they are working effectively with the National AIDS Programme (NAP) and non-governmental organisations to define and implement future strategies and culturally appropriate interventions and conduct awareness-raising activities. (Aung et al., 2017; National AIDS Programme, 2019).

The present study seeks to investigate the potential correlations between sociodemographic factors, HIV awareness, and discriminatory attitudes towards individuals affected by HIV/AIDS in Myanmar, utilising data obtained from the Myanmar Demographic and Health Survey (MDHS) conducted during the period of 2015-2016. The questionnaire administered by the (DHS) to individuals contains a module that assesses attitudes of discrimination towards individuals who are HIV-positive, as well as attitudes of acceptance towards them. Individuals who possess a certain level of knowledge regarding HIV/AIDS and exhibit specific sociodemographic traits have a tendency to display discriminatory attitudes towards individuals who are HIV-positive. The present study aims to investigate potential factors that may be associated with stigma or discriminatory attitudes towards individuals living with HIV, with a particular focus on the socio-economic and demographic conditions and knowledge levels related to HIV/AIDS among the population of Myanmar. Subsequently, the findings may be utilised to formulate suitable interventions or approaches aimed at

addressing the problem of discriminatory attitudes towards individuals afflicted with HIV/AIDS among adult citizens in Myanmar (Health et al., 2017).

## **1.2: Research questions**

1. What is the proportion of discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar?
2. What are the general characteristics, knowledge level, and discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar
3. Is there any association between general characteristics, knowledge level, and discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar?

## **1.3: Research objective**

1. To determine the proportion of discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar.
2. To assess the socio-demographic characteristics, knowledge level and discriminatory attitude toward people living with HIV/AIDS among adult citizens in Myanmar.
3. To identify the association between socio-demographic characteristics and level of knowledge with discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar.

## **1.4: Research Hypothesis**

**H1:** There is an association between socio-demographic characteristics and discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar.

**H2:** There is an association between Knowledge of HIV and discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar.

## **1.5: Research Gap**

- There are some research papers about HIV in Myanmar, but no research describes the national representative about HIV discrimination. in Myanmar.
- This study may provide the findings of the associated factors of discriminatory attitudes that can reduce misconceptions and stigma toward PLHIV



## 1.6: Conceptual Framework

### Independent variables

#### **Socio-demographic Characteristics**

- Age
- Gender
- Marital Status
- Level of Education
- Occupational status
- Exposure to the media
- Type of Residence
- States/Regions
- Wealth Quintile

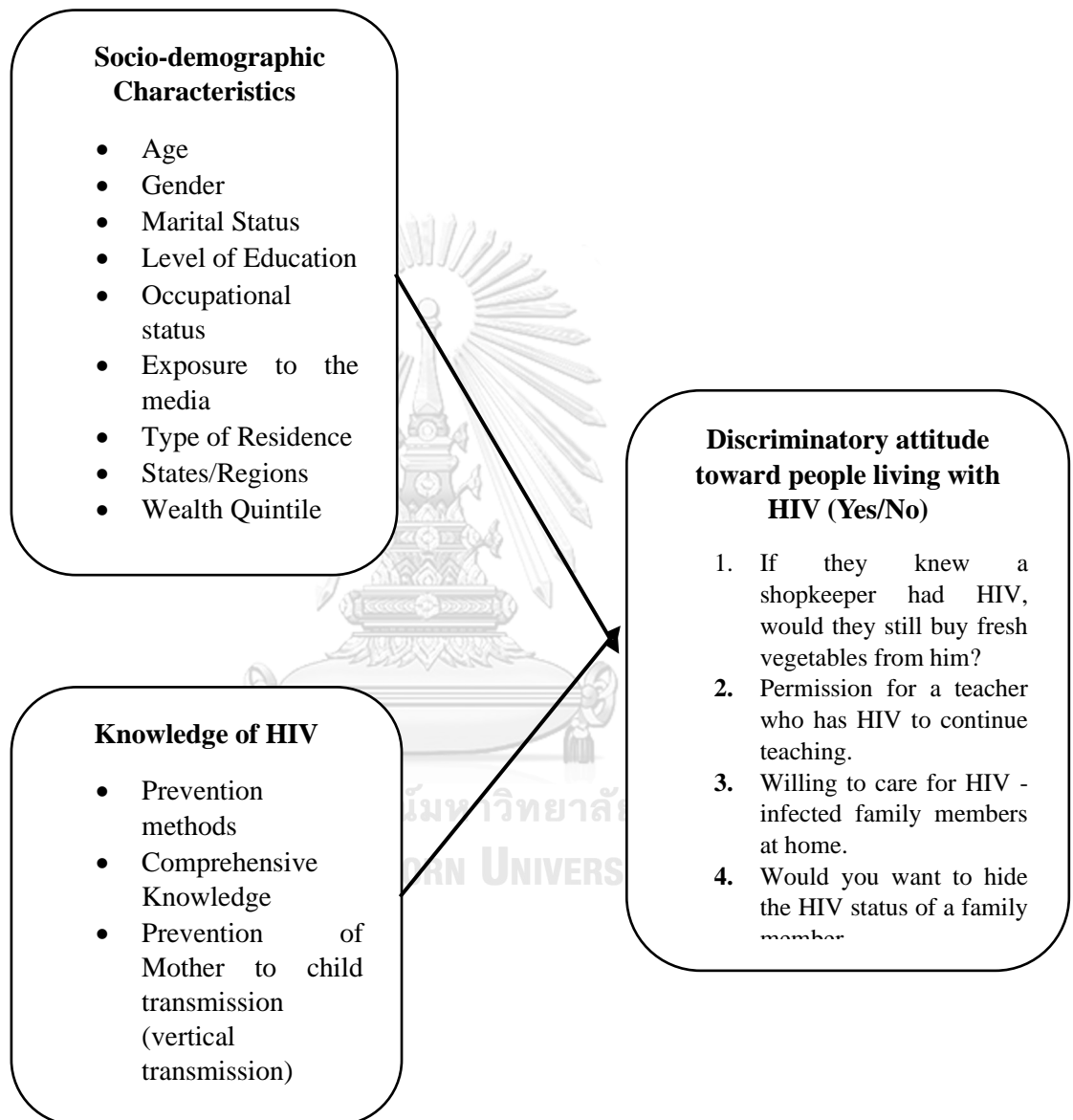
#### **Knowledge of HIV**

- Prevention methods
- Comprehensive Knowledge
- Prevention of Mother to child transmission (vertical transmission)

### Dependent variables

#### **Discriminatory attitude toward people living with HIV (Yes/No)**

1. If they knew a shopkeeper had HIV, would they still buy fresh vegetables from him?
2. Permission for a teacher who has HIV to continue teaching.
3. Willing to care for HIV - infected family members at home.
4. Would you want to hide the HIV status of a family member?



## 1.7: Operational Definitions

Discrimination - Discrimination occurs when there are unjustified differences among people based on the groups, classes or other categories to which they nominally or informally belong. Discrimination against people can be thought of based on colour, sex, age, religion, disability, and sexual orientation, among others. Discrimination usually occurs when individuals or groups are mistreated or worse than others because of their actual or perceived membership in one or more groups or social categories. It consists of excluding members of one group from enjoying opportunities or benefits reserved for members of another group.

Individual Characteristic – is defined as the features of all participants in this study that might be related to the discriminatory attitudes toward HIV/AIDS people.

*Table 1 Operational Definitions of Individual Characteristics*

Individual Characteristics	Operational definitions
Marital Status	Categorized based on the participant's reported status in the DHS: "single," "married," "divorced," or "widowed."
Level of Education	Defined as the highest level of formal education completed by the participant, classified as "no education," "primary," "secondary," or "higher" in the DHS.
Occupational status	Classified as "employed" or "unemployed" based on whether participants report having any form of employment at the time of the survey.
Exposure to the media	Categorized based on the frequency of participants' engagement with various forms of media such as television, radio, or newspapers, as reported in the DHS. Participants who engage "almost every day," "at least once a week," "less than once a week," or "Not at all" are considered to have regular media exposure. Based on the findings from the literature review, it is recommended to classify individuals as having media exposure if they report engaging with media "at least once a week," while those who report engaging with

	media "less than once a week" should be categorised as having no media exposure. This categorization approach allows for a standardised method of calculating the data.
--	---

Demographic Characteristics –the socioeconomic and demographic features of all participants in this study that might be associated with discriminatory attitudes toward HIV/AIDS people.

*Table 2 Operational Definitions of Demographic Characteristics*

Demographic characteristics	Operational definition
Type of Residence	Classified as "urban" or "rural" based on the participant's reported place of living in the DHS.
States/Regions	This variable refers to the participant's geographical location within Myanmar, and can be categorized as 15 regions based on the administrative divisions in the country (e.g., Chin State, Mandalay Region, Yangon Region, etc.), as reported in the DHS. Based on the constitutional framework of Myanmar, it is observed that the aforementioned 15 regions are categorised into distinct entities referred to as "States" and "Divisions."
Wealth Quintile	These variable measures socio-economic status. In the DHS, wealth quintiles are calculated using a wealth index, which is based on a household's ownership of selected assets, such as televisions and bicycles, materials used for housing construction, and types of water access and sanitation facilities. Participants are categorized into five groups ranging from the "poorest" to the "richest."

Knowledge of HIV- is defined as the basic knowledge of HIV of participants, including comprehensive knowledge, preventive knowledge, and prevention method of vertical transmission.

*Table 3. Operational Definition of Knowledge level*

Types of Knowledge	Operational Definition
Prevention Knowledge	In this part of knowledge, there are three questions. (1) HIV prevention by one-on-one sex with an uninfected partner who does not have any other sex partners, (2) People can reduce the risk of transmission by using a condom correctly every time they have sex, and (3) Can a visually healthy person have HIV.
Comprehensive Knowledge	This part has three questions, most of which are associated with the misconceptions of transmission knowledge. These questions are; (1) Can people get HIV from an insect bite? (2) Can individuals get HIV via eating with HIV-positive individuals? (3) Can HIV be infected by witches or black magic?
Vertical Transmission Knowledge	Four critical questions are present in this part. The first is HIV can pass from a woman to her baby (a) during pregnancy. (b) During delivery? (c) By breastfeeding, and the second one is that there are unique medications that a doctor or nurse may administer to an HIV-positive mother to lessen the chance of transmission to the unborn child.

*Table 4. Operational definition of Discriminatory attitude.*

Dependent variable	Operational definition
Discriminatory Attitude	To get a discriminatory attitude, by using four acceptance questions, A person who answered "no" to at least one of the four questions was classified as discriminating. They are (1) Would you not want HIV infection in the family to remain secret (yes/no) (2)



	<p>Willing to care for HIV -infected family members at home (yes/no) (3) If you knew that a shopkeeper or vendor had HIV/AIDS, would you buy fresh vegetables from him? (yes/no) (4) Permission for a teacher who has HIV to continue teaching. (yes/no)</p>
--	--

## 1.8: Benefits and application

This is the first study to examine the relationship between socio-demographic characteristics, knowledge, and discriminatory attitudes towards HIV/AIDS-positive people in Myanmar and is nationally representative. This study can shed light on the prevalence of discrimination against HIV-positive people and their relatives, the environment, the workplace, and medical personnel and explore the causes of discriminatory attitudes.

The reduction of stigma and discrimination has the potential to enhance the accessibility, utilisation, and retention of services. In order to make progress towards the promotion of human rights and the eradication of HIV-related stigma on a global scale, it is crucial to pinpoint the underlying factors that give rise to discriminatory attitudes towards individuals who are HIV-positive.

Preventing discrimination towards people living with HIV is important for several reasons:

1. **Human rights:** All individuals have the right to live with dignity and respect, regardless of their health status. Discriminating practices towards people living with HIV violate their human rights and dignity.
2. **Health outcomes:** Discrimination can create barriers to accessing healthcare, employment, and other essential services, leading to poorer health outcomes for people living with HIV.
3. **Stigma reduction:** Preventing discrimination helps to reduce the stigma associated with HIV, which can lead to improved mental health and well-being for people living with the virus.

4. Public health: By reducing stigma and discrimination, more people may be willing to get tested and access treatment, which can help to reduce the spread of HIV and improve public health outcomes.
5. Social justice: Preventing discrimination towards people living with HIV is a matter of social justice and ensuring that everyone is treated fairly and equitably.



## **CHAPTER II**

### **LITERATURE REVIEW**

This section reviews the literature on HIV/AIDS, definitions of the variables, theories relevant to the study, and other previous studies in line with the study's objective. Below are the categories that make up the literature review. (1) Etiology of HIV/AIDS, (2) HIV routes of transmission, (3) HIV prevention and treatment, (4) HIV Situation in the World, (5) HIV Situation in Myanmar, (6) Knowledge and misconception of HIV/AIDS, (7) Socio-economic and demographic factors and discriminatory attitudes (8) Theory of Stigma and Discrimination to be related to HIV/AIDS, and (9) Previous researchers related to discriminatory attitudes toward people living with HIV/AIDS.

#### **2.1: Etiology of HIV/AIDS**

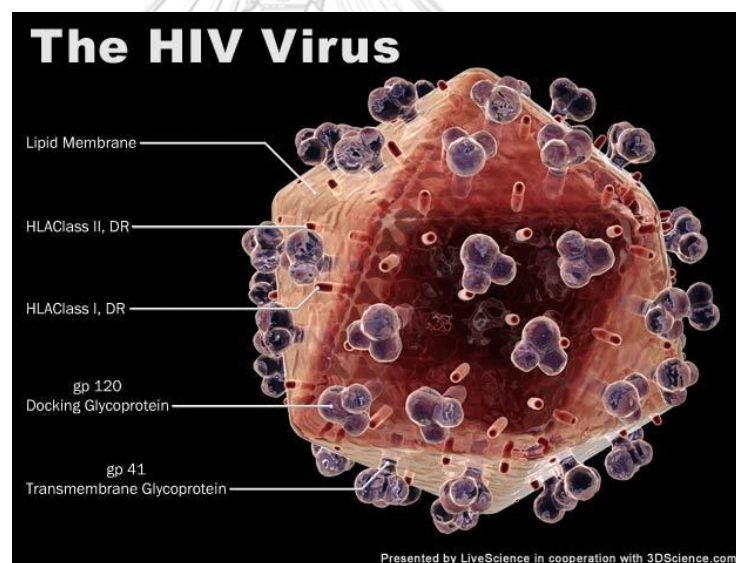
The virus known as HIV (human immunodeficiency virus) attacks the body's immune system. Robert Gallo discovered retrovirus, and Luc Montagnier discovered HIV in 1983. It is an RNA virus that mainly attacks our primary bodyguards, the white blood cells or CD4 cells. It can live many years in the human body without showing any symptoms. It weakens our immune system and lets us enter other opportunistic infections like Tuberculosis, Pneumonia, and bacterial and fungal infection. HIV can cause AIDS if not known and treated in the early stage (acquired immunodeficiency syndrome). Currently, there is no effective treatment. When someone becomes infected with HIV, they are always infected. However, HIV is manageable with proper medical care. People with HIV can live long, healthy lives and maintain their relationships with the help of effective HIV medications. (CDC, 2022). HIV weakens the immune system and impairs the body's ability to fight off illness and infection. (Mayo Clinic, 2022)

Typically, when a person first becomes infected with HIV, it goes through three phases. The first phase is called primary infection and usually lasts 1 to 3 months. During this time, HIV RNA copies in the blood typically peak for the first time, and CD4 cell counts often drop suddenly. This change occurs only a few days after the initial infection when the HIV can replicate without the immune system controlling it. Within 4 to 8 weeks after

infection, the body's anti-HIV immune system begins to activate, seroconversion symptoms occur, and HIV viral load decrease again(Programme, 2014).

The second phase is clinical latency, lasting between 8 to 10 years if not treated with antiretroviral drugs. At the end of the first phase, the CD4 cell count in the bloodstream is not as high as before the HIV infection but often rises again in the bloodstream. The number of HIV RNA copies in the blood declines to a peak during the primary infection stage, then returns to a stabilised plasma concentration called the viral set-point(Programme, 2014).

The final stage is called Acquired Immune Deficiency Syndrome (AIDS). At this stage, HIV RNA copies increase rapidly, and CD4 cells, the primary immune cells, decrease in the blood. Due to such a rapid decline in immunity, foreign pathogens can quickly enter the body, and the body can no longer repel them. In developed countries, if there is no specific treatment, it usually occurs within 2 to 3 years after the onset of HIV infection(CDC, 2022; Programme, 2014).



*Figure 1 Human Immunodeficiency Virus (WELSH, 2011)*

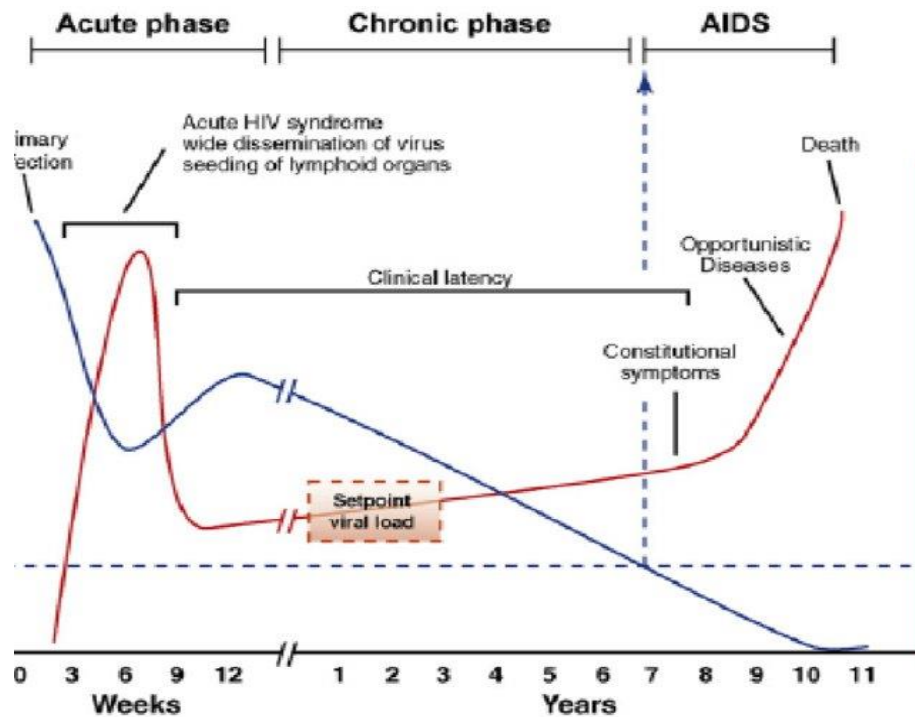


Figure 2 Typical Course of untreated HIV infection (Galvis, 2014)

## 2.2: HIV Routes of Transmission

In general, the only way to contract the virus is through direct contact with certain bodily fluids of an HIV-positive person with a detectable viral load. These include breast milk, vaginal fluids, semen, blood, and rectal fluids. The HIV in these fluids must enter the bloodstream of an HIV-negative person through a mucous membrane (in the rectum, vagina, mouth, or tip of the penis), open wounds, or direct injection (with a needle or syringe) (HIV.gov, 2022).

HIV can only be transferred through specified actions, the most prevalent of which are: (1) Having anal or vaginal intercourse without properly utilising a condom each time or taking medication for HIV prevention or treatment. Since no lubricant is produced in the anal cavity as in the vagina, anal intercourse is more dangerous for HIV transmission than vaginal sex. (2) sharing syringes, needles, or other drug paraphernalia used for injecting. There is a very high risk of contracting or transmitting HIV if an HIV-negative person uses injection equipment that an HIV-positive person has used. This is because there may be blood on the needles, syringes, or other injection equipment that could be HIV-positive. HIV can survive in a used syringe for up to 42 days, depending on temperature and other factors. Anyone who

injects hormones, silicone, or steroids risks contracting HIV if they share needles, syringes, or other injection equipment(CDC, 2022).

The less common route is (1) the prenatal transmission process, which occurs between mother and child during pregnancy and delivery. HIV can be transmitted to the growing child through the mother's blood or bodily fluids during birth and the placenta before birth. In some places, several transmissions through breast milk have also been identified. (2) Contract HIV through needle sticks or other sharp objects. The most significant risk is to health care workers. However, the risk is shallow(CDC, 2022).

HIV is rarely spread by; (1) having oral sex. HIV infection or transmission during oral sex is extremely unlikely. Theoretically, an HIV-positive man could ejaculate into his partner's mouth during oral sex. The risk of HIV transmission during oral sex may be increased by conditions such as mouth ulcers, bleeding gums, sores in the vagina, and other STDs that may or may not be visible. In contrast to anal or vaginal sex, the risk is still quite low relatively. (2) Who receives HIV-contaminated organ or tissue transplants, blood transfusions, or products? The trouble is now shallow due to extensive testing of the blood supply and donated organs and tissues. In addition, people cannot become infected with HIV by donating blood. The procedures for blood collection are pretty routine and safe. (3) being bitten by an HIV-positive person. Each of the extremely few cases reported had significant trauma, considerable tissue destruction, and blood presence. An HIV-positive person's blood or body fluids can transmit the disease if they come into contact with broken skin, open wounds, or mucous membranes. If the skin is intact, there is no possibility of transmission. There are no documented cases of HIV transmission through spitting, as HIV cannot be transmitted through saliva(Galvin, 2004).

How long does HIV last after leaving the body? HIV does not live long outside the human body (for example, on surfaces) and cannot multiply without a human host. It is not spread (1) by ticks, mosquitoes, or other insects, (2) through saliva, tears, or sweat, (3) through hugging, shaking hands, sharing dishes or toilets, a closed-mouth kiss, or a “social” kiss with an HIV-positive person, (4) through sexual activities that do not transfer bodily fluids (e.g., touching), (5) by airway, and (6) by witchcraft or other supernatural power(CDC, 2022).

## **2.3: HIV/AIDS prevention and treatment**

### 2.3.1: HIV/AIDS prevention

The most vulnerable or high-risk populations should be prioritised in any HIV/AIDS prevention initiatives, as they can transmit the virus to the general population. These populations include transgender people, people who inject drugs, people who work in the sex industry, people in prisons and other secure areas, men who have sex with men, and people who work indoors. These unwarranted risks reflect the social and legal constraints these communities face and the behaviours required of members of these populations. These crucial groups are critical to the nature and success of the HIV response and influence the dynamics of the epidemic (WHO, 2022a).

Also, there are other vulnerable groups to HIV infection, such as young women from low-income nations, migrant labourers, refugees, long-distance truck drivers, and military people, particularly in South-East Region (WHO, 2022a). The World Health Organisation (WHO) has identified the following five strategies and points for HIV prevention:

(a) usage of condoms by both genders:

Proper use of male condoms can reduce the risk of contracting HIV and other sexually transmitted infections by up to 94%. This approach highlights the need for the provision of condoms, both male and female, and condom-compatible lubricants that are accessible, affordable, and usable by members of critical communities through targeted distribution initiatives. The general public, including transgender people, drug users, teenagers, men who have sex with men, and sex workers, is recommended to use this approach (WHO, 2022a).

(b) risk reduction of drug users who inject and use drugs.

Sharing contaminated injection equipment puts drug users at risk of contracting HIV and other blood-borne diseases such as hepatitis B and C. People from different ethnic groups may be more likely to use drugs in specific contexts than the general population. In this context, a comprehensive plan to reduce infections through injection has been recommended by UNAIDS and UNODC. The overall harm reduction package consists of HIV testing and counselling, needle and syringe services, opioid substitution therapy (OST), and other evidence-based treatments for drug dependence. Condom programs for drug users and their partners, STI prevention and treatment, antiretroviral therapy, vaccination, diagnosis and

treatment of viral hepatitis, and tuberculosis (TB) - diagnosis, treatment, and prevention(CDC, 2022).

(c) prevention with Antiretroviral therapy

According to the World Health Organisation, this strategy includes three prevention methods(WHO, 2022a). The first method is pre-exposure prophylaxis (PrEP) for an HIV-negative person. These people have unprotected sex with an HIV-positive person and IV drug users who share needles with other users. It is very effective if taken before the seventh day of risky behaviours that can lead to HIV transmission. There are some side effects of PrEP, such as headache and nausea, and it can get fast from almost health services. The second option is postexposure prophylaxis (PEP) to prevent HIV transmission. It is suitable for an HIV-negative person whose condom has broken during sex, which is unprotected, who has been sexually abused, and who has been pricked/hurt by a needle used by an infected person. It can be very effective if taken as early as possible, within 72 hours. The effect may wear off after taking it for 28 consecutive days. The side effects of this drug are the same as PrEP, and they must follow a doctor's or nurse's instructions. The last point is to start early ART regardless of CD4 count. Data support early ART initiation in people irrespective of CD4 count to stop HIV transmission (T.Gandhi, 2022).

(d). HIV prevention through voluntary medical male circumcision.

There is strong evidence from three African randomised controlled trial studies that male medical circumcision decreases the risk of female-to-male sexual transmission of HIV by about 60%. In areas with a generalised HIV pandemic, WHO and UNAIDS have suggested this as an additional strategy to prevent heterosexually acquired HIV. According to Uganda's most current data, circumcised men are highly successful, with a 73% protection rate against HIV infection after five years of the experiment(WHO, 2022a).

(e). Behaviour modification

This preventative strategy may target either people or groups, assisting them in sustaining safer behaviours. People must be aware of their risk and have the information, skills, and self-confidence to minimise it if they want to lower their chance of contracting STIs or HIV. To assist people in reducing dangerous behaviours and maintaining this good change, behavioural therapies include information, incentive, education, and skill-building. The spectrum of behaviour treatments can offer knowledge and skills to enhance risk



reduction, and this behaviour modification stratifies valid for all groups within the population (WHO, 2022a).

### 2.3.2: HIV Treatment

Antiretroviral therapy (ART) is a treatment for people living with HIV/AIDS. It involves taking a combination of drugs known as antiretrovirals to slow the virus's progression and improve the patient's overall health. ART reduces the number of viruses in the blood (viral load) and boosts the immune system to heal, strengthen, and restore the ability to fight opportunistic infections like Tuberculosis, certain malignancies, and HIV infection.

Antiretroviral drugs belong to different classes and work in different ways to inhibit virus replication. A typical ART regimen consists of virus replication or more drugs from other courses taken daily. This combination therapy is highly active antiretroviral therapy and is effective in suppressing the virus and improving health outcomes for PLHIV.

ART is not a cure for HIV/AIDS, but it is a highly effective way of managing the virus and preventing severe health problems. ART is a lifelong commitment, and it is vital for people living with HIV/AIDS to take their medication as directed, even when feeling healthy. With proper medical care and adherence to ART, many people living with HIV/AIDS can live long, healthy lives(WHO, 2022a).

When HIV enters the body, it uses the body's immune system, CD4 cells, to multiply and spread throughout the body. This application process is called the HIV life cycle, with seven stages. These seven stages are (1) binding, (2) fusion, (3) reverse transcription, (4)integration, (5) replication, (6) assembly, and (7) budding. Antiretroviral Therapy fights HIV and protects the body's immune system by blocking it at different stages of the HIV life cycle mentioned above(Programme, 2014).

Numerous varieties of ART have been granted approval by the Food and Drug Administration. They are Nucleoside Reverse Transcriptase Inhibitors (e.g., abacavir), Non-Nucleoside Reverse Transcriptase Inhibitors (e.g., efavirenz), Protease Inhibitors (PIs) (e.g., atazanavir), Fusion Inhibitors (e.g., enfuvirtide), CCR5 Antagonists (e.g., maraviroc), Integrase Strand Transfer Inhibitor (e.g., dolutegravir), Attachment Inhibitors (e.g., fostemsavir), Post-Attachment Inhibitors (e.g., ibalizumab-uyyk), Caspid Inhibitors (e.g.,

lenacapavir), and Pharmacokinetic Enhancers (e.g., cobicistat) (Drug, 2023). So, the life cycle of the HIV and the mechanism of action of antiretroviral drugs are depicted in Figure 3.

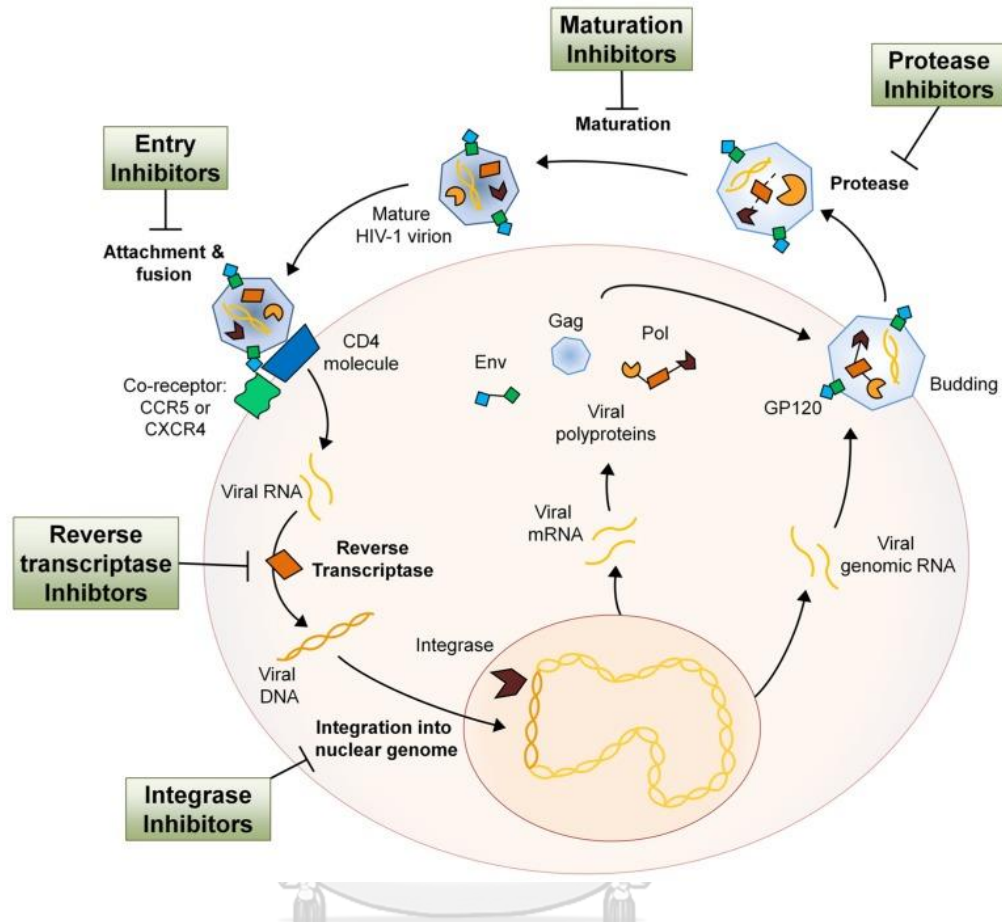


Figure 3 Diagram of HIV life cycle and site of action of ART drugs (De\_Boer, 2013)

#### 2.4: HIV situation in the world.

According to the UNAIDS fact sheet for 2022, there are 38.4 million people who have HIV infection all over the world, and 1.5 million among them are new cases of HIV infection in 2021. Unfortunately, 650,000 people passed away due to complications of AIDS in 2021. Since the start of this epidemic disease, people who got HIV infection are over 84 million and nearly half of these people are died due to the complication of this disease. Currently, 37 out of over 38 million HIV-infected people are adults older than 15, and the rest 1.7 million are children younger than 14. Among them, women and girls comprised 54 per cent of all HIV-positive individuals. In 2021, people who knew their infection condition were between 75 to 97 %, and the rest, about 6 million people, did not know their actual state.

AIDS is present at the top list of high-mortality diseases. Its death rate has fallen due to the benefit of Antiretroviral Therapy, and by 2021 it was 650,000 globally. This was a significant decrease compared to 2004 and 2010 when death rates were high. In 2004, the total number of deaths from AIDS was two million, and in 2010, the death rate was 1.4 million. HIV incidence rates tend to be significant in critical populations and are much higher than in others, especially in IV drug users who share the needle with another person, which is 35 times higher risk than ordinary people. The other increased risk key population are female sex worker, who has a greater chance of getting an infection 30 times higher than average women, and transgender men and gay men also have a higher incident rate of 14 and 28%, respectively.

By 2021, the number of patients receiving antiretroviral therapy will reach 28.7 million, compared to 2010, when only 7.8 million received the drug. Therefore, by the end of 2021, 76% of the total people infected with HIV received ART, 76% of whom were adults aged 15 years and older, and 52% were children under 14 years of age. In addition, 81% of HIV-infected pregnant women could protect their unborn babies from HIV infection by taking antiretroviral therapy by the end of 2021. Women around 15-24 worldwide suffer from HIV infection every week. Especially in sub-Saharan Africa, girls between the ages of 15-24 are infected with HIV twice as often as their male counterparts, accounting for 63% of all new HIV infections.

## 2.5: HIV situation in Myanmar

In 2016, HIV prevalence among persons aged 15 years and older appeared to have stabilised at less than 1%, and recent data show a substantial decline in projected mortality (from the highest rate of nearly 15,000 in 2006 to 6,600 in 2021). However, it was predicted that 270,000 people would be HIV-positive in 2021. The pandemic negatively impacted critical populations such as people who inject drugs (PWID), sex workers, MSM, and their intimate partners. According to the WHO data, HIV prevalence in Myanmar was estimated to be 19% of IV drug users in 2021, and sex worker and MSM prevalence were expected to be below 10%. As predicted, it was 8.3% and 8.8%, respectively (WHO, Myanmar HIV Country Profile, 2022).

In 2021, the critical population with the highest risk of HIV infection in Myanmar was drug addicts who inject drugs into the body through intravenous injection, and the

prevalence of HIV infection is about 19. After that, the second highest key population is men who have sex with men (MSM), with an estimated prevalence of 8.8%. After that, HIV prevalence among sex workers is about 8.3%. To control the spread of HIV infection in such key populations, health awareness activities were conducted, and efforts were made to increase the use of condoms among sex workers. In 2021, it was found that the use of condoms by sex workers increased to 89.9%. Opioid substitution therapy (OST) provision for IV drug users showed slight improvement, reaching only 21% in 2021 (WHO, *Myanmar HIV Country Profile*, 2022).

By looking at the official data released by the WHO, it can be seen that Myanmar's new HIV infection status has decreased significantly compared to the past decade. In 2010, more than 16,000 people were infected with HIV; in 2021, there were only about 10,000, a decrease of approximately 6,000 HIV infections. In addition, the death rate of AIDS, which is a consequence of HIV, was about 10,000 in 2010, but it was only about 4,800 in 2021, so it can be seen that the death rate due to AIDS in Myanmar has decreased by half in a decade (WHO, *Myanmar HIV Country Profile*, 2022).

According to WHO's policy, Myanmar is working to reach the 95-95-95 target by 2025. By 2025, 95% of HIV-infected patients will know their disease status. It is expected that 95% of those who know will have access to effective antiretroviral therapy and viral load reduction of up to 95%. According to figures published by the WHO, in 2021, there will be a total of 270,000 people living with HIV in Myanmar, of which 110,000 are adult women and 9,700 are children under the age of 14. The estimated prevalence of adults (15-49) in Myanmar is 0.8%, and the estimated incidence rate is 0.20 per 1000 population (WHO, *Myanmar HIV Country Profile*, 2022).

Through the collaborative efforts of International Non-government organisations, NGOs and the Ministry of Health and Sports Myanmar, Antiretroviral therapy access rates increased significantly in 2021. According to ART availability rates, 70% (nearly 200,000) of the total number of people infected with HIV in Myanmar received ART, of which 70% (over 180,000) were adults over the age of 15 and 68% (over 6,500) were children under the age of 14 (WHO, *Myanmar HIV Country Profile*, 2022).

## **2.6: Knowledge and Misconception of HIV**

Myanmar is a developing country in Southeast Asia, some rural areas of Myanmar are challenging to get to, and access to the internet is difficult due to a lack of good roads and electricity. Therefore, there is little contact with the news media and insufficient knowledge

about HIV. One of the critical causes of the new HIV transmission worldwide is a lack of knowledge and misconception about prevention and information of HIV/AIDS disease, especially in developing regions and countries. Previous research has shown that awareness about HIV is still poor in many contexts (Agegnehu et al., 2020; Al-Iryani et al., 2013; Son et al., 2020)

In Eastern European nations like Belarus (34.98%) and Ukraine (31.67%), the proportion of women who could correctly name all five knowledge of HIV/AIDS transmission and prevention was still deficient (Zainiddinov & Habibov, 2018). According to previous data from developing countries, only 25% of women in Ethiopia have good knowledge of HIV (Agegnehu et al., 2020). Similarly, in Asian countries like Vietnam (Son et al., 2020) and Yemen (Al-Iryani et al., 2013), knowledge about HIV is still below 50%. In Indonesia, a country in the region, according to the 2017 demographic health survey data, only 15% of women and 16% of married men are aware of HIV prevention methods (Survey, 2017).

According to studies, people with little knowledge about HIV are closely related to misconceptions about HIV prevention and transmission (Sano et al., 2016). Other factors affecting HIV misconceptions include geographic location, educational attainment, work status (Seid & Ahmed, 2020), health knowledge, and income measure (Mooss et al., 2012; Sano et al., 2016). This lack of knowledge about HIV or misconception of AIDS patients causes more than normal fear about this disease, which makes HIV-positive clients afraid to touch and start rejecting those who have HIV/AIDS (Survey, 2017). In addition, the lower level of HIV knowledge can trigger discrimination or stigma in the social environment against HIV-infected patients (Fauk et al., 2021). According to Indonesia DHS data in 2017, nearly 80% of the married population discriminated against HIV-infected persons. This discriminatory action is most likely a result of a lack of knowledge about how HIV spreads and prevention (Survey, 2017).

## **2.7: Socio-economic and demographic factors and discriminatory attitudes**

The relationship between age groups and discriminatory attitudes has been conducted in many countries. Of these, Ethiopia (Lifson et al., 2012; Nasr, 2021), Tajikistan (Zainiddinov, 2019), and Afghanistan (Alemi & Stempel, 2019) did not find much correlation between age group and discriminatory attitudes. Nevertheless, other Pakistani research produced contradictory results, showing that younger individuals exhibited more positive perceptions toward PLWHIV than older individuals (Iqbal et al., 2019). According to (Mohamed et al., 2020)'s analysis, 61% of the 24-year-old women in his study lived in rural

areas. In addition, it was observed that the women over 40 in his research had more knowledge about HIV/AIDS and positive things about people living with HIV than other younger age groups of women. Furthermore, women living in urban areas have a higher wealth quintile, higher education level and more knowledge about HIV than other women groups, and it is stated that there are more accepting attitudes related to HIV/AIDS (Mohamed et al., 2020). According to a survey conducted in Ethiopia by (Lifson et al., 2012), 80% of the country's population lived in rural areas, and compared to people from urban areas or villages near the capital, it was found that they have much more discriminatory attitudes towards HIV-infected people (Lifson et al., 2012).

According to research conducted in eleven African nations by (Fortwengel et al., 2018), there is a negative association between educational level and stigma associated with PLWHIV. As a result, countries with more excellent rates of education, such Niger (70.6%) and Mali (70%) had a tremendous amount of stigma indexes (>40%). Although Namibia (8.4%) and Rwanda (11.5%), two additional nations with low levels of education, had the least risk of stigmatising PLWHIV, with stigmatised indexes of 56.4% and 43.3%, respectively (Fortwengel et al., 2018).

(Nubed & Akoachere, 2016) conducted a study on secondary school students in Cameroon and reported that more than 52% of the students had a favourable view of PLHIV, and more than 47% had an opposing view. According to the data, over 57% of the respondents would purchase food or other supplies from an HIV-positive individual, and most of them felt that an HIV-positive teacher or student should be able to keep working or studying at a school (75%) (Nubed & Akoachere, 2016). Additionally, the respondents who were more likely to express favourable attitudes were between the ages of 25 and 34, lived primarily in urban areas, particularly in the provinces of Sindh and Punjab, had completed secondary education, and people belonging to the highest income group of wealth index, according to the results of a study conducted among ever-married women in Pakistan (Iqbal et al., 2019).

## **2.8: Theory of Stigma and Discrimination**

The Canadian sociologist Erving Goffman defined stigma as “*the situation of the individual who is disqualified from full social acceptance.*”(Goffman, 1963) Anyone with a gap between two identities, such as those with an infectious disease or homosexuals, is

stigmatised because the real stigma is the difference between who individuals should be and who they genuinely are (Ritzer, 2011). Goffman also explained three types of stigmas; the “stigma of character traits”, “physical stigma”, and “stigma of group identity”. When a person's social identity conflicts with societal standards or expectations for how a person should behave, stigma occurs in a social encounter. Because of this, an individual's social identity is frequently seen as socially abnormal conduct (Kurzban & Leary, 2001).

In the field of HIV, not being treated fairly and the lack of equal opportunities affects not only the family members of people living with HIV/AIDS but also where they live, how rich they are, their skin colour, their gender, who are they having sex with, what drugs they are taking, they are from jail, are they illegal residents, are they refugees, whether they are health workers, whether they are sex workers, etc., they can be found in various places from various angles. Stigmatised social characteristics overlap, resulting in many convergent types of stigmas that amplify the detrimental impacts of stigma on health and well-being (Nambiar et al., 2011; Tshabalala & Visser, 2011). According to UNAIDS, HIV-related stigma refers to negative beliefs, attitudes, and behaviours toward HIV - infected Individuals, groups associated with individuals living with HIV (such as families of people living with HIV), and other essential populations who are more likely to contract HIV, such as drug users, sex workers, men who have sex with men, and transgender people (UNAIDS, 2020).

According to international human rights law, discrimination is any difference, isolation or restriction based on grounds strictly prohibited by international law, whether direct or indirect, which has the effect or purpose of preventing others from recognising, enjoying or exercising all their fundamental freedoms in all spheres of life, whether political, economic, social, cultural, civil or otherwise. Therefore, discrimination based on a person's actual or perceived HIV status constitutes HIV-related discrimination. This includes differentiation, exclusion, or restriction (acts or omissions). In the context of HIV, discrimination also refers to acts and omissions directed at other vital populations and groups who are at higher risk of contracting the virus. Current laws, regulations, and practices that negatively impact people living with HIV and disadvantaged groups, such as incarcerated persons, can perpetuate discrimination (UNAIDS, 2020).

## **2.9: Previous researchers related to discriminatory attitudes toward people living with HIV/AIDS**

### **2.9.1: Harmful effect of discrimination toward people living with HIV and AIDS.**

Since HIV appeared in the world, various stigmatising situations, such as avoidance behaviours, have been experienced by people infected with HIV (e.g., refusing to eat together, hugs and greetings or sitting together on a bench), speculation and verbal harassment (e.g., usage of terminology that is disparaging, insult or using abusive language), and social exclusion (e.g., avoiding social gatherings, having one's opinions disregarded, and losing one's standing). Physical abuse, refusal to provide health treatments, loss of work or rejection, prohibition of housing, and detention where HIV transmission or particular behaviours are prohibited are examples of discriminatory experiences (Stangl et al., 2012; UNAIDS, 2007).

As a result of this kind of stigma and discrimination, HIV-infected patients are afraid to go to health centres that provide HIV/AIDS-related treatment and receive HIV counselling, unnecessary delays in one's rights, access to necessary tests and getting powerful and effective ART. This can affect physical and mental health (Nyblade et al., 2009; Stangl et al., 2012; UNAIDS, 2007). People with HIV frequently experience overlapping stigmas about other stigmatised medical diseases (e.g., Tuberculosis, Opportunistic infection) and personal identity (e.g., ethnicity, economic status, gender, employment, and sexual orientation). People who suffered discrimination and were treated like that are called key populations or populations discarded-including but not limited to HIV-positive individuals, significant populations, local groups, prisoners and other detained individuals, migrants, and women and girls, especially young girls and adolescents girls-depend on their significance to the dynamics of the epidemic or the response to it (Stangl et al., 2019; Turan et al., 2019).

Key populations are often subject to increased stigma and prejudice due to criminalisation in various contexts. The criminalisation of certain behaviours in legal contexts (e.g., addiction, the confidentiality of HIV status) or employment status (e.g., commercial sex worker) may promote prejudicial attitudes and behaviours by law enforcement that can increase stigma and discrimination against critical populations, including people living with HIV (e.g., the arrest of drug addicts in harm reduction facilities and the pressure on sex service providers to perform free sexual acts for police officers to avoid being arrested), putting vulnerable groups at an increased risk of HIV infection. These laws violate the ability of essential people to obtain justice and health care. A biased legal environment prevents



significant populations from taking advantage of harm-reduction programs and participating in risk-reducing behaviours. HIV acquisition due to anxiety of being arrested, harassed or subjected to other unfavourable law enforcement responses(Beletsky et al., 2011; Ferguson et al., 2018; Williamson et al., 2017).

In some countries, there have been instances of prostitutes being arrested for illegal sex work because they were found in possession of many condoms at their place of work. Because of this, prostitutes do not carry many condoms with them, which reduces the use of condoms in areas where they work, thereby increasing the rate of HIV transmission(Simon, 2011). Prisoners serving hard labour and prison sentences can easily contract HIV, mainly through illegal prison tattooing and drug use. In addition, sexual violence in prisons and interpersonal abuses further encourage the spread of the disease. Prisoners living with HIV risk contracting opportunistic infections such as TB due to inadequate antiretroviral drugs, inadequate nutrition, poor hygiene, cramped quarters and overcrowding(Andrinopoulos et al., 2011; Brinkley-Rubinstein & Turner, 2013; Derlega et al., 2010).

People living with HIV/AIDS and key populations, regardless of their status and disease status, face prejudice and discrimination in some places that provide them with health care around the world("Agenda for zero discrimination in health-care settings,," 2017). In 2014, in 21 urban communities in South Africa and Zambia, health workers and key populations such as sex workers, transgender people, and young pregnant women conducted a study and experiment to determine whether or not there is a level of stigma and discrimination. According to this study, it was found that health workers did a lot of stigma and discrimination against sex workers and transgender people according to their education level(Krishnaratne et al., 2020). Due to some health workers' discrimination, most HIV-infected clients are afraid to go to the HIV service centres. When taking history, their essential information, such as drug use or the number of sexual partners, is not openly disclosed. Behaviours like this significantly affect counselling and necessary treatment for HIV clients(Ekstrand et al., 2013).

Risk persons who are likely to be infected with HIV due to stigma and discrimination by some health workers, there is a significant obstacle to doing HIV testing and receiving the necessary treatment. HIV treatment can be complicated, and a lack of community hampers adherence and family support primarily occurs in transgender people infected with HIV. According to a study in 2010 in America, less than 90 % of transgender women using ART reported adherence to therapy and expressed less confidence in their ability to integrate their

treatment plans into their daily lives than women who are not transgender(Sevelius et al., 2010).

Confidentiality is another critical issue because unwarranted disclosure of a person's HIV status could severely affect some vulnerable populations. For example, patients in rural areas with tight social structures and limited access to HIV care and resources may find it more challenging to access confidential HIV care. In such places, providing HIV care may also lead to secondary stigma for caregivers. This can be a natural barrier to seeking HIV testing and treatment, depending on how the community views people living with the virus. According to one study, participants refused to take antiretroviral medications even when they had access to them because of fear of HIV-related prejudice and stigma. Gossip from health professionals is a cause for concern and seems particularly salient in these circumstances(Treves-Kagan et al., 2016).

In the legal field, HIV-related risk persons face many human rights violations. Discriminatory laws in some countries still create a severe obstacle for HIV-infected clients. For example, according to 2022 data, 48 countries in the world prohibit people with HIV from entering the country, obtaining citizenship, residence, working, or studying. That is why UNAIDS Executive Director Gunilla Carlsson said, "*Travel restrictions based on HIV status violate human rights and are ineffective in achieving the public health goal of preventing HIV transmission.*" (HIV-related travel restrictions., 2019) As a result, refugees or migrants may be more cautious about seeking state services, especially social support and medical care, of concern about deportation. Even in countries without such travel restrictions, HIV-related human rights violations and discrimination can significantly affect the physical and mental health and well-being of migrant workers and refugees. According to a research paper conducted in the United Kingdom of Great Britain, discrimination among men with HIV causes great anxiety about personal safety. As a result, they avoid social gatherings, intimacy, and HIV counselling and education services(Chinouya et al., 2017).

HIV-related stigma and discrimination are generally worse among key populations, at-risk people, vulnerable people, prisoners and migrant workers, especially young women and adolescent girls. For example, they are abandoned by their families and rejected by their partners. In some situations, this can put them in a precarious financial situation and put their lives in danger(Katz et al., 2013). Girls and women infected with HIV experience criticism, racism, discrimination, and neglect from their spouses, family members, work colleagues, and friends at school because of their disease status. As a result of such situations, self-esteem and

mental state have been extensively damaged, depression has occurred, suicidal thoughts have entered, and efforts to commit suicide have been found (Groves et al., 2010; Paudel & Baral, 2015; Vreeman et al., 2017). According to a study conducted in the United States, the two main factors contributing to depression in older HIV-positive individuals were solitary and HIV-related stigma (Groves et al., 2010).

Due to this kind of stigma and discrimination against HIV patients, not only the HIV patients themselves but also the organisations and institutions related to them may be affected. As a result, the outcome of laws and regulations, the accessibility and calibre of healthcare services, the method used for law enforcement and social safeguards may be affected. Because of this, stigma and discrimination against HIV-positive persons and those related to them are found at various levels. Many national-level solutions are needed to reduce and eliminate such discrimination, especially the family members, community participants, health workers, employers, law enforcement officials, and decision-makers.

#### 2.9.2: Prevention and intervention of HIV-related stigma and discrimination.

Myanmar is located in Southeast Asia, bordering India, China, Thailand, Bangladesh and Laos. The British Empire colonised Myanmar during the 19<sup>th</sup> and early 20<sup>th</sup> centuries. Most Myanmar people follow Buddhism, and other religions such as Christianity, Islam, and Hinduism are practised freely. As a developing country, Myanmar has difficult transportation in rural areas, and the literacy rate is not high. In these rural areas, there is an obsession with orthodoxy and religion, and there is little knowledge about HIV. Such conservative beliefs and lack of knowledge often lead to misconceptions about people with mental illness and chronic infectious diseases such as HIV, leading to erroneous diagnoses and decisions according to their handover trust. For Buddhists, a condition is believed to result from evil deeds and karma they did in their previous life without adequately investigating the cause (Aung et al., 2022; Lemons-Lyn et al., 2021).

Most people in Myanmar have misconceptions about key populations, especially sex workers and MSM. Why are sex workers considered morally depraved and MSM unmanly? Therefore, even if women who have worked as sex workers in the past are not currently sex workers, people around them consider them to be women with bad behaviour. They treat them equally and discriminate against them in employment. Even if homosexuals live in the neighbourhood, they do not have equal access to employment opportunities and are discriminated against like ordinary people. For example, some Burmese think homosexuals are only suitable for jobs such as makeup artists or fashion designers. Homosexuals do not

have the same opportunities as the average ordinary in school sports and competitions(Aung et al., 2022; Oo et al., 2016).

Due to conservative beliefs, misconceptions, and lack of knowledge about HIV, when some people see a person with HIV, they draw conclusions and say, "This person is a prostitute, this person is a drug user," and discriminate against the HIV-infected person. For this reason, HIV-infected MSM, the at-risk population, and family members of HIV-infected people are treated differently in schools, markets, workplaces, and competitions(Thein, 2015).

As Myanmar is one of the countries supporting UNAIDS, the Government of Myanmar, key stakeholders, NGOs, civil society organisations, and charities are working together in the six vital discriminatory areas to reduce HIV-related stigma and discrimination and provide full human rights to HIV patients, according to the December 2017 UNAIDS Programme Coordinating Council. These are community, workplace, education, health care, justice and emergency setting(Lemons-Lyn et al., 2021; UNAIDS, 2020).

The community includes the HIV-positive person's family members, friends and neighbours. They discriminate against HIV-positive people by refusing to eat together in the family or share kitchen utensils in the community, not giving them equal opportunities, gossiping about them, calling them names and shunning HIV-positive people. This leads to internalised stigmatisation of HIV-positive people and anticipates stigmatisation. As a result, HIV-positive people become isolated, ashamed to live in a family, afraid to interact with the environment and consequently become refusers of HIV testing, care and treatment, which is detrimental to the client's physical and mental well-being(Ojikutu et al., 2016; Pharris et al., 2011). They are further divided into the community, family and environmental issues to reduce such problems. At the personal level, there is individual counselling and health education. Educating family members about the disease can create a stigma- and discrimination-free zone and reduce internalised and anticipated stigma against HIV patients. At the environmental level, they met with community leaders and stakeholders, held health talks, formed morale-building groups and provided HIV testing and treatment to create a non-stigmatising and non-discriminatory environment in the community(Brown et al., 2010).

In the workplace, most HIV patients in Myanmar are working adults (over 15). Employment can be broadly categorised as formal (government employees, company employees) and informal (vendors, domestic workers, labourers, prostitutes). According to the 2014 UNAIDS Gap Report, people living with HIV are about three times more likely to be unemployed than the general population in both the formal and informal (private and public)

sectors(UNAIDS, 2014). Key groups, impoverished women, transgender and migrant workers, face intersecting stigma and discrimination in their formal and informal workplaces regarding race, colour, nationality and poverty. As a result, they are unemployed and must choose sex work to survive. According to a survey conducted in Nigeria and Africa, HIV-positive people were subjected to stigma and discrimination in the workplace, such as refusal to work with them, bullying, gossip, denial of equal promotion, being forced to quit their jobs and being unfairly fired(Fakolade et al., 2010; Sprague et al., 2011). Therefore, information aimed at acquiring skills and targeting workers in a work environment should be provided in advance to prevent workplace discrimination. According to the evaluation, one of these measures seemed to improve attitudes and knowledge about HIV and related stigma and discrimination. Another measure that should be taken is to ban HIV testing before recruitment, as this would quickly lead to discrimination between workers who work together if they know each other's HIV status(Richter et al., 2012).

In education, HIV-infected students, students from families of HIV-infected individuals, HIV-infected teachers, and HIV-infected educational staff are exposed to HIV-related stigma and discrimination in the schools or universities where they study or work, such as bullying and violence, neglect, avoidance and isolation, invasion of privacy, denial of student enrollment, and job loss for faculty("WHO Guidelines Approved by the Guidelines Review Committee," 2013; Winskell et al., 2016). Because students do not have a good knowledge of HIV, they often stigmatise and discriminate against fellow students who are HIV-positive or have HIV in their families. Because of this, students with HIV face intersecting and cumulative HIV-associated difficulties related to their socioeconomic class, gender, and sexual orientation, as well as the violence they face at home, in their community, or at school(Casale et al., 2019). For this reason, they are reluctant to participate in educational counselling, are ashamed to take medications at school or in front of their classmates, do not take their medications, develop drug resistance, decrease viral suppression, and have problems with treatment compliance. As a result, physical and mental health is compromised, and irregular school attendance, school changes, dropping out, depression, and suicidal thoughts may occur(Denison et al., 2015).

Discrimination among teachers and education staff also results in demoralisation, reduced performance, inability to focus on work, and changes in position or quitting. Regardless of whether their health status or identity has been disclosed, programmatic and policy activities in the education sector must foster a supportive environment for all students,

including students with HIV, girls, and teachers. The accessibility of services, especially regarding the legal age of consent, will need to be considered in such educational contexts(Mackworth-Young et al., 2017). Therefore, to educate students, teachers should adjust their knowledge of HIV prevention, transmission, and treatment to their religious, cultural, understandable language, and social norms and work hard to eliminate stigma or discriminatory behaviour. In addition to defending their legal rights to privacy, anonymity, and equality in treatment(Campbell et al., 2016).

In the healthcare setting, HIV-related discrimination plays a significant role, especially in places where care and treatment are provided. For example, unnecessary treatment for a long time, the abhorrent manner of treatment (avoiding skin-to-skin contact with the patient, providing inadequate therapy for opportunistic infections, not preventing vertical transmission), neglect (not giving enough food and drink to the patient in the hospital, connive the condition of patient's hygiene), refusing to treat the patient, not being confidential, HIV testing without informing the patient, taking unnecessary precautions (wearing two layers of the glove, burning things used by HIV patients) and not following rules (telling family members or friends about the disease without the patient's permission, gossiping, etc.)(Gagnon, 2015; Li et al., 2015; Varas-Díaz et al., 2013).

Due to unequal treatment and unfamiliarity in healthcare settings, at-risk persons refuse and avoid HIV testing. As a result, poor treatment adherence and drug resistance become challenging to control this epidemic(Oberth et al., 2019). According to a study conducted in Zambia, health workers encouraged HIV-positive patients and their families not to have sex, not to start a family, and not to have children. Doing so is not only a violation of the human rights of HIV patients but also causes great psychological harm to them(Mackworth-Young et al., 2017).

Healthcare setting rules are only one example of a factor that might affect how HIV-related stigma and prejudice manifests. Therefore, it is essential to prevent discrimination in the healthcare setting. In doing such interventions, healthcare providers such as doctors, nurses and laboratory staff and from primary health workers in hospitals and health centres to medical students, community field facilitators, and volunteer workers, must make interventions. The bulk of interventions was informational or skill-building in nature, while some involved interactions with groups of people living with HIV and structural approaches, which include initiatives to address structural issues. Improvements in attitudes toward those living with or suspected of living with HIV, more awareness of HIV, and less fear of infection

were the main drivers of decreases in stigma and discrimination. Several programs were also shown to enhance health professionals' behaviours concerning HIV testing and risk reduction(Norr et al., 2012; Uys et al., 2009).

Even in law and justice, there is an area where there is discrimination concerning HIV. In some countries, in particular, some regulations crack down on HIV (entry bans or traffic restrictions, criminal prosecution for concealing HIV), abuse and harassment by law enforcement officials, and people living with HIV and other at-risk individuals who have been wrongfully arrested and detained. These unjust laws not only harm people living with HIV but also violate their human rights. In some places, police disguise themselves as volunteers in syringe exchange programs and arrest drug users who join them. These fears of IV drug users undermine harm reduction services and HIV transmission control(Beletsky et al., 2011; UNDP, 2012; Vernooy et al., 2015).

Discrimination laws make it difficult for HIV-risk persons to obtain redress for abuse or harassment. For example, when prostitutes are physically assaulted, harassed, or insulted by their clients, they cannot file a police report because of laws against prostitution. Such false arrests of HIV patients and at-risk individuals directly impact controlling the spread of HIV. For example, when a person with HIV is falsely arrested, they do not regularly take ART, get regular checkups, and develop drug resistance. Other opportunistic infections have spread, and eventually, the disease has reached a level they can no longer control(Shannon & Csete, 2010; Simon, 2011).

All countries must work together to intervene in the field of justice. This includes not only repealing discriminatory laws related to HIV, e.g. laws prohibiting entry of HIV patients but also enacting non-discriminatory laws that are fair to HIV patients, at-risk individuals and key populations. Most interventions focused on members of critical communities, law enforcement officials or parliamentarians. Other investigations have involved health professionals, people living with HIV, journalists and the general public. This is to reduce harm to people living with HIV and those at risk and to reduce discriminatory attitudes towards HIV among law enforcement officials. As a result, it strengthens the HIV community and improves stakeholders' knowledge and skills about HIV(Simon, 2011; UNDP, 2012).

In an emergency are mainly refugees from all over the world, whose number is increasing. According to a 2016 United Nations High Commissioner for Refugees report, the number of refugees living with HIV is nearly 3 million, which is 1/14th of the total number of refugees(Lowicki-Zucca et al., 2008). In some low-income countries, sexual violence against

young women and children is on the rise, fueling the spread of HIV. For example, sexual violence is high in impoverished areas where people have to walk to distant places to get drinking water, firewood, and food(Bennett, 2002).

In such emergencies, there are many problems in HIV prevention, care and treatment, especially difficulties in transporting ART medicines and supplies for HIV patients, insufficient food and drinking water, and lack of safe shelter and personal hygiene. As a side effect, treatment adherence is lower due to inadequate medication, poor nutrition and reduced immunity. In some areas and some situations, intervention in such an emergency is minimal. If adequate support is not provided in this emergency, the goal of 90-90-90 universal health coverage cannot be achieved. Therefore, it is crucial to increase the implementation of scientific research activities to strengthen the knowledge base and programmes to eliminate HIV-related stigma and discrimination in emergencies and humanitarian situations(Roxo et al., 2019).

Civil war has been raging again in Myanmar since 2021. Some areas are in an emergency, predominantly rural areas with difficult transport and black areas where phone lines and internet have been cut. In addition, the lack of medical personnel, the increasing number of war refugees and the lack of volunteers seem to highlight the state of the HIV response in Myanmar. In the leading civil war states, sexual violence occurs, HIV patients suffer from a lack of medication, and many human rights are affected in addition to many side effects. Nationwide, there is a research gap, as there is no previous study on HIV stigma and discrimination, and this needs to be caught up.



## **CHAPTER III**

### **METHODOLOGY**

#### **3.1: Study Design**

This study's research methodology involves the secondary data analysis of the cross-sectional Myanmar Demographic and Health Survey (MDHS), which was carried out in 2015-2016.

#### **3.2: Study Area**

Myanmar Demographic Health Survey Data (MDHS) is conducted in Myanmar.

#### **3.3: Study Population**

The study populations were Myanmar citizens who age between 15-49 years of age

#### **3.4: Sampling Design and Sample size calculation of DHS**

##### **Sampling Design**

The 2015-16 Myanmar Demographic and Health Survey is the first DHS survey conducted in the country (2015-16 MDHS). The Ministry of Health and Sports of the Republic of the Union of Myanmar conducted this survey with support from the DHS program, the Three Millennium Development Goal Fund, and the United States Agency for International Development (USAID). Using secondary data from the 2015-2016 MDHS, a master sample was created based on the previously stated census framework. This master sample was designed to respond to and organize a series of household-based surveys in Myanmar, including the current 2015-16 MDHS.

The 2015-2016 Myanmar Demographic and Health Survey (DHS) sampling strategy involved a stratified two-stage cluster sampling approach to obtain data from a nationally representative group of households. The primary aim was to generate reliable estimates of crucial health and demographic indicators at the national level and for urban and rural areas separately.

The first stage of the sampling design involved selecting 442 primary sampling units (PSUs) from the 2014 Myanmar Population and Housing Census frame. Probability proportional to size (PPS) sampling was employed, meaning that PSUs with larger populations were more likely to be chosen. The PSUs were further divided by urban and rural areas to guarantee distinct representation for each category.

### **Sampling Technique**

The systematic selection began at a random starting point within the first interval. In the second stage, 30 households were randomly chosen within each PSU. This process required obtaining a list of households for each selected PSU and picking households at a fixed interval based on the total number of households in the PSU.

The 2015-2016 Myanmar Demographic and Health Survey (DHS) employed a stratified two-stage cluster sampling design to gather data that is nationally representative of various health and demographic indicators. This approach offers critical insights into the well-being of the population. Eligibility for individual interviews was determined based on specific criteria. For instance, all women aged 15-49, who were usual residents in the selected household preceding the survey, were eligible. In a subsample constituting one-third of the chosen households, all men aged 15-49 were also considered eligible for individual interviews.

### **Sample size calculation**

The procedure of determining the sample size for the 2015-2016 Myanmar Demographic and Health Survey (DHS) was influenced by a number of variables. The primary objective was to provide accurate estimates of key indicators at the national and domain levels. Multiple factors, including the intended level of precision for the estimates, the design effect arising from clustering, and the anticipated response rate, were considered when calculating the sample size. The sample size was also determined by logistical and financial factors, such as the available budget and the capacity to conduct the survey.

The targeted sample size for the 2015-2016 Myanmar DHS was 13,260 households. This aimed to complete interviews with approximately 12,500 women aged 15-49 and 4,650 men aged 15-49. This sample size was chosen to provide reliable data for key demographic and health indicators and accommodate the survey's budget and logistical constraints.

### **Data Processing of MDHS**

### 3.5: Survey Data

The Myanmar Demographic and Health Survey (MDHS), the country's first DHS survey, provided the data for this study. Access to the dataset was requested on the website programmed by the DHS to use the information for academic and research purposes. 13,260 nationally representative household samples were used for the survey to examine vital economic indicators in the country. A survey was conducted to obtain accurate figures for the entire country, including urban and rural areas, each of the 14 states and regions, and the Union Territory of Nay Pyi Taw.

For the survey, 11,797 women aged 15-49 who were frequent residents of the selected households were interviewed. A study of men was also conducted at the same time as the survey of women in a sub-sample consisting of one family for every two households selected for the study of women. All men aged 15-49 years who usually lived in the homes chosen or had heard of AIDS before the survey were eligible to participate in the men's survey. Four thousand three hundred and fifty-eight men aged 15-49 were interviewed for the study. The gender distribution exhibited a ratio of 3 to 1, with a higher representation of women compared to men. During the analysis phase, the prescribed approach by the DHS Programme was followed, wherein the standard PREWEIGHT and PREWEIGHTMN variables were utilised. Consequently, it is anticipated that the outcomes of this study will remain unaffected by this methodological decision.

The 2015-16 MDHS questionnaires for women and men included questions on the current status of HIV awareness, attitudes, and test coverage in the general population and the young population. The adults in each household aged 15-49 who responded to these questionnaires were asked questions. Four dissimilar questions comprise the questionnaire on discriminatory attitudes towards HIV/AIDS patients. All respondents gave their verbal consent before the interview could begin. The first 10 questions of the survey were three comprehensive knowledge questions about HIV, three about preventive knowledge, and four about mother-to-child transmission knowledge. Three questions on positive acceptance attitude and one on negative acceptance attitude are included in the second set of four surveys. This survey aimed to eradicate discriminatory attitudes toward HIV/AIDS patients.

### **3.6: Data Management**

#### **3.6.1: Inclusion Criteria**

The inclusion criteria for this study encompass individuals who possess knowledge of HIV/AIDS, as reported by all participants in the MDHS survey. From the pool of participants, individuals who successfully responded to all 10 questions assessing their knowledge of HIV, as well as those who provided answers to all four questions evaluating their attitudes towards the subject matter, were chosen for data analysis. Participants who did not provide responses to all of the designated questions were categorised as missing variables and subsequently excluded from the analysis. Although the sample size of this study does not include the entire 2015-2016 MDHS sample, the results can still be considered representative of the country as a whole, as MDHS data provide the most up-to-date estimates of key demographic and health variables in Myanmar.

#### **3.6.2: Merging Data Sets from the 2015-2016 MDHS**

This part presents the methodology employed to merge the datasets from the 2015-2016 Myanmar Demographic and Health Survey (DHS). The data files utilized for this study include Individual Recode files for women (IR), men (MR), and Household Recode files (PR). Merging these datasets is a critical step in our analysis, as it allows for a comprehensive examination of the collected information.

To facilitate the process of merging, we identified unique identifiers present in each data file. Unique identifiers for the Myanmar DHS datasets include the cluster number, household number, and line number within the household. These identifiers are used to associate documents across datasets, ensuring that the data is merged accurately.

**Preparing the Datasets:** We reviewed each dataset before merging to confirm that the unique identifiers were consistently formatted across all files. In addition, we addressed any discrepancies or missing values in the unique identifiers. This thorough assessment minimises the risk of errors during the merging process, ensuring the reliability of the final dataset.

**Selecting Relevant Variables:** To reduce the complexity of the merged dataset, we identified variables of interest from each data file. This selection process helped maintain a manageable dataset size and allowed us to focus on the research questions.

**Merging the Datasets:** With the datasets prepared and variables selected, we merged the data files using STATA version 17. The STATA software matched records from the IR, MR, and PR files based on the unique identifiers, resulting in a combined dataset containing

the selected variables. This merged dataset enabled more comprehensive and integrated analyses, allowing us to explore complex relationships among variables.

**Checking the Merged Dataset:** After completing the merging process, we reviewed the resulting dataset to ensure the accuracy and completeness of the records. This involved checking for inconsistencies and missing values and verifying the expected number of records in the dataset. This rigorous examination ensured the reliability and suitability of the merged dataset for subsequent analyses.

### 3.6.3: Data Cleaning Process

According to DHS guidelines, all data were weighted using functions `v005/1,000,000` and `mv005/1,000,000` when input to the calculation. STATA version 17 was used for the data-cleaning process. The number of eligible women is (13,454), men are (5,218), and the total number of eligible persons is (18,672). Among these populations, this study only selected women and men who have heard of HIV/AIDS (12,885) and (4,737), respectively. Of these chosen people, the total number of accepting or discriminatory attitudes toward people with HIV/AIDS is (13,854). The flow of the data cleaning process is as follows. The current status of HIV knowledge and attitudes was determined by combining and matching instances with the household file (HR), the women's file (IR) and the men's file (MR). The variable "discriminatory attitudes" was created by combining and matching data from the IR and MR files.

**Limitation:** Since this study analysed the women and men that do not have missing variables, some of the samples were dropped out. So, there are some differences in the result compared with the final report of MDHS.



*Figure 4 Data Cleaning Process*

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

#### 3.6.4: Recoding of variables

##### **Dependent variable**

The questions of scenarios about acceptance or discriminatory attitudes were used as the discriminatory attitudes toward HIV/AIDS-positive people in Myanmar. Four scenarios' questions were coded: yes, no, and do not know. Respondents were said to have discriminatory attitudes toward PLHIV if they answered "no" to at least one of the indicators above.

*Table 5. Recoding of Dependent Variables*

The original questionnaire developed by the DHS encompassed three response options, namely "yes," "no," and "do not know." Based on the findings of the literature review, it has been observed that in various studies conducted in different countries utilising the DHS methodology, a minimal proportion of respondents tended to provide "do not know" responses instead of categorically answering "No".

Discriminatory attitudes	Re-coding
Would you not want HIV infection in the family to remain secret (yes/no/do not know)	“Yes” or “No”
Willing to care for HIV -infected family members at home (yes/no/do not know)	“Yes” or “No”
If you knew a shopkeeper had HIV, would they still buy fresh vegetables from him? (yes/no/do not know)	“Yes” or “No”
Permission for a teacher who has HIV to continue teaching. (yes/no/do not know)	“Yes” or “No”

### Independent variables

The independent variables included individual characteristics, demographic characteristics, and knowledge of HIV.

Individual characteristics were re-coded as follows.

*Table 6. Recoding of Individual Characteristics of the Participants*

Individual Characteristics	Categories
Age	-recoded into seven categories 1. “15-24.” 2. “25-34.” 3. “35-44.” 4. “45-49.”
Sex	-had two categories

	<ol style="list-style-type: none"> <li>1. Male</li> <li>2. Female</li> </ol>
Marital Status	<p>-recoded into four categories</p> <ol style="list-style-type: none"> <li>1. Single</li> <li>2. Married</li> <li>3. Widowed</li> <li>4. Divorced</li> </ol>
Level of Education	<p>-recoded into four categories.</p> <ol style="list-style-type: none"> <li>1. No education</li> <li>2. Primary</li> <li>3. Secondary</li> <li>4. Higher</li> </ol>
Occupational status	<p>-recoded into two categories.</p> <ol style="list-style-type: none"> <li>1. Employment</li> <li>2. Unemployment</li> </ol>
Exposure to media	<p>-participants who watch television, listen to the radio and read newspapers in this study were recoded into two categories. Specifically, we aim to ascertain whether the participants partake in these activities with a frequency categorised as "almost every day," "at least once a week," "less than once a week," or "Not at all." Based on the analysis of existing literature, it is advisable to categorise individuals as having media exposure if they self-report engaging with media "at least once a week." Conversely, individuals who report engaging with media "less than once a week" should be classified as having no media exposure based on the available evidence. The utilisation of this categorization methodology facilitates the implementation of a uniform procedure for the computation of the data.</p>



	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol>
--	---

Demographic characteristics were re-coded as follows.

*Table 7. Recoding Demographic Characteristics of the participant*

Demographic Characteristics	Categories
Type of Residence	<p>-there were two categories.</p> <ol style="list-style-type: none"> <li>1. Urban</li> <li>2. Rural</li> </ol>
States/Regions	<p>-there were 15 categories of States/Regions and recode into 2 groups</p> <ol style="list-style-type: none"> <li>1 State (Other ethnic groups)</li> <li>2 Division (Only Burma group)</li> </ol>
Wealth Quintile	<p>In the DHS, the wealth quintile is determined by first gathering data on households' assets and facilities via a structured questionnaire, which covers factors such as residence materials, access to utilities, and ownership of consumption goods. Through principal component analysis, these factors are ascribed to weights and used to generate a standard wealth index for each household. Then, based on their index scores, households are sorted and divided into quintiles that represent their relative economic status, from the poorest 20% of households (first quintile) to the wealthiest 20% of households (fifth quintile). There were five categories, each with 20% of the population</p> <ol style="list-style-type: none"> <li>1. Poorest</li> <li>2. Poorer</li> </ol>

	3. Middle 4. Richer 5. Richest
--	--------------------------------------

Knowledge of HIV was re-coded as follows:

Knowledge of HIV was divided into prevention methods, Comprehensive Knowledge, and Vertical transmission. Based on previous research, knowledge was split into three categories: Poor, Medium, and High. Ten questions were asked as part of this knowledge research, each of which could be answered with yes or no. These questions are:

1. HIV prevention by one-on-one sex with an uninfected partner who does not have any other sex partners
2. People can reduce the risk of transmission by using a condom correctly every time they have sex.
3. Can a visually healthy person have HIV
4. Can people get HIV from an insect bite?
5. Can individuals get HIV via eating with HIV-positive individuals?
6. Can HIV be infected by witches or black magic?
7. Can HIV pass from a woman to her baby during pregnancy?
8. Can HIV pass from a woman to her baby during delivery?
9. Can HIV pass from a woman to her baby during breastfeeding?
10. There are unique medications that a doctor or nurse may administer to an HIV-positive mother to lessen the chance of transmission to the unborn child.

The variable representing composite knowledge was derived by combining ten individual variables. This composite knowledge variable was then classified into three categories: "poor knowledge" if the respondent provided no correct responses, "medium knowledge" if the respondent provided seven correct responses, and "high knowledge" if the respondent provided eight to ten correct responses (Khan, 2017).

### **3.7: Data entry and analysis**

STATA version 17 was used for data entry and analysis.

### **3.8: Statistical Analysis**

#### **Descriptive Analysis**

The descriptive statistic was used for individual characteristics variables (age, sex, marital status, educational level, employment status, reading ability, and access to mass media), demographic characteristics variables (type of residence, states/regions, and wealth quintile) to find frequency and percentage. In addition, descriptive statistics were applied to understand the knowledge of HIV/AIDS. Ten questions assessing knowledge could be answered with yes or no. Four questions on discriminatory attitudes were responded with yes/no.

The variable that represents total knowledge was derived by combining ten separate variables. This composite knowledge variable was then classified into three categories: "poor knowledge" if the respondent provided no correct responses, "medium knowledge" if they provided seven correct responses, and "high knowledge" if they provided eight to ten correct responses.

For the dependent variable, respondents who answered "No" to any of the four acceptability questions were classified as exhibiting stigmatising behaviour towards PLWHA. This classification was used to identify discriminatory attitudes. In the event that the participant provided a negative response to at least one item, the discriminatory attitude was categorised as affirmative. Conversely, if the participant responded "yes" to all items, the absence of a discriminatory attitude was inferred.

### **Bivariate Analysis**

The association of independent variables (socio-demographic factors and knowledge levels) and dependent variables (discriminatory attitudes) were examined by bivariate analysis using simple logistic regression. We used simple logistic regression instead of a chi-square test because of searching between two categorical variables, and to determine if there is a significant association between the variables. When there are multiple comparisons in this study, the chances of observing a significant result by chance increase, leading to a higher likelihood of false positive results. By using a more relaxed p-value threshold, such as  $p < 0.25$ , the number of false positive results can be reduced. So, the variables with a significant level at  $p < 0.25$  were included in further analysis.

### **Multivariable Analysis**

Multiple logistic regression was used for the multivariable analysis to assess the association between sociodemographic characteristics, knowledge level and discriminatory attitudes toward PLHIV. This type of analysis was used because the discriminatory attitude

(dependent variable) was the binary outcome (yes/no). The variables in the bivariate analysis that have  $p < 0.25$  were included in the multivariable analysis. The results were presented using Adjusted odds ratios (AOR) with a 95% confidence interval (CI).

### **3.9: Ethical Consideration**

The Ethics Review Committee on Medical Research, Including Human Subjects in the Department of Medical Research, Ministry of Health and Sport, granted ethical approval for the 2015-2016 MDHS. Prior to the interview, all participants provided written informed consent. This study has permission to acquire the dataset from the website of the Demography and Health Survey (DHS) ([dhsprogram.org](http://dhsprogram.org)). This study obtained ethical approval from the Ethics Review Committee of Chulalongkorn University and was granted approval with COA No.121/66

### **3.10: Reliability and validity**

A number of questions were used in the 2015-2016 Myanmar Demographic and Health Survey (DHS) to find out how much people knew about HIV/AIDS and how they felt about people who had it. Even though there are no specific details about how these measures were made for this survey, general information can be given about how these measures are made and evaluated in DHS surveys.

The 2015-16 MDHS utilized three sets of questionnaires: a Household Questionnaire, a Woman's Questionnaire, and a Man's Questionnaire. These questionnaires, which were originally designed for the global DHS programme, were modified to reflect Myanmar's culture and some country-specific health issues. Multiple stakeholders from the Ministry of Health and Sports and other related ministries, UN agencies, donor groups, and local and international nongovernmental organizations participated in a questionnaire design workshop. The MDHS Technical Committee approved the final draught, which was then translated into Myanmar and back into. The Department of Medical Research, Ministry of Health and Sports, and Ethics Review Committee on Medical Research Including Human Subjects reviewed and approved the survey protocol. Likewise, the protocol for the survey was endorsed by the ICF Institutional Review Board.

## CHAPTER IV

### RESULTS

This study aims 1) to determine the proportion of discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar 2) to assess the socio-demographic characteristics, knowledge level and discriminatory attitude toward people living with HIV/AIDS among adult citizens in Myanmar 3) to identify the association between socio-demographic characteristics and level of knowledge with discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar. The study populations were men and women aged 15-49 years in Myanmar who had heard of AIDS and expressed accepting or discriminatory attitudes toward people living with HIV/AIDS in the 2015-2016 Myanmar Demographic and Health Survey. There was a total of 13,978 (weighted) observations included in the study.

This result section includes two parts: the presentation of descriptive statistics and inferential findings. The first part (descriptive statistics) comprises the individual socio-demographic characteristics of adult citizens in Myanmar. This part also includes the knowledge level of HIV/AIDS, especially prevention, comprehensive, and vertical transmission knowledge. Descriptive statistics were adjusted for representativeness and nonresponse by accounting for the sampling weight. This means that the statistical analysis was adjusted to ensure that the data represented the population being studied and that any biases caused by nonresponse or other factors were considered.

The second part (inferential findings) includes simple and multiple logistic analyses to find the association between dependent and independent variables. The independent variables include individual socio-demographic characteristics and the knowledge level related to prevention, comprehensive and vertical transmission of HIV/AIDS. The dependent variable is the discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar (with dichotomous: Yes/No). Each analysis was adjusted through a hypothesis testing process using a predefined parameter established based on the primary sampling unit, strata, and sampling weights to account for the design effect. This was done using a survey design command (SVY command) to ensure that the analysis accurately accounted for the complex sampling design and produced results representative of the studied population.

## 4.1. Descriptive Findings

### 4.1.1. Socio-demographic characteristics of adult citizens in Myanmar

Table 8 displays the sociodemographic characteristics of the population under study. The study sample comprises 13,978 adult citizens in Myanmar, with a more excellent representation of females 73.69% than males 26.31%. This is because only half of the selected households were sampled in the male population. The gender distribution exhibited a 3 to 1 ratio, with a greater proportion of women than males. During the analysis phase, the variables PREWEIGHT and PREWEIGHTMN were utilised in accordance with the DHS Programme's prescribed methodology. The survey respondents exhibit a relatively equitable distribution across age groups, with the 25-34 age group being the most prevalent, comprising 30.44% of the total sample. The study population included 4,109 individuals, of which 29.40% fell within the age range of 35-44. The age group of 45-49 years old is the least representative, constituting only 12.50% of the overall study population.

Regarding the respondents' marital status, it was found that most participants, precisely 62.22%, reported marriage. Additionally, one-third of the sample indicated they had never been married. A small percentage of the sample population was categorised as widowed 2.46%, divorced 2.58%, or separated/no longer cohabiting 0.25%. Regarding educational achievement, the study found that 7.85% of participants did not receive any formal education. Meanwhile, the largest percentage of 42.74 completed secondary school, and 39.29% completed primary school. The study revealed that a minority of the participants possessed a higher level of education, 10.10%, whereas a smaller proportion, 7.85%, reported no educational background.

Concerning occupational status, a considerable percentage of participants were employed, 73.16%, whereas the unemployment rate is nearly one out of four, 26.84%. The research evaluated the extent to which individuals were exposed to diverse media outlets. The results indicated that a proportion of 20.47% of the participants sought information from newspapers or magazines, whereas the majority of 79.53% did not engage with these sources. Likewise, a proportion of 27.93% of the participants reported engaging in radio listening, whereas a majority of 72.07% did not partake in this activity. Few participants read newspapers and listen to the radio, but watching television shows an extraordinary number of participants: 62.69% engaged in viewing television content, whereas 37.71% did not partake.

Based on the findings of the 2014 census, it was observed that the majority of the population in Myanmar resides in rural areas. Similarly, in the present study, the sample

population was predominantly composed of individuals living in rural areas 70.21% instead of those living in urban areas 29.79%. Regarding geographical distribution, it was found that 21.12% of the participants were from states, while the majority of 78.88% were residents of divisions. The findings suggest a relatively even distribution of wealth groups among the participants. The sample population was stratified into quintiles based on their economic status. The two extreme quintiles, representing the poorest and richest individuals, constituted 15.58% and 22.88% of the sample; the distribution of the remaining quintiles is 18.45% for the poorer quintile with lower income, 21.26% for the quintile with middle income, and 21.84% for the richer quintile with higher income.

*Table 8. Socio-demographic characteristics in Myanmar (N= 13978) (weighted)*

Variables	n	%
<b>Age in years</b>		
(mean ± SD)	31.77 ±9.77	
(Maximum-Minimum)	49-15	
• 15-24	3,866	27.66
• 25-34	4,255	30.44
• 35-44	4,109	29.40
• 45-49	1,748	12.50
<b>Sex</b>		
• Male	3,678	26.31
• Female	10,300	73.69
<b>Marital Status</b>		
• Single	4,541	32.49
• Married	8,697	62.22
• Widowed	344	2.46
• Divorced	396	2.60
<b>Level of education</b>		
• No education	1,097	7.85
• Primary	5,492	39.29
• Secondary	5,974	42.74
• Higher	1,412	10.10

<b>Occupational status</b>		
• Employment	10,226	73.16
• Unemployment	3,752	26.84
<b>Exposure to media</b>		
<b>Reading Newspaper or Magazine</b>		
• Yes	2,817	20.47
• No	11,116	79.53
<b>Listening to radio</b>		
• Yes	3,904	27.93
• No	10,074	72.07
<b>Watching Television</b>		
• Yes	8,763	62.69
• No	5,214	37.71
<b>Type of residence</b>		
• Urban	4,164	29.79
• Rural	9,813	70.21
<b>States/Regions</b>		
• State	2,952	21.12
• Division	11,026	78.88
<b>Wealth quintile</b>		
• Poorest	2,177	15.58
• Poorer	2,579	18.45
• Middle	2,971	21.26
• Richer	3,052	21.84
• Richest	3,198	22.88



#### 4.1.2 Level of knowledge related to HIV/AIDS among adult citizens in Myanmar

This section encompasses information about HIV prevention knowledge, comprehensive knowledge, and vertical transmission knowledge. The knowledge section comprises ten questions, and the literature review indicates that the knowledge level is categorised into low, medium, and high based on the participants' responses.

*Table 9. Percentage of incorrect and correct answers of participants in HIV-related knowledge questions*

HIV-related Knowledge	Answer	Correct	Incorrect
HIV prevention by one-on-one sex with an uninfected partner who does not have any other sex partners	Yes	9,947 (71.80%)	3,907 (28.20%)
People can reduce the risk of transmission by using a condom correctly every time they have sex.	Yes	11,121 (80.27%)	2,733 (19.73%)
Can a visually healthy person have HIV	Yes	9,326 (67.32%)	4,528 (32.68%)
Can people get HIV from an insect bite?	No	6,027 (43.50%)	7,827 (56.50%)
Can individuals get HIV via eating with HIV-positive individuals?	No	8,848 (63.87%)	5,006 (36.13%)
Can HIV be infected by witches or black magic?	No	10,678 (77.08%)	3,176 (22.92%)
Can HIV pass from a woman to her baby during pregnancy?	Yes	12,431 (89.73%)	1,423 (10.27%)
Can HIV pass from a woman to her baby during delivery?	Yes	10,605 (76.55%)	3,249 (23.45%)
Can HIV pass from a woman to her baby during breastfeeding?	Yes	11,504 (83.04%)	2,350 (16.96%)
There are unique medications that a doctor or nurse may administer to an HIV-positive mother to lessen the chance of transmission to the unborn child.	Yes	10,017 (72.30%)	3,837 (27.70%)

This table displays the proportion of correct and incorrect responses to a succession of HIV-related knowledge questions. The accurate response rate was high for most statements, with the maximum rate observed for the statement that HIV can be transmitted from a pregnant woman to her unborn child, where 89.73% of responses were correct. High rates of correct responses were also observed for statements regarding the effectiveness of

consistent condom use in reducing HIV transmission risk (80.27%) and the possibility of HIV transmission during breastfeeding (84.04%).

However, several misunderstandings were evident in the data. For instance, only 43.50 % of respondents correctly identified that HIV could not be transmitted through insect bites, indicating a widespread misunderstanding. Likewise, 36.13 per cent of respondents falsely believed that HIV could be transmitted through sharing food with an HIV-positive person. These findings imply that, despite a relatively high level of general knowledge about HIV transmission, the specific areas of misunderstanding or misinformation to be addressed to enhance overall comprehension and HIV prevention.

Table 10 presents the HIV knowledge levels of 13,978 respondents in Myanmar, with weighting applied to the sample. A notable finding derived from the data is that most participants demonstrated a high-level knowledge of HIV/AIDS, as evidenced by nearly half, precisely 50.40% (n=7,044) of the respondents, indicating a high degree of familiarity with the subject matter and a significant degree of comprehension. In addition, a considerable percentage of the population, comprising 41.61% (n=5,816), possesses moderate knowledge regarding the ailment. By contrast, a minority of the participants, precisely 8.00% (n=1,118), exhibited inadequate familiarity with HIV/AIDS.

*Table 10. Level of knowledge about HIV in Myanmar (N= 13978) (weighted)*

<b>Independent variable</b>	<b>n</b>	<b>%</b>
<b>Level of knowledge</b>		
• Poor	1,118	8.00
• Middle	5,816	41.60
• High	7,044	50.40

#### 4.1.3 Discriminatory attitudes toward people living with HIV/AIDS in Myanmar (N= 13978) (weighted)

The present investigation involved an analysis of discriminatory attitudes directed distinct scenarios, each intended to detect discriminatory attitudes towards individuals with HIV/AIDS. The results obtained from the responses of 13,978 respondents are presented in Table 11.

Participants were provided with the option to indicate their emotional responses using the categories of "yes," "no," or "not given " for every given scenario. The established criteria for discerning discriminatory attitudes are well-defined. Individuals who respond negatively or express uncertainty to any given system are deemed to possess discriminatory attitudes towards individuals who have HIV/AIDS. The initial inquiry pertains to whether survey participants persist in procuring fresh products and meat from a vendor recognised as HIV-positive. According to the data, most participants, specifically 64.52% (n=9,019), have opted not to continue funding. Conversely, a minority of participants, precisely 35.48% (n=4,959), have indicated their intention to continue funding. The second scenario pertains to the permissibility of a teacher diagnosed with HIV to remain employed in the field of education. The proposal received support from a majority of 53.11% (n=7423), while 46.89% (n=6555) expressed opposition.

In response to the inquiry regarding their willingness to provide care for a family member infected with HIV within their household, a majority of 78.94% (n=11,033) have expressed their positive response. A minority of 21.06% (n=2,944) indicated their adverse reaction. Concerning upholding confidentiality about a relative's HIV status, most participants, specifically 77.36% (n=10,814), preferred transparency. In comparison, a minority of 22.64% (n=3,164) indicated a preference for discretion.

In summary, the research findings indicate that a mere 20.20% (n = 2,824) of the participants exhibited a non-discriminatory stance towards individuals who are HIV/AIDS positive. By contrast, the overwhelming majority, comprising 79.80% (n=11,154) of the sample, demonstrated some form of discriminatory attitude as per the pre-determined criteria. The findings indicate that discriminatory attitudes towards individuals with HIV/AIDS persist among a notable segment of the surveyed populace in Myanmar.

*Table 11. Discriminatory attitudes toward people living with HIV/AIDS in Myanmar (N= 13978) (weighted)*

Dependent Variables	n	%
If they knew a shopkeeper had HIV, would they still buy fresh vegetables from him?		
• Yes	4,959	35.48

<ul style="list-style-type: none"> <li>• No</li> </ul>	9,019	64.52
Permission for a teacher who has HIV to continue teaching	7,423	53.11
<ul style="list-style-type: none"> <li>• Yes</li> </ul>	6,555	46.89
<ul style="list-style-type: none"> <li>• No</li> </ul>		
Willing to care for HIV-infected family members at home	11,033	78.94
<ul style="list-style-type: none"> <li>• Yes</li> </ul>	2,944	21.06
<ul style="list-style-type: none"> <li>• No</li> </ul>		
Would not want to keep secret that a family member was infected with HIV	10,814	77.36
<ul style="list-style-type: none"> <li>• Yes</li> </ul>	3,164	22.64
<ul style="list-style-type: none"> <li>• No</li> </ul>		
Discriminatory attitudes (A person who answered "no" to at least one of the four questions)	2,824	20.20
<ul style="list-style-type: none"> <li>• Discriminatory attitudes absent</li> </ul>	11,154	79.80
<ul style="list-style-type: none"> <li>• Discriminatory attitudes present</li> </ul>		

## 4.2 Inferential Findings

### 4.2.1 Simple Logistic Regression Analysis

Firstly, the relationship between different factors such as socio-demographic characteristics, knowledge level related to HIV/AIDS, and discriminatory attitudes towards people living with HIV/AIDS were examined using logistic regression. The primary objective of this analysis is to identify the significant factors contributing to discriminatory attitudes.

The results of this analysis are shown in Table 12, where each independent variable was evaluated separately.

Within the scope of bivariate analysis, we used simple logistic regression to find possible predictive variables that needed further investigation in more complex multivariate analysis, specifically within the framework of a multiple logistic regression model. We applied a significance threshold at a p-value of less than 0.25. The rationale behind opting for a p-value of less than 0.25 as our cut-off was to afford a potentially broader spectrum of variables to be considered. This permitted variables, which may not have shown statistical significance in the bivariate examination, to reveal their importance within the more complex environment of the multivariate model.

*Table 12. Bivariate analysis of the association between socio-demographic characteristics, level of knowledge and discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar.*

Variable	Discriminatory Attitudes		Crude OR	95% CI		p-value
	No N (%)	Yes N (%)		Lower	Upper	
<b>Socio-demographic characteristics</b>						
<b>Age (years)</b>						
15-24	656(16.96)	3,210(83.04)	Reference			
25-34	940(22.09)	3,315(77.91)	0.720	0.630	0.822	0.001*
35-44	894(21.75)	3,215(78.25)	0.734	0.635	0.850	0.001*
45-49	335(19.16)	1,413(80.84)	0.861	0.722	1.028	0.009*
<b>Sex</b>						
Male	736(20.00)	2,943(80.00)	Reference			
Female	2,088(20.28)	8,211(79.72)	0.983	0.872	1.107	0.775
<b>Marital Status</b>						
Single	949(20.90)	3,592(79.10)	Reference			
Married	1,685(19.37)	7,012(80.63)	1.09	0.983	1.230	0.096*
Widowed	88(25.45)	256(74.55)	0.77	0.550	1.089	0.141*
Divorced	93(25.87)	267(74.13)	0.76	0.556	1.030	0.077*

<b>Level of education</b>						
<i>No education</i>	109(9.89)	989(90.11)	Reference			
<i>Primary</i>	733(13.34)	4,759(86.66)	0.71	0.526	0.967	0.003*
<i>Secondary</i>	1,418(23.74)	4,556(76.26)	0.35	0.258	0.482	0.001*
<i>higher</i>	565(39.99)	847(60.01)	0.16	0.117	0.232	0.001*
<b>Occupational status</b>						
<i>No</i>	754(20.10)	2,998(79.90)	Reference			
<i>Yes</i>	2,070(20.24)	8,156(79.76)	0.99	0.879	1.118	0.889
<b>Exposure to media</b>						
<b>Newspaper</b>						
<i>No</i>	1,922(17.29)	9,194(82.71)	Reference			
<i>Yes</i>	902(31.51)	1,960(68.49)	0.454	0.398	0.518	0.001*
<b>Radio</b>						
<i>No</i>	1,991(19.77)	8,083(80.23)	Reference			
<i>Yes</i>	833(21.33)	3,071(78.67)	0.908	0.810	1.018	0.099*
<b>Television</b>						
<i>No</i>	714(13.69)	4,500(86.31)	Reference			
<i>Yes</i>	2,110(24.08)	6,653(75.92)	0.500	0.445	0.562	0.001*
<b>State/Division</b>						
<i>States</i>	631(21.36)	2,321(78.64)	Reference			
<i>Divisions</i>	2,193(19.89)	8,833(80.11)	1.093	0.948	1.261	0.216*
<b>Wealth Quintile</b>						
<i>Poorest</i>	229(10.50)	1,949(89.50)	Reference			
<i>Poorer</i>	374(14.48)	2,206(85.52)	0.692	0.565	0.848	0.001*
<i>Middle</i>	531(17.87)	2,441(82.13)	0.539	0.434	0.668	0.001*
<i>Richer</i>	693(22.71)	2,359(77.29)	0.399	0.318	0.500	0.001*
<i>Richest</i>	998(31.21)	2,200(68.79)	0.258	0.204	0.326	0.001*

<b>Knowledge level</b>						
<i>Poor</i>	71(6.32)	1,047(93.68)	Reference			
<i>Middle</i>	696(11.97)	5,120(88.08)	0.496	0.376	0.654	0.001*
<i>High</i>	2,057(29.20)	4,987(70.80)	0.163	0.122	0.218	0.001*

\*Variables that will be included in the multivariable analysis ( $p < 0.25$ )

The research presented in this part engaged a bivariate analysis to explore the associations among socio-demographic characteristics, levels of HIV/AIDS knowledge, and discriminatory attitudes towards people diagnosed with HIV/AIDS amongst the adult citizens of Myanmar. The results suggest a significant association between age and discriminatory attitudes. The empirical evidence suggests an inverse relationship exists between age groups and discriminatory attitudes. Within the age range of 15-24, a significant percentage (83.04%) of individuals demonstrate discriminatory attitudes, thus creating a standard category. In contrast, it was noted that the occurrence of discriminatory attitudes was notably reduced among the elder age groups (25-34 and 35-44 years), exhibiting an odds ratio (OR) of 0.72 (95% CI: 0.630-0.822,  $p=0.01$ ) and 0.73 (95% CI: 0.635-0.850,  $p=0.01$ ), respectively. The correlation between age and decreased discriminatory attitudes suggests that younger individuals may be more vulnerable to such attitudes. Consequently, targeted interventions to mitigate discrimination may benefit this demographic.

Table 12 displays the results of the relationship between marital status and discriminatory attitudes towards individuals with HIV/AIDS. The reference group consists of never-married individuals. Notably, married individuals have a significantly higher likelihood of having discriminatory attitudes than those who have never been in a relationship, as indicated by an Odds Ratio of 1.09 and a p-value of 0.096, which falls within the study's significance threshold of 0.25. Moreover, widowed and divorced individuals appear substantially less likely to exhibit discriminatory attitudes than the reference group, as indicated by Odds Ratios of 0.77 and 0.76 and p-values of 0.141 and 0.077, respectively. These findings suggest that marital status significantly affects attitudes towards individuals with HIV/AIDS, providing crucial information for more complex multivariate models. A

significant result in social psychology is the strong inverse correlation between academic performance and discriminatory attitudes.

The available empirical data suggests a notable trend wherein a rise in educational achievement is linked to a significant decrease in discriminatory attitudes. The data suggest a negative correlation between one's level of education and the likelihood of exhibiting discriminatory attitudes. This is supported by an odds ratio of 0.16 (with a 95% confidence interval of 0.117-0.232 and a p-value of 0.01). The above trend provides a persuasive rationale that improving educational achievement could be a feasible strategy to alleviate societal bias against people affected by HIV/AIDS.

According to the results of the preceding table and the association between occupational status and discriminatory attitudes towards people living with HIV/AIDS, there is an association between occupational status and discriminatory attitudes. In this case, the reference group consists of unemployed individuals. 20.24 per cent of employed individuals lack discriminatory attitudes, while 79.76 per cent do. The odds ratio of 0.99 and the p-value of 0.889 indicate no statistically significant difference in discriminatory attitudes between employed and unemployed individuals. The p-value exceeds the significance threshold of 0.25 established for this study, suggesting that occupational status may not be a significant factor in discriminatory attitudes towards people with HIV/AIDS in the bivariate examination and, therefore, may not be a crucial variable in subsequent multivariate models.

Table 12 displays the association between media exposure (specifically through newspapers, radio, and television) and discriminatory attitudes towards people living with HIV/AIDS. Those not exposed to newspapers serve as the reference group for newspaper exposure. 31.51% of those who read newspapers do not hold discriminatory attitudes, while 68.49% do. The odds ratio (OR) of 0.45 and the p-value of 0.001 indicate that those exposed to newspapers are approximately 55% less likely to exhibit discriminatory attitudes than those not exposed, a statistically significant result. For radio exposure, the reference group is non-listeners. Among radio listeners, 21.33 per cent do not exhibit discriminatory attitudes, while 78.67 per cent do. The odds ratio of 0.90 and the p-value of 0.099 indicate that radio listeners are marginally less likely to hold discriminatory attitudes than non-listeners. Still, this result does not meet the significance threshold for this study. Those who do not watch television are the reference group for television exposure. 74.92% of television viewers hold discriminatory attitudes, while 24.08% do not. The OR of 0.50 and p-value of 0.001 indicate that television viewers are 50% less likely than non-viewers to exhibit discriminatory attitudes, a statistically



significant result. Therefore, newspaper and television exposure appear to be significant factors in discriminatory attitudes towards persons living with HIV/AIDS. In contrast, the role of radio exposure is unclear based on this bivariate analysis. From a geographical standpoint, the findings of our study did not reveal any significant disparities in discriminatory attitudes between individuals residing in different states and districts. The results indicate that the geographical placement within a nation, specifically at the state or local level, may not significantly influence discriminatory attitudes towards individuals who have HIV/AIDS.

According to the State/Division variable, people living in the 'States' serve as the reference group. Among residents of the 'States', 21.36 per cent do not hold discriminatory views, while 78.64 per cent do. In comparison, 19.89% of persons in the 'Divisions' do not have discriminatory attitudes, while 80.11 % do. The Odds Ratio (OR) of 1.09 and p-value of 0.216 indicate that residents of the 'Divisions' are approximately 9.3% more likely to exhibit discriminatory attitudes than residents of the 'States'. However, the association is not statistically significant below the 0.25 p-value threshold. Thus, while there appears to be a slightly higher tendency for people in the 'Divisions' to hold discriminatory attitudes towards people living with HIV/AIDS compared to those in the 'States,' this finding does not meet the statistical threshold for significance in this analysis, indicating the need for further investigation using multivariable models.

Table 12 displays the relationship between affluence quintile and discriminatory attitudes towards HIV/AIDS patients. The reference group consists of those in the 'Poorest' quintile, among whom 10.5% do not exhibit discriminatory attitudes while 89.5% do. 14.48% of individuals in the 'Poorer' quintile do not have discriminatory attitudes, while 85.52 % do. Individuals in the 'Poorer' quintile are approximately 30.8% less likely to hold discriminatory attitudes than those in the 'Poorest' quintile. 17.87% of individuals in the 'Middle' wealth quintile do not hold discriminatory attitudes, while 82.13 % do. The OR of 0.53 (p-value = 0.001) indicates that individuals in the 'Middle' quintile are approximately 46.1% less likely to hold discriminatory attitudes than those in the 'Poorest' quintile. 22.71% of the 'Richer' quintile do not hold discriminatory views, while 77.29% do. The odds ratio of 0.39 (p-value = 0.001) indicates that individuals in the 'Richer' quintile are approximately 60.1% less likely to exhibit discriminatory attitudes than those in the 'Poorest' quintile. In the 'Richest' quintile, 31.21 per cent do not hold discriminatory views, while 68.79 per cent do. The odds ratio of 0.25 (p-value = 0.001) indicates that those in the 'Richest' quintile are approximately 74.2% less likely than those in the 'Poorest' to exhibit discriminatory attitudes. This demonstrates that affluent quintiles have a statistically significant reduced likelihood of holding

discriminatory attitudes towards individuals living with HIV/AIDS, showing the influence of socioeconomic status on such attitudes.

The findings of our study indicate a robust correlation between HIV/AIDS knowledge and discriminatory attitude. The 'Poor' knowledge level category functions as the standard. In this group, only 6.32 per cent do not hold discriminatory views, while 93.68 per cent do. 11.97% of those with a 'Middle' level of knowledge do not have discriminatory statements, while 88.08% do. Individuals in the 'Middle' knowledge group are approximately 50.4% less likely to exhibit discriminatory attitudes than those in the 'Poor' knowledge group, as indicated by the Odds Ratio (OR) of 0.49 (p-value = 0.001). Only 29.20% of people exhibit discriminatory attitudes in the 'High' knowledge group, while 70.80% do. Individuals in the 'High' knowledge group are approximately 83.7% less likely to hold discriminatory attitudes than those in the 'Poor' knowledge group, as indicated by the OR of 0.16 (p-value = 0.001). These findings reveal a distinct, statistically significant trend: the greater an individual's level of HIV/AIDS knowledge, the less likely they are to hold discriminatory attitudes towards persons living with HIV/AIDS. It emphasises the significance of education and awareness in reducing prejudice and stigma.

According to the analysis in Table 12, the important associated factors for the discriminatory attitudes toward people living with HIV/AIDS in Myanmar are Age groups, Marital Status, Level of education, Exposure to media, State/Division, Wealth Quintile and Knowledge level. Other variables, such as sex and occupational status, are not significant because the p-value is greater than 0.25 and will not be included in the following multiple logistic regression model.

#### 4.2.2. Multiple Logistic Regression Analysis

A multiple logistic regression analysis was employed to establish the correlation between the chosen predictors and the outcome variables, which exhibited p-values below 0.25 in the simple logistic regression analysis. The variable was obtained from STATA software version 17. The justification for selecting p-values below 0.25 allows for variables that may not exhibit significance in a bivariate analysis to uncover underlying significance. In the context of the study, the multivariate model is considered.

The ultimate multiple regression models exhibit adjusted odds ratios (AORs) and 95% confidence intervals (CIs). This statement reflects an enhanced comprehension of the

interrelationships among the variables, underscoring their potential significance in forecasting attitudes towards individuals who have HIV/AIDS.

*Table 13. Multiple logistic regression of factors associated with discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar*

Variables	Discriminatory attitudes				
	SE	p-value	AOR	95% CI	
				Lower	Upper
<b>Age</b>					
15-24	Reference				
25-34	0.059	<0.001***	0.68	0.576	0.812
35-44	0.059	<0.001***	0.61	0.506	0.743
45-49	0.086	0.006**	0.72	0.569	0.911
<b>Marital Status</b>					
Single	Reference				
Married	0.085	0.138	1.12	0.963	1.301
Widowed	0.139	0.088	0.71	0.489	1.051
Divorced	0.110	0.023**	0.69	0.508	0.951
<b>Education</b>					
<b>Level</b>					
No education	Reference				
Primary	0.139	0.399	0.87	0.637	1.196
Secondary	0.095	0.001**	0.54	0.382	0.764
Higher	0.082	<0.001***	0.41	0.278	0.609
<b>Exposure to media</b>					
<b>Newspaper</b>					
No	Reference				
Yes	0.056	<0.001***	0.76	0.657	0.881
<b>Radio</b>					
No	Reference				

<i>Yes</i>	0.062	0.629	1.02	0.657	0.881
Television					
<i>No</i>	Reference				
<i>Yes</i>	0.047	<0.001***	0.70	0.616	0.802
<b>State/Region</b>					
<i>States</i>	Reference				
<i>Divisions</i>	0.086	0.001**	1.24	1.090	1.431
<b>Wealth Quintile</b>					
Poorest	Reference				
Poorer	0.086	0.120	0.85	0.700	1.042
Middle	0.084	0.016**	0.76	0.617	0.952
Richer	0.089	0.009**	0.72	0.565	0.920
Richest	0.086	0.002**	0.65	0.505	0.850
<b>Knowledge level</b>					
<i>Poor</i>	Reference				
<i>Middle</i>	0.084	<0.001***	0.60	0.455	0.791
<i>High</i>	0.040	<0.001***	0.26	0.196	0.356

\*\*Significant at p-value <0.05

\*\*\* significant at p-value <0.001

This table displays the results of a multivariable logistic regression model that examined the relationship between age and discriminatory attitudes towards HIV/AIDS patients while controlling for other variables. The "15-24" age group is the standard against which all different age categories are measured. For the "25-34" age group, individuals in the "25-34" age group are 31.6% less likely than those in the "15-24" age group to hold discriminatory attitudes towards persons living with HIV/AIDS. The p-value is less than 0.001 for the "35-44" age group, indicating a statistically significant association. This suggests that individuals in the "35-44" age group are 38.7% less likely to hold discriminatory attitudes than those in the "15-24" age group. The p-value for the "45-49" age group is 0.006. This indicates that individuals in the "45-49" age bracket are 28% less likely to manifest discriminatory attitudes than those in the "15-24" age bracket. In every instance, the 95% confidence intervals (CI) do not exceed one, and the p-values are less than 0.05, indicating

that these correlations are statistically significant. These findings suggest that the likelihood of harbouring discriminatory attitudes towards individuals living with HIV/AIDS decreases with increasing age.

A noteworthy trend was identified upon analysing marital status. The "Single" category serves as a reference point in this analysis. An adjusted Odds Ratio (AOR) of 0.69 is observed when comparing the "Divorced" type to the reference. This suggests that divorced individuals are 31% less likely than unmarried individuals to hold discriminatory attitudes towards persons living with HIV/AIDS. In addition, the p-value for the "Divorced" group is 0.023, less than the 0.05 threshold for statistical significance. This indicates a statistically significant difference in discriminatory attitudes between the divorced and single categories. After adjusting for other variables in the model, it can be concluded that being divorced substantially reduces the likelihood of harbouring discriminatory attitudes towards individuals living with HIV/AIDS compared to being single.

Research has demonstrated that one's level of educational achievement significantly impacts discriminatory attitudes. This analysis uses the "No education" group as its reference category. Comparing the "Secondary" and "Higher" education categories to this reference group reveals significant differences. The adjusted Odds Ratio (AOR) for the "Secondary" education level is 0.54, indicating that individuals with secondary education are 46% less likely to hold discriminatory attitudes towards people living with HIV/AIDS than those with no education. This group's p-value is less than 0.001, indicating a statistically significant distinction. Similarly, the AOR for the "Higher" education level group is 0.41, suggesting that those with a higher level of education are 59% less likely to hold discriminatory attitudes than those with no education. The p-value for this group is also less than 0.001, indicating a statistically significant difference.

The impact of media exposure is a significant factor in forming attitudes. For the "Newspaper" category, those exposed to newspapers have an Adjusted Odds Ratio (AOR) of 0.76, indicating that they are 24% less likely to hold discriminatory attitudes than those not exposed to newspapers. The p-value is less than 0.001, meaning the difference is statistically significant. In the "Radio" category, there is no statistically significant difference in discriminatory attitudes between radio listeners and non-listeners. The AOR is roughly 1.02, and the p-value is 0.629, more powerful than the significance threshold of 0.05. In this instance, radio exposure has no significant effect on discriminatory attitudes. In the "Television" category, the AOR of 0.70 indicates that individuals who watch television are

30% less likely to exhibit discriminatory attitudes than those who do not. A p-value of less than 0.001 indicates that this is statistically significant. Exposure to newspapers and television significantly reduces the likelihood of holding discriminatory attitudes towards individuals living with HIV/AIDS after controlling for other variables. In contrast, exposure to the radio does not significantly influence these attitudes.

The study found that geographic location played a significant role; comparing the "Divisions" category to the "States" category (the control group), residents of divisions are 1.24 times more likely to hold discriminatory attitudes. The p-value of less than 0.001 indicates that this association is statistically significant. In simplified terms, after controlling for other variables, individuals residing in divisions in Myanmar are substantially more likely than those residing in states to hold discriminatory attitudes towards persons living with HIV/AIDS.

After controlling for other variables, Table 13 illustrates the correlation between the wealth quintile and discriminatory attitudes towards individuals living with HIV/AIDS. Individuals in the "Poorer" wealth quintile were not substantially more or less likely to manifest discriminatory attitudes compared to those in the "Poorest" wealth quintile (the reference group) (AOR = 0.85, p = 0.120). Individuals in the "Middle" wealth quintile were 24% less likely to manifest discriminatory attitudes towards HIV/AIDS patients than those in the "Poorest" wealth quintile, and this difference was statistically significant (AOR = 0.76, p=0.016). Individuals in the "Richer" wealth quintile were 28% less likely to hold discriminatory attitudes towards persons living with HIV/AIDS than those in the "Poorest" wealth quintile, and this difference was statistically significant (AOR = 0.72, p=0.001). Lastly, individuals in the "Richest" quintile were 35% less likely to manifest discriminatory attitudes towards those living with HIV/AIDS than those in the "Poorest" quintile, and this difference was statistically significant (AOR = 0.65, p=0.002). Thus, after controlling for other variables, we observe a general trend: the likelihood of harbouring discriminatory attitudes towards individuals living with HIV/AIDS decreases with each increase in affluence. Specifically, those in the "Richest" quintile were less likely to hold such attitudes than those in the "Poorest" quintile.

The results of multiple logistic regression indicate that the level of knowledge influences discriminatory attitudes towards individuals living with HIV/AIDS significantly. People with a "Middle" level of knowledge are 40% less likely to hold discriminatory attitudes than those with a "Poor" level of knowledge. This difference is

statistically noteworthy (AOR = 0.60,  $p=0.001$ ). In addition, those with a "High" knowledge level are 74% less likely to hold discriminatory views than those with a "Poor" knowledge level. This decrease is statistically significant (AOR = 0.26,  $p=0.001$ ). In essence, the results indicate that an increase in knowledge correlates with reducing the likelihood of discriminatory attitudes towards individuals living with HIV/AIDS, highlighting the importance of educational interventions to reduce such attitudes.

The current study emphasises the significance of knowledge and awareness in influencing attitudes towards HIV-positive individuals in Myanmar. It highlights the need for accessible, comprehensive HIV/AIDS education programmes to dispel myths and reduce discriminatory attitudes. Increasing health literacy through targeted educational interventions can cultivate a more compassionate society by shedding light on the disease's realities and reducing stigma. Considering the complex multitude of sociodemographic factors, including age, marital status, level of education, media exposure, geographic location, and level of HIV/AIDS knowledge, which contribute to such attitudes, the importance of this approach increases.

## CHAPTER V

### DISCUSSION

This chapter offers a discussion, conclusion, and recommendation arising from the empirical findings of the present research. The investigation involved a secondary analysis of the Myanmar Demographic and Health Survey (MDHS) data from 2015 to 2016. This survey, being a cross-sectional study, is nationally representative of Myanmar's population. The units of analysis of this study are adult men and women between the ages of 15 and 49; the criteria for selecting them were knowing about HIV/AIDS and being able to answer questions about acceptance or discriminatory attitudes towards HIV/AIDS patients. There was a total of 13,978 (weighted) participants in this study. The necessary data for this academic purpose was formally requested and obtained from the DHS website.

The present study represents the first investigation into the determinants of discriminatory attitudes towards people living with HIV/AIDS in Myanmar. This country is known for its limited HIV research and complex history of political and social changes that have affected healthcare. The research findings reveal a significant prevalence of HIV-related discrimination within the unique context of Myanmar, highlighting the extent of HIV-related stigma in the country.

This study focused on (1) To determine the proportion of discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar, (2) Assessing the socio-demographic characteristics, knowledge level and discriminatory attitude toward people living with HIV/AIDS among adult citizens in Myanmar, and (3) To identify the association between socio-demographic characteristics and level of knowledge with discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar. The present study's outcomes are analysed through a comparative lens with other global research findings, despite the challenges of comparing studies conducted with varying methodologies across different nations.

#### **5.1 Proportion of discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar**

The study findings reveal a concerning pattern wherein a mere 20% of the participants exhibited a non-discriminatory attitude towards People Living with HIV (PLHIV), while 80% displayed discriminatory attitudes. Similar results have been documented in numerous international studies by using the same questionnaire variables



(Khan, 2017; Suantari, 2021; Teshale & Tesema, 2022). A study in Pakistan revealed a significant prevalence of discriminatory attitudes towards individuals living with HIV (PLHIV) among the general population. That study found that only 16% of the population exhibited accepting attitudes towards PLHIV (Khan, 2017). A same pattern was identified in a research investigation in Iran, strengthening the prevalence of these discriminatory attitudes (Leili et al., 2008). The prevalence of HIV stigma is a significant issue of concern. According to the Joint United Nations Programme on HIV/AIDS, it has been reported that more than 50% of individuals exhibit negative and discriminatory attitudes towards PLHIV (Sherrell, 2021). This shows that discriminatory attitudes towards PLHIV are still high in other countries.

A study on high school students in the Lao Republic indicates a lower percentage of negative attitudes towards people living with HIV (PLHIV), with 44% expressing discriminatory attitudes (Thanavanh et al., 2013). The difference could be because different labelling methods were used in the scope of the study. A study conducted in Bangladesh revealed moderate discriminatory attitudes among healthcare personnel, suggesting that such attitudes are prevalent even within healthcare professional settings (Hossain & Susan, 2010). Over 50% of respondents accepted PLHIV (Bhagavathula et al., 2015). The potential influence of the respondents' familial relationship to PLHIV on their responses is worth considering, as most participants were family members of PLHIV. This proximity may have contributed to heightened empathy and understanding of the condition. The global findings underscore the pressing necessity for collaborative endeavours to address the pervasive stigmatisation and discrimination directed towards PLHIV.

In this study, participants were studied with four scenarios that can determine discriminatory attitudes from different perspectives. The first scenario was whether to buy from a vendor with HIV infection; more than 60% of participants refused. This may be due to the lack of knowledge that HIV cannot be transmitted through selling and discrimination against those who have HIV. The second scenario was whether a teacher with HIV should be allowed to continue teaching, and more than half of the respondents showed a positive attitude. This is about the Burmese people's nature and respect for their teachers. The third scenario is the willingness to care for a family member who is more likely to be infected with HIV, and 70% of the respondents answered that they would like to care for an HIV-infected family member. This is the kind and compassionate attitude of the Burmese people. A survey conducted based on Pakistan DHS found nearly the same result 54% of respondents would

not buy veggies from an HIV-infected seller, 38% would not let an HIV-infected teacher stay at a school, and 9% would not give care to an HIV-infected person (Khan, 2017).

The study findings indicate that around 22% of the participants tended to conceal a relative's HIV-positive status. In a study in India, approximately 33% of the participants expressed the same condition as ours (Hazarika, 2010). Upon analysing and integrating these findings with the other data gathered in Myanmar, it was discovered that only a minority of 20% of the study's participants demonstrated favourable and positive attitudes towards individuals living with HIV. In contrast, 80% of the participants exhibited discriminatory attitudes (Aung et al., 2023), a cause for concern. Consistent with prior research, a study conducted in Myanmar revealed that a majority of individuals who tested positive for HIV, precisely over 80%, reported instances of discrimination (Aung et al., 2017). These insights shed light on the prevailing stigma associated with HIV and highlight the need for ongoing efforts to foster empathy and acceptance.

## **5.2 Individual Socio-demographic characteristics of the adult citizens in this study.**

The study involves individuals aged between 15 and 49 years. The focus of the DHS survey on the reproductive age group aligns with the methodology of previous DHS surveys conducted in different countries. The sample group has a mean age of 31 years, with around one-third of the group falling within the age range of 25 to 34. These results align with the outcomes of the DHS survey in Ethiopia. (Diress et al., 2020). However, there is a vast difference in the sex distribution because 3 out of 4 study populations are women. The reason is that all males aged 15 to 49 who were residents or guests who remained in the home the night before the survey were eligible to be questioned in half of the chosen homes, and it is the same with other DHS surveys from Indonesia (Nursalam et al., 2021)

More than half of the people in this study are married because the DHS survey is aimed at the reproductive age group. After that, the never-married group stands at more than 30 per cent, and which is the same as the Ethiopia DHS survey (Diress et al., 2020). When we examine the educational environment attentively, we discover that only a limited number of individuals can advance to higher levels of education. The majority of students attend elementary and secondary school. This disparity indicates a significant decline between high school and college, which raises concerns about access, preparedness, and the infrastructure

supporting our educational systems and it also consistent with 2014 Myanmar census (Census, 2014). Also, a closer look at the portion of the population that does pursue higher education reveals a concerning trend. Only about 30% of these individuals can pass the entrance exam required for most colleges and universities. This demonstrates that students encounter challenges in higher education even after transitioning from secondary school according to a research that conducted in Myanmar (Kirkpatrick & Hlaing, 2013).

When we checked the employment situation, it is clear that about three-quarters of the population, both men and women, are working. This leaves one-fourth of the population without a job. This breakdown of jobs, which matches the results of the 2014 Myanmar census (Census, 2014), shows that the job market has not changed much over time. The fact that these numbers have not changed in a long time shows that structural problems may be holding back job creation, worker development, and general economic growth. It also shows that current employment strategies must be reevaluated and improved to better deal with unemployment.

The present study investigated the media habits of the general population, with a focus on three major media platforms: print media (newspapers and magazines), radio, and television. The findings of the analysis indicate a significant discrepancy in consumption behaviours. The findings indicate that a mere quarter of the surveyed population regularly consumed print media, including newspapers and magazines. Similarly, approximately a quarter of the population reported listening to the radio. The present findings indicate that many individuals may not be sufficiently interested in or face accessibility challenges concerning traditional media formats. In contrast, our findings indicate that more participants reported habitual engagement in television viewing than in other media forms. The observed trend of increased television utilisation highlights its widespread popularity as a favoured source of both information and entertainment within the surveyed population. In a survey conducted in Indonesia, a country in Asia, it was found that exposure to media is about 70% of the total population (Suantari, 2021).

Upon analysing the residential patterns, it is evident that the populace is predominantly concentrated in rural regions, consistent with the findings of the 2014 Census (Census, 2014). The data reveals a significant difference in the rural-urban demographic, with the rural population exceeding the urban population by a ratio of more than three to one. Upon analysing the distribution of residents across states and divisions, it has been observed that most of the populace inhabits divisions the Burmese community has historically

dominated. In contrast, the states recognised for accommodating various ethnic groups are inhabited by merely a quarter of the populace. Finally, based on the Wealth Quintile analysis, there appears to be a fair distribution of wealth across all quintiles. The observed wealth distribution appears balanced, indicating a degree of economic diversity. However, it does not necessarily imply equality in terms of wealth distribution.

### **5.3 Level of HIV-related knowledge of the participants in this study**

This section concentrates on crucial aspects of HIV prevention, including the prevention knowledge, comprehensive knowledge and knowledge of the prevention of mother-to-child transmission of the virus, also known as vertical transmission. As an exhaustive literature review indicates, knowledge assessment is founded on a succession of ten questions. The review also stipulates that the knowledge level is divided into three categories based on the participants' responses: low, medium, and high.

When categorising the knowledge of HIV/AIDS, it has been observed that half of the total respondents exhibit a high level of knowledge. The significant percentage of respondents possessing a high level of knowledge is remarkable, considering that most of the study's participants have only attained a secondary school education. The observed level of HIV knowledge among the population can be primarily attributed to the influence of media exposure, supported by a previous study from Pakistan (Khan, 2017). This highlights the significant role of media platforms in disseminating crucial health information and shaping the public's comprehension of the matter. A little over forty per cent of the participants demonstrated a moderate level of knowledge during the study. Less than 10 per cent of the respondents exhibited poor knowledge. Despite its size, this particular group is deemed vulnerable and has the potential to disseminate misunderstandings and discrimination associated with HIV/AIDS. According to a paper in Afghanistan, it is essential to develop focused education programmes to close the gap between awareness and comprehension and spread full knowledge about HIV/AIDS (Alemi & Stempel, 2019).

According to the findings of this study, those with poor knowledge related to HIV hold more discriminatory attitudes. Because individuals who lack fundamental knowledge about HIV do not understand why this disease occurs, do not know how to prevent it, and lack sympathy and respect for PWHIV. A 2004 study conducted in Iran demonstrated that the fear of infection and the rise of discriminatory attitudes as a result of avoiding and discriminating against PLWHIV are caused by this (Tavoosi et al., 2004).

The majority of respondents correctly identified that HIV prevention can be achieved through one-on-one sex with an uninfected partner who does not have other sex partners (71.80%) and that the risk of transmission can be reduced by always using a condom (80.27%). This indicates that a substantial number of respondents have an elementary knowledge of how HIV can be prevented through secure sexual practices.

In addition, the majority of respondents correctly identified that HIV can be transmitted from mother to child during pregnancy (89.73%), delivery (76.55%), and breastfeeding (83.14%). This level of knowledge reflects favourably on public health campaigns that emphasise the significance of testing and the risk of mother-to-child transmission. In addition, the majority of respondents (72.30%) were aware that specific medications can be administered to an HIV-positive mother to reduce the risk of transmission to the foetus, demonstrating an awareness of the significance of antiretroviral therapy.

Nonetheless, a number of misconceptions and knowledge deficits were also identified. More than half of respondents (56.50%) erroneously believed that HIV can be transmitted through insect bites. 36.13 percent of respondents erroneously believed that HIV could be transmitted through eating with HIV-positive individuals. Although these misconceptions are less prevalent, they indicate to ongoing stigmatisation and misunderstanding regarding the transmission of HIV. This is essential, as such misinformation can lead to unnecessary fear and discrimination against PLHIV.

To comprehend why these misconceptions, persist, it is necessary to consider Myanmar's cultural, social, and educational factors.

1. **Limited Health Literacy:** In regions with limited access to high-quality education, health literacy may be limited. It implies that a large number of individuals may be unaware of the specific mechanisms by which HIV is transmitted, leading to misconceptions such as the belief that HIV can be contracted through insect wounds or through dining with HIV-positive individuals.
2. **Fear and Stigma:** Since its discovery, HIV/AIDS has been encircled by fear and stigma, often due to its association with mortality, illness, and certain socially unacceptable behaviours. This dread and stigma can contribute to the propagation of misinformation and misunderstandings regarding transmission methods.

3. Lack of Accessible, Accurate Information: If HIV/AIDS public health campaigns are not widely disseminated, readily accessible, or provided in local languages, misinformation can proliferate. This dearth of precise information can lead to misunderstandings regarding the transmission of HIV.
4. Cultural Beliefs and Superstitions: In some communities, traditional beliefs and superstitions about disease transmission can contribute to misunderstandings. People who believe that insects can transmit diseases and who fear sharing implements could easily believe that these are viable HIV transmission methods.
5. Low Exposure to PLHIV: If individuals have limited exposure to people living with HIV, they may base their understanding on stereotypes and false information. This lack of personal experience can perpetuate stereotypes and false beliefs.
6. Limited Healthcare Access: In regions with limited access to healthcare, there may be an increase in disease misunderstanding. Communities that lack access to health professionals who can provide accurate information may be susceptible to misinformation.

Comprehensive HIV/AIDS awareness campaigns are essential for addressing these issues. These should seek to dispel misconceptions and reduce stigma, as well as increase knowledge of how HIV is and is not transmitted. These campaigns should be sensitive to cultural differences, employ local languages, and be accessible to a broad range of communities. Community and religious leaders' participation can also be highly effective in fostering greater understanding and acceptance. Expanding access to healthcare and testing can provide more opportunities for individuals to obtain accurate information and dispel myths.

With only 22.92% of respondents answering incorrectly, the belief that HIV could be caused by witchcraft or black magic was the least prevalent misconception. Nevertheless, the fact that this misconception persists at all is troubling and demonstrates the ongoing need for accurate, evidence-based HIV education.

Despite the fact that the majority of respondents possessed accurate knowledge of several crucial aspects of HIV transmission and prevention, a number of misconceptions continue to exist. These results highlight the need for sustained public education initiatives

concentrating on the realities of HIV transmission, refuting prevalent misconceptions, and fostering understanding and compassion for those living with the disease.

In conclusion for the HIV related knowledge level field, understanding the links and value of HIV prevention, a complete understanding of the disease, and knowledge of vertical transmission (mother-to-child transfer) is the key to changing negative views towards people with HIV/AIDS (Turan et al., 2019). To completely understand a disease, we need to know how it spreads, what it does, and how to stop it from spreading, especially from person to person. When people know about these things, they are less likely to have fears or false ideas that cause them to view people with HIV/AIDS badly. Also, this information can give people the power to take steps to stop the disease, stop it from spreading, and help those who are sick. So, learning about HIV/AIDS, including how to avoid it and how it can be transmitted from person to person, is crucial to creating an environment of understanding, kindness, and acceptance. It also helps replace discriminatory views with more educated ones.

#### **5.4 The association between socio-demographic characteristics and level of knowledge with discriminatory attitudes toward people living with HIV/AIDS among adult citizens in Myanmar**

The analysis showed that the highest age group in this study is less likely to show discriminatory attitudes towards PLHIV than the youngest age group. Also, age group and discriminatory attitudes are inversely proportional. When looking at age and discriminatory attitudes in many other studies, some of them have a significant association (Alemi & Stempel, 2019; Seboka et al., 2020), while others show that there is no significant association (Lifson et al., 2012; Zainiddinov, 2019), so the results are contradictory. A study conducted in Sudan found a positive correlation between age and discriminatory attitudes towards individuals living with HIV. Specifically, older age groups tended to express positive attitudes towards PLWHIV (Mohamed et al., 2020). Although the study in Pakistan indicated that younger age groups exhibited fewer negative attitudes, it is essential to note that the study's sample exclusively consisted of adult citizens (Iqbal et al., 2019). Finally, our study aligns with the findings of a study conducted in Myanmar, which suggests that younger individuals exhibit more discriminatory attitudes than older individuals due to factors such as inadequate knowledge, awareness, and cultural and social influences (Aung et al., 2023).

Our results identified that there is no association between sex and discriminatory attitudes. A similar association can be seen in a study conducted in Indonesia, where everyone also knows how to treat others, no matter what age or gender they are. Adults tend to be compassionate, accepting, mature, open, kind, and empathetic. Everyone also knows how to

treat others, no matter what age or gender they are. Adults tend to be compassionate, accepting, mature, open, kind, and empathetic (Nursalam et al., 2021). An interesting trend was found when people's marriage situation was examined. The findings show that people who have been divorced are much less likely to have discriminatory views than people who have never been married. The current finding suggests that events in a person's life, such as the end of a marriage, could affect how they feel about people with HIV/AIDS. It is also consistent with the study done in Ethiopia (Diress et al., 2020)

The findings of the study indicate a significant association between the educational level of the participants and their discriminatory attitudes towards individuals who are HIV positive. The findings indicate that individuals lacking formal education exhibit a higher propensity to do discriminatory attitudes towards PLHIV. Consistent with previous findings, research conducted in Zambia provides evidence of a negative correlation between education levels and discriminatory attitudes towards individuals with HIV. Specifically, as education levels rise, discriminatory attitudes towards people living with HIV tend to decrease (Nasr, 2021). Additionally, a study conducted in thirteen African countries yielded similar results to our own study regarding the correlation between educational level and discriminatory attitudes towards PLHIV (Fortwengel et al., 2018). One compelling rationale for the value of education is its potential to cultivate critical thinking abilities and encourage a receptive attitude towards different points of view. The attainment of higher levels of education has been commonly linked to the development of a wider perspective, exposure to a variety of ideas, and the ability to challenge existing beliefs and prejudices.

The analysis showed a significant association between exposure to media and discriminatory attitudes toward people living with HIV/AIDS. The influence of media, encompassing print, radio, and television, significantly shape societal perceptions of individuals affected by HIV/AIDS. Using media as a potent instrument can have a dual effect on the stigmatisation and discrimination of individuals living with HIV/AIDS. It can either exacerbate these negative attitudes or serve as a way of reducing them. The findings are in line with prior research that has identified media as a significant source of information on HIV/AIDS, particularly with regards to prevention and reducing discriminatory attitudes (Asamoah et al., 2017; LaCroix et al., 2014). The mass media, particularly television, holds significant influence in spreading public health and health promotion messages. It has the potential to effectively modify health behaviours in individuals with poor literacy abilities who might find it difficult to understand such information (LaCroix et al., 2014).



The analysis showed that the participant's wealth quintile and discrimination were inversely proportional. Compared to the poorest group, the wealthiest group has less than half of discriminatory attitudes. This finding is consistent with the studies from other nations (Corno & De Walque, 2013; Mohamed et al., 2020; Suantari, 2021). The relationship between economic status or wealth quintile and discriminatory attitudes towards HIV/AIDS patients is complex. Those in wealthier quintiles may be less discriminated against because they have greater access to education and accurate information about the disease. However, their socioeconomic privilege could also result in apathy, allowing for discrimination and misconceptions. Individuals in the lower wealth quintiles may be more discriminating due to a lack of access to reliable information or less stigmatised due to a greater familiarity with the disease in their communities. The relationship between wealth and discriminatory attitudes towards HIV/AIDS is complex and influenced by variables including education, access to information, and personal experience (Diress et al., 2020).

This study identified a significant association between HIV-related knowledge level and discriminatory attitudes toward people with HIV/AIDS. Analysis showed that the higher the HIV-related knowledge level, the lower the discriminatory attitudes. Compared to poor knowledge level, it was found that discriminatory attitudes decreased by 40% in the middle knowledge level and 80% in the high HIV-related knowledge level. There is a similar result found in studies conducted in India, Bangladesh, and Iran (Bhagavathula et al., 2015; Ekstrand et al., 2012; Hossain & Susan, 2010; Tavoosi et al., 2004)

Discrimination can arise due to various misconceptions or misinformation, or lack of accurate knowledge regarding the transmission of HIV, including but not limited to the belief that it can be transmitted through mosquito bites and sharing of dishes (Khan, 2017). Therefore, it is essential to promote accurate knowledge to reduce the stigma and discrimination surrounding HIV-positive individuals. This precise information may be disseminated through official initiatives and comprehensive health education programmes. The objective is to provide the public with simple, direct information about HIV, which will help reduce discriminatory behaviour (Nasr, 2021).

The knowledge that is reliable and accurate does not foster discrimination against HIV-positive individuals. According to a study conducted by Simpson in Nigeria, HIV-positive individuals who participated in community group activities were not subject to discrimination and were readily accepted (Carlos et al., 2015; Tumwikirize & Mokoboto-Zwane, 2016). People with excellent knowledge tend not to harbour concerns or

misconceptions about HIV-positive individuals. Effective HIV education in schools, focusing on prevention and transmission, promotes a thorough understanding of HIV/AIDS in the community (Feyissa et al., 2019). Information dissemination through various media channels, including advertising campaigns and educational entertainment, can make a difference. Incorporating messages that encourage understanding and discourage stigma into television and radio programming can have a positive effect (UNAIDS, 2012). When a significant portion of the population is knowledgeable about HIV, it aids in the eradication of discrimination against individuals living with HIV.

Despite a high level of HIV-related knowledge, why are the discriminatory attitudes toward PLHIV among adult citizens in Myanmar so high? The possible factors are

- Stigma and stereotypes: HIV/AIDS have always had a bad reputation because it has been linked to things like drug use and sex without protection, which are seen as bad by society. Even if more people learn about the sickness, this shame can still stick around.
- Fear of Transmission: Even though people know how HIV is spread, they may still have irrational fears of "casual transmission," or getting HIV from everyday things like sharing tools or social contact.
- Cultural ideas and Attitudes: Religious and cultural ideas can have a big effect on how people feel about PLHIV. In some countries, HIV/AIDS may be seen as a punishment for bad behaviour, which can lead to discrimination against those who have it.
- Studies have shown that shame and discrimination against PLHIV can be lessened by getting to know them in person. If most people in Myanmar don't know anyone with HIV, they may be more likely to form their opinions based on stereotypes or false information.
- Societal Prejudice: Discrimination against PLHIV isn't just about how people feel; it's also a problem with the way society works. People may be biased because they live in a society that is prejudiced, not because they are prejudiced themselves.
- Little education or exposure to anti-stigma messages: Even if people know a lot about HIV, they might still be prejudiced if they don't get specific anti-stigma lessons from their schooling.

## 5.5 Conclusion

The present study sought to comprehend the association of individual socio-demographic characteristics, HIV-related knowledge level and discriminatory attitudes toward people living with AIDS among adult citizens in Myanmar. This study describes the sociodemographic characteristics, HIV-related knowledge, and discriminatory attitudes of the study population towards HIV/AIDS patients. Our research indicates that there is a negative correlation between age and discriminatory attitudes towards HIV-positive individuals. Specifically, our findings indicate that older people are less prejudiced towards this population than their younger counterparts. The obtained result exhibits consistency with certain studies, however, not all, thereby highlighting the necessity for further investigation. Consistent with the findings of a previous research conducted in Indonesia, it was discovered that there was no significant correlation between sex and discriminatory attitudes. The results of the study indicate that marital status may influence attitudes, as divorced individuals displayed lower levels of discrimination than single individuals. The findings of this study suggest that an individual's life experiences may influence their attitudes towards HIV/AIDS.

In addition, our findings revealed a correlation between media exposure and discriminatory attitudes. Depending on how they represent HIV/AIDS, the media play a pivotal role in creating stigma and discrimination or fighting them. Consequently, responsible representation is essential. We found that discrimination was inversely proportional to the wealth quintile. The wealthier the individuals, the less likely they were to exhibit discriminatory attitudes, which aligns with findings from several other studies.

A significant correlation was observed between HIV-related knowledge and discriminatory attitudes. Individuals who possess a higher level of knowledge regarding HIV are less inclined to exhibit discriminatory behaviour towards those who are infected. The findings underscore the importance of raising awareness and knowledge about HIV/AIDS in order to mitigate the negative effects of stigma and discrimination. Government initiatives, comprehensive health education programmes, and media campaigns that promote understanding and discourage stigma may be employed. When a significant portion of the population is educated about HIV, it contributes to the eradication of discrimination against those living with the disease.

## 5.6. Strengths and Limitations

### 5.6.1. Strengths of the study

- The present study represents the first study in Myanmar that explores discriminatory attitudes directed towards individuals living with HIV/AIDS and the factors associated with such attitudes.
- The present study confirms that discriminatory attitudes towards individuals living with HIV/AIDS are significantly influenced by their socio-demographic characteristics and level of HIV-related knowledge.
- The present study can shed light on the prevalence of discrimination against HIV-positive people and their relatives, the environment, the workplace, and medical personnel and explore the causes of discriminatory attitudes.
- The present study can be deemed nationally representative, as it was conducted using the DHS, a nationally representative survey. Moreover, the data analysis was carried out by the DHS guidelines, which involved considering the sampling weights and cluster survey design.
- This study can raise awareness among healthcare providers about the potential biases that patients might face in society, helping them provide more empathetic care, and by understanding societal attitudes, they can better anticipate and address the challenges faced by their patients.

### 5.6.2. Limitations of this study

- The potential for recall bias exists as the survey data was solely dependent on self-reported responses from the participants, which may have influenced the outcomes.
- Demographic and Health Surveys (DHS) provide vital health and nutrition data, but their generalizability is limited. The statistics may not apply to other countries with different situations. Regional or demographic differences may occur within a nation. Cross-sectional surveys capture a moment in time and may not apply to other times. DHS covers many issues, but not all, restricting generalizability. Finally, measurement and reaction biases might affect data. DHS provides crucial global health and demographic data despite these obstacles.

- People with HIV/AIDS who were hurt by the stigma were not asked to participate in the DHS survey. Even though most people who participated in the survey were tested for HIV, the MDHS 2016 did not show whether the test was positive or negative. So, it was impossible to find out if there was a link between the subjects' views about discrimination and the fact that they had HIV in this study.
- Given the rapid evolution of online media, it is plausible to consider that certain variables may have undergone changes since the surveys were conducted in 2016.

### **5.7 Recommendation**

The outcomes of this study will be used to inform recommendations for service delivery, policy, and other research that will be proposed based on those findings.

#### **5.7.1. Recommendations for the service delivery**

- It is recommended that knowledge about HIV is a significant factor in stigma and discrimination; therefore, healthcare professionals must receive adequate training to acquire accurate knowledge. In addition, by researching international anti-discrimination campaigns in greater depth, frontline health care providers should combat discrimination against HIV/AIDS patients.
- It is recommended that specialised intervention programmes be developed to address the specific needs of particular groups at high risk. It is recommended that these programmes prioritise investigating the interrelated nature of stigma experienced by individuals, taking into account not only the impact of HIV/AIDS but also their social status.
- It is recommended that health care providers avoid discriminatory attitudes towards HIV patients, regardless of whether they are wealthy or impoverished or belong to the same or distinct ethnic groups, and that those who lack knowledge be provided with health education.

### 5.7.2. Recommendations for policy

- It is recommended that policies be implemented to protect the rights of individuals who are living with HIV/AIDS to prevent discrimination in various public areas, work environments, and other social settings.
- It is recommended that public institutions, such as schools, incorporate a comprehensive HIV/AIDS education programme into their curriculum. This approach addresses and corrects any myths and misconceptions related to the disease. Using this method could lead to a more accepting and open workplace.
- It is recommended that legislative actions be implemented to address discriminatory practices directed towards individuals living with HIV/AIDS and marginalised communities at a higher risk of getting HIV.

### 5.7.3. Recommendations for further research

- The cross-sectional study design utilised in this research precludes the establishment of a temporal sequence of events. Therefore, it is recommended that future research endeavours incorporate cohort studies in order to examine the factors related to discriminatory attitudes over an extended period.
- Further research is required to explore discriminatory attitudes across various settings, including healthcare facilities, public institutions, and marginalised high-risk populations.
- The study was restricted to individuals aged 15 to 49 years due to constraints in the DHS survey, which was the population under investigation. Therefore, it is recommended that future research endeavours incorporate age cohorts beyond 49 years of age.
- It is recommended that research be carried out to track the evolution of discriminatory attitudes, societal perceptions, and knowledge levels over time. This will facilitate the process of intervention updates and enhance their relevance.
- Further research is needed to fully understand the intricate intersectional stigmatisation encountered by high-risk populations and develop customised interventions to address them.

## REFERENCES

- Agegnehu, C. D., Geremew, B. M., Sisay, M. M., Muchie, K. F., Engida, Z. T., Gudayu, T. W., Weldetsadik, D. S., & Liyew, A. M. (2020). Determinants of comprehensive knowledge of HIV/AIDS among reproductive age (15–49 years) women in Ethiopia: further analysis of 2016 Ethiopian demographic and health survey. *AIDS Research and Therapy*, 17(1). <https://doi.org/10.1186/s12981-020-00305-z>
- Agegnehu, C. D. A. D. (2020). Determinants of comprehensive knowledge of HIV/AIDS among reproductive age (15–49 years) women in Ethiopia. *BMC*. <https://doi.org/https://doi.org/10.1186/s12981-020-00305-z>
- Agenda for zero discrimination in health-care settings. (2017). In. Geneva: Joint United Nations Programme on HIV/AIDS.
- Al-Iryani, B., Basaleem, H., Al-Sakkaf, K., Kok, G., & Van Den Borne, B. (2013). Process evaluation of school-based peer education for HIV prevention among Yemeni adolescents. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 1-10. <https://doi.org/10.1080/17290376.2012.745294>
- Alemi, Q., & Stempel, C. (2019). Association between HIV knowledge and stigmatizing attitudes towards people living with HIV in Afghanistan: findings from the 2015 Afghanistan Demographic and Health Survey. *International Health*, 11(6), 440-446.
- Andrinopoulos, K., Figueroa, J. P., Kerrigan, D., & Ellen, J. M. (2011). Homophobia, stigma and HIV in Jamaican prisons. *Cult Health Sex*, 13(2), 187-200. <https://doi.org/10.1080/13691058.2010.521575>
- Asamoah, C. K., Asamoah, B. O., & Agardh, A. (2017). A generation at risk: a cross-sectional study on HIV/AIDS knowledge, exposure to mass media, and stigmatizing behaviors among young women aged 15–24 years in Ghana. *Global health action*, 10(1), 1331538.
- Aung, N. M., Hanson, J., Kyi, T. T., Htet, Z. W., Cooper, D. A., Boyd, M. A., Kyi, M. M., & Saw, H. A. (2017). HIV care in Yangon, Myanmar; successes, challenges and implications for policy. *AIDS Res Ther*, 14(1), 10. <https://doi.org/10.1186/s12981-017-0137-z>
- Aung, S., Hardy, N., Chrysanthopoulou, S. A., Kyaw, A., San Tun, M., Aung, K. W., Rana, A., & Kantor, R. (2022). Stigma Determines Antiretroviral Adherence in Adults With HIV in Myanmar. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 89(1), 19-26.
- Aung, S., Hardy, N., Hogan, J., DeLong, A., Kyaw, A., Tun, M. S., Aung, K. W., & Kantor, R. (2023). Characterization of HIV-Related Stigma in Myanmar. *AIDS and Behavior*, 1-12.
- Beletsky, L., Agrawal, A., Moreau, B., Kumar, P., Weiss-Laxer, N., & Heimer, R. (2011). Police training to align law enforcement and HIV prevention: preliminary evidence from the field. *Am J Public Health*, 101(11), 2012-2015. <https://doi.org/10.2105/ajph.2011.300254>
- Bennett, C. (2002). *United nations office for the coordination of humanitarian Affairs (UNOCHA) orientation handbook*.
- Bhagavathula, A. S., Bandari, D. K., Elnour, A. A., Ahmad, A., Khan, M. U., Baraka,

- M., Hamad, F., & Shehab, A. (2015). A cross sectional study: the knowledge, attitude, perception, misconception and views (KAPMV) of adult family members of people living with human immune virus-HIV acquired immune deficiency syndrome-AIDS (PLWHA). *Springerplus*, 4, 1-12.
- Brinkley-Rubinstein, L., & Turner, W. L. (2013). Health impact of incarceration on HIV-positive African American males: a qualitative exploration. *AIDS Patient Care STDS*, 27(8), 450-458. <https://doi.org/10.1089/apc.2012.0457>
- Brown, D. C., Belue, R., & Airhihenbuwa, C. O. (2010). HIV and AIDS-related stigma in the context of family support and race in South Africa. *Ethn Health*, 15(5), 441-458. <https://doi.org/10.1080/13557858.2010.486029>
- Campbell, C., Andersen, L., Mutsikiwa, A., Madanhire, C., Nyamukapa, C., & Gregson, S. (2016). Can Schools Support HIV/AIDS-Affected Children? Exploring the 'Ethic of Care' amongst Rural Zimbabwean Teachers. *PLOS ONE*, 11(1), e0146322. <https://doi.org/10.1371/journal.pone.0146322>
- Carlos, S., Martínez-González, M. Á., Burgueño, E., López-del Burgo, C., Ruíz-Canela, M., Ndarabu, A., Tshilolo, L., Tshiswaka, P., Labarga, P., & de Irala, J. (2015). Misconceptions about HIV infection in Kinshasa (Democratic Republic of Congo): a case-control study on knowledge, attitudes and practices. *Sexually Transmitted Infections*, 91(5), 334-337.
- Casale, M., Boyes, M., Pantelic, M., Toska, E., & Cluver, L. (2019). Suicidal thoughts and behaviour among South African adolescents living with HIV: Can social support buffer the impact of stigma? *J Affect Disord*, 245, 82-90. <https://doi.org/10.1016/j.jad.2018.10.102>
- CDC. (2022). <https://www.cdc.gov/hiv/basics/index.html>
- Census, M. (2014). *The 2014 Myanmar Population and Housing Census*.
- Chimoyi, L., Tshuma, N., Muloongo, K., Setswe, G., Sarfo, B., & Nyasulu, P. S. (2015). HIV-related knowledge, perceptions, attitudes, and utilisation of HIV counselling and testing: a venue-based intercept commuter population survey in the inner city of Johannesburg, South Africa. *Global health action*, 8(1), 26950.
- Chinouya, M., Hildreth, A., Goodall, D., Aspinall, P., & Hudson, A. (2017). Migrants and HIV stigma: findings from the Stigma Index Study (UK). *Health Soc Care Community*, 25(1), 35-42. <https://doi.org/10.1111/hsc.12179>
- Cloete, A., Strebel, A., Simbayi, L., van Wyk, B., Henda, N., & Nqeketo, A. (2010). Challenges Faced by People Living with HIV/AIDS in Cape Town, South Africa: Issues for Group Risk Reduction Interventions. *AIDS Res Treat*, 2010, 420270. <https://doi.org/10.1155/2010/420270>
- Control, C. o. D. (February, 2018). *Internalized HIV-Related Stigma*. <https://www.cdc.gov/hiv/pdf/statistics/mmp/cdc-hiv-internalized-stigma.pdf>
- Corno, L., & De Walque, D. (2013). Socioeconomic determinants of stigmatization and HIV testing in Lesotho. *AIDS Care*, 25(sup1), S108-S113.
- Dahlui, M., Azahar, N., Bulgiba, A., Zaki, R., Oche, O. M., Adekunjo, F. O., & Chinna, K. (2015). HIV/AIDS related stigma and discrimination against PLWHA in Nigerian population. *PLOS ONE*, 10(12), e0143749.
- De\_Boer, R. L. S. (2013). Premature and accelerated ageing: HIV or HAART? *Research Gate*. <https://doi.org/10.3389/fgene.2012.00328>
- Denison, J. A., Banda, H., Dennis, A. C., Packer, C., Nyambe, N., Stalter, R. M., Mwansa, J. K., Katayamoyo, P., & McCarragher, D. R. (2015). "The sky is the



limit": adhering to antiretroviral therapy and HIV self-management from the perspectives of adolescents living with HIV and their adult caregivers. *J Int AIDS Soc*, 18(1), 19358. <https://doi.org/10.7448/ias.18.1.19358>

19358

Derlega, V. J., Winstead, B. A., Gamble, K. A., Kelkar, K., & Khuanghlawn, P. (2010). Inmates with HIV, stigma, and disclosure decision-making. *J Health Psychol*, 15(2), 258-268. <https://doi.org/10.1177/1359105309348806>

Diress, G. A., Ahmed, M., & Linger, M. (2020). Factors associated with discriminatory attitudes towards people living with HIV among adult population in Ethiopia: analysis on Ethiopian demographic and health survey. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 17(1), 38-44. <https://doi.org/10.1080/17290376.2020.1857300>

Drug, U. S. F. (2023). *FDA-Approved HIV Medicines*.

<https://www.fda.gov/consumers/free-publications-women/hiv-and-aids-medicines-help-you>

Editors, H. c. (2022). History of AIDS. <https://www.history.com/topics/1980s/history-of-aids>

Ekstrand, M. L., Bharat, S., Ramakrishna, J., & Heylen, E. (2012). Blame, symbolic stigma and HIV misconceptions are associated with support for coercive measures in urban India. *AIDS and Behavior*, 16, 700-710.

Ekstrand, M. L., Ramakrishna, J., Bharat, S., & Heylen, E. (2013). Prevalence and drivers of HIV stigma among health providers in urban India: implications for interventions. *J Int AIDS Soc*, 16(3 Suppl 2), 18717. <https://doi.org/10.7448/ias.16.3.18717>

18717

Fakolade, R., Adebayo, S. B., Anyanti, J., & Ankomah, A. (2010). The impact of exposure to mass media campaigns and social support on levels and trends of HIV-related stigma and discrimination in Nigeria: tools for enhancing effective HIV prevention programmes. *J Biosoc Sci*, 42(3), 395-407. <https://doi.org/10.1017/s0021932009990538>

Fauk, N. K., Hawke, K., Mwanri, L., & Ward, P. R. (2021). Stigma and Discrimination towards People Living with HIV in the Context of Families, Communities, and Healthcare Settings: A Qualitative Study in Indonesia. *International Journal of Environmental Research and Public Health*, 18(10), 5424. <https://doi.org/10.3390/ijerph18105424>

Ferguson, L., Nicholson, A., Henry, I., Saha, A., Sellers, T., & Gruskin, S. (2018). Assessing changes in HIV-related legal and policy environments: Lessons learned from a multi-country evaluation. *PLOS ONE*, 13(2), e0192765. <https://doi.org/10.1371/journal.pone.0192765>

Feyissa, G. T., Lockwood, C., Woldie, M., & Munn, Z. (2019). Reducing HIV-related stigma and discrimination in healthcare settings: A systematic review of quantitative evidence. *PLOS ONE*, 14(1), e0211298.

Fortwengel, G., Ibeneme, S., Behnsen, J., Heinrich, L., Ilenseer, S., Kirchner, S., Liang, Y.-J., Lindemann, M., Michaelis, J.-E., & Müller, M. (2018). Association of education and knowledge of HIV with HIV stigma in thirteen selected African countries. *Central African Journal of Public Health*, 4(2), 48-58.

- Gagnon, M. (2015). Re-thinking HIV-Related Stigma in Health Care Settings: A Qualitative Study. *J Assoc Nurses AIDS Care*, 26(6), 703-719. <https://doi.org/10.1016/j.jana.2015.07.005>
- Galvin, S. R. (2004). The Role of Sexually Transmitted Diseases in HIV Transmission. *Nature Reviews Microbiology*, 2(1), 33-36. <https://www.nature.com/articles/nrmicro794#citeashttps://www.nature.com/articles/nrmicro794#citeas>
- Galvis, A. E. (2014). *An RNA Lariat Intermediate in HIV-1 cDNA Synthesis*. [https://www.researchgate.net/publication/284360827\\_An\\_RNA\\_Lariat\\_Intermediate\\_in\\_HIV-1\\_cDNA\\_Synthesis](https://www.researchgate.net/publication/284360827_An_RNA_Lariat_Intermediate_in_HIV-1_cDNA_Synthesis)
- Genberg, B. L., Hlavka, Z., Konda, K. A., Maman, S., Chariyalertsak, S., Chingono, A., Mbwambo, J., Modiba, P., Van Rooyen, H., & Celentano, D. D. (2009). A comparison of HIV/AIDS-related stigma in four countries: Negative attitudes and perceived acts of discrimination towards people living with HIV/AIDS. *Social Science & Medicine*, 68(12), 2279-2287.
- Goffman, E. (1963). *Stigma: notes on the management of a spoiled identity* (Vol. 1). Simon and Schuster.
- Grov, C., Golub, S. A., Parsons, J. T., Brennan, M., & Karpiak, S. E. (2010). Loneliness and HIV-related stigma explain depression among older HIV-positive adults. *AIDS Care*, 22(5), 630-639. <https://doi.org/10.1080/09540120903280901>
- Gurmu, E., & Etana, D. (2015). HIV/AIDS knowledge and stigma among women of reproductive age in Ethiopia. *African Journal of AIDS Research*, 14(3), 191-199.
- Hazarika, I. (2010). Knowledge, attitude, beliefs and practices in HIV/AIDS in India: identifying the gender and rural–urban differences. *Asian Pacific Journal of Tropical Medicine*, 3(10), 821-827.
- Health, M. o., Sports, & ICF. (2017). Myanmar demographic and health survey 2015-16. In: MoHS and ICF Naypyidaw, Myanmar.
- HIV-related travel restrictions. (2019). <https://travelrestrictions.unaids.org/press-release/>
- HIV.gov. (2022). <https://www.hiv.gov/hiv-basics/overview/about-hiv-and-aids/how-is-hiv-transmitted>
- Hossain, M. B., & Susan, K. (2010). HIV-related discriminatory attitudes of healthcare workers in Bangladesh. *Journal of health, population, and nutrition*, 28(2), 199.
- Iqbal, S., Maqsood, S., Zafar, A., Zakar, R., Zakar, M. Z., & Fischer, F. (2019). Determinants of overall knowledge of and attitudes towards HIV/AIDS transmission among ever-married women in Pakistan: evidence from the Demographic and Health Survey 2012–13. *BMC Public Health*, 19(1), 1-14.
- Katz, I. T., Ryu, A. E., Onuegbu, A. G., Psaros, C., Weiser, S. D., Bangsberg, D. R., & Tsai, A. C. (2013). Impact of HIV-related stigma on treatment adherence: systematic review and meta-synthesis. *J Int AIDS Soc*, 16(3 Suppl 2), 18640. <https://doi.org/10.7448/ias.16.3.18640>
- 18640
- Khan, D. R. (2017). Knowledge about HIV and Discriminatory Attitudes toward People Living with HIV in Pakistan. *Pakistan Journal of Public Health*, 9. <https://doi.org/https://doi.org/10.32413/pjph.v9i1.237>
- Kirkpatrick, R., & Hlaing, H. L. (2013). The Myanmar university entrance examination. *Language Testing in Asia*, 3(1), 14. <https://doi.org/10.1186/2229-0443-3-14>

- Krishnaratne, S., Bond, V., Stangl, A., Pliakas, T., Mathema, H., Lilleston, P., Hoddinott, G., Bock, P., Ayles, H., Fidler, S., & Hargreaves, J. R. (2020). Stigma and Judgment Toward People Living with HIV and Key Population Groups Among Three Cadres of Health Workers in South Africa and Zambia: Analysis of Data from the HPTN 071 (PopART) Trial. *AIDS Patient Care STDS*, 34(1), 38-50. <https://doi.org/10.1089/apc.2019.0131>
- Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: The functions of social exclusion. *Psychological Bulletin*, 127, 187-208. <https://doi.org/10.1037/0033-2909.127.2.187>
- LaCroix, J. M., Snyder, L. B., Huedo-Medina, T. B., & Johnson, B. T. (2014). Effectiveness of mass media interventions for HIV prevention, 1986–2013: a meta-analysis. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 66, S329-S340.
- Leili, S., Elham, S., & Farkhondeh, S. (2008). A population-based survey of HIV/AIDS knowledge and attitudes in general public, Bandar-Abbas, Iran. *Pak J Med Sci*, 24(6), 838-844.
- Lemons-Lyn, A., Reidy, W., Myint, W. W., Chan, K. N., Abrams, E., Aung, Z. Z., Benech, I., Bingham, T., Desai, M., & Khin, E. E. (2021). Optimizing HIV Services for Key Populations in Public-Sector Clinics in Myanmar. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*, 20, 23259582211055933.
- Letamo, G. (2003). Prevalence of, and factors associated with, HIV/AIDS-related stigma and discriminatory attitudes in Botswana. *Journal of Health, Population and Nutrition*, 347-357.
- Letshwenyo-Maruatona, S. B., Madisa, M., Boitshwarelo, T., George-Kefilwe, B., Kingori, C., Ice, G., Bianco, J. A., Marape, M., & Haile, Z. T. (2019). Association between HIV/AIDS knowledge and stigma towards people living with HIV/AIDS in Botswana. *African Journal of AIDS Research*, 18(1), 58-64. <https://doi.org/10.2989/16085906.2018.1552879>
- Li, L., Liang, L. J., Lin, C., & Wu, Z. (2015). Addressing HIV stigma in protected medical settings. *AIDS Care*, 27(12), 1439-1442. <https://doi.org/10.1080/09540121.2015.1114990>
- Lifson, A. R., Demissie, W., Tadesse, A., Ketema, K., May, R., Yakob, B., Metekia, M., Slater, L., & Shenie, T. (2012). HIV/AIDS stigma-associated attitudes in a rural Ethiopian community: characteristics, correlation with HIV knowledge and other factors, and implications for community intervention. *BMC International Health and Human Rights*, 12, 1-8.
- Lowicki-Zucca, M., Spiegel, P. B., Kelly, S., Dehne, K. L., Walker, N., & Ghys, P. D. (2008). Estimates of HIV burden in emergencies. *Sex Transm Infect*, 84 Suppl 1(Suppl\_1), i42-i48. <https://doi.org/10.1136/sti.2008.029843>
- Mackworth-Young, C. R., Bond, V., Wringe, A., Konayuma, K., Clay, S., Chiiya, C., Chonta, M., Sievwright, K., & Stangl, A. L. (2017). "My mother told me that I should not": a qualitative study exploring the restrictions placed on adolescent girls living with HIV in Zambia. *J Int AIDS Soc*, 20(4). <https://doi.org/10.1002/jia2.25035>
- Mayo Clinic. (2022). <https://www.mayoclinic.org/diseases-conditions/hiv-aids/symptoms-causes/syc->

- [20373524#:~:text=Overview,to%20fight%20infection%20and%20disease.](#)
- Ministry of Health and Sports, M. (2016). *National Strategic Plan on HIV and AIDS Myanmar 2016-2020*. <https://mohs.gov.mm/page/1004>
- Mohamed, S. O. O., Ali, H. M. A., Ali, E. A. M., Mustafa, S. A. M., Hassan, S. H. M., Omer, T. H. S., & Suliman, F. A. H. (2020). Knowledge, attitude, and testing of human immunodeficiency virus infection among 15-to 49-year-old women in Sudan: an analysis of the united nations children's fund-multiple indicator cluster survey. *Dr. Sulaiman Al Habib Medical Journal*, 2(2), 38-42.
- Mooss, A., Brock-Getz, P., Ladner, R., & Fiaño, T. (2012). The relationship between health literacy, knowledge of health status, and beliefs about HIV/AIDS transmission among Ryan White clients in Miami. *Health Education Journal*, 72(3), 292-299. <https://doi.org/10.1177/0017896912442952>
- Morrison, K. (2006). *Breaking the cycle: Stigma, discrimination, internal stigma, and HIV*. US Agency for International Development.
- Nambiar, D., Ramakrishnan, V., Kumar, P., Varma, R., Balaji, N., Rajendran, J., Jhona, L., Chandrasekar, C., & Gere, D. (2011). Knowledge, stigma, and behavioral outcomes among antiretroviral therapy patients exposed to Nalamdana's radio and theater program in Tamil Nadu, India. *AIDS Educ Prev*, 23(4), 351-366. <https://doi.org/10.1521/aeap.2011.23.4.351>
- Nasr, S. H. S. (2021). Determinants of Discriminatory Attitudes Towards People Living with HIV/AIDS among Women of Reproductive Age in Zambia: A Cross-sectional Study. In.
- National AIDS Programme, M. o. H., Myanmar. (2019). Operational Manual on Planning and Provision of HIV Services at Health Facilities. <https://differentiatedservicedelivery.org/wp-content/uploads/myanmar-om-pp-eng-version-2019-compressed.pdf>
- Nattabi, B., Li, J., Thompson, S. C., Orach, C. G., & Earnest, J. (2012). Between a rock and a hard place: stigma and the desire to have children among people living with HIV in northern Uganda. *Journal of the International AIDS Society*, 15(2). <https://doi.org/10.7448/ias.15.2.17421>
- Norr, K. F., Ferrer, L., Cianelli, R., Crittenden, K. S., Irrarázabal, L., Cabieses, B., Araya, A., & Bernales, M. (2012). Peer group intervention for HIV prevention among health workers in Chile. *J Assoc Nurses AIDS Care*, 23(1), 73-86. <https://doi.org/10.1016/j.jana.2011.02.001>
- Nubed, C. K., & Akoachere, J.-F. T. K. (2016). Knowledge, attitudes and practices regarding HIV/AIDS among senior secondary school students in Fako Division, South West Region, Cameroon. *BMC Public Health*, 16(1), 1-10.
- Nursalam, N., Sukartini, T., Arifin, H., Pradipta, R. O., Mafula, D., & Ubudiyah, M. (2021). Determinants of the discriminatory behavior experienced by people living with HIV in Indonesia: A cross-sectional study of the demographic health survey. *The Open AIDS Journal*, 15(1).
- Nyblade, L., Stangl, A., Weiss, E., & Ashburn, K. (2009). Combating HIV stigma in health care settings: what works? *Journal of the International AIDS Society*, 12(1), 15-15. <https://doi.org/10.1186/1758-2652-12-15>
- Oberth, G., Baptiste, S., Jallow, W., Manouan, A., Garcia, P., Traore, A. M., Murara, J., & Boka, R. (2019). Understanding gaps in the HIV treatment cascade in eleven West African countries: Findings from a regional community treatment



- observatory. *Centre for Social Science Research Working Paper*.
- Ojikutu, B. O., Pathak, S., Srithanaviboonchai, K., Limbada, M., Friedman, R., Li, S., Mimiaga, M. J., Mayer, K. H., & Safren, S. A. (2016). Community Cultural Norms, Stigma and Disclosure to Sexual Partners among Women Living with HIV in Thailand, Brazil and Zambia (HPTN 063). *PLOS ONE*, *11*(5), e0153600. <https://doi.org/10.1371/journal.pone.0153600>
- Oo, H. N., Hone, S., Fujita, M., Maw-Naing, A., Boonto, K., Jacobs, M., Phyu, S., Bollen, P., Cheung, J., & Aung, H. (2016). Evolution of the health sector response to HIV in Myanmar: progress, challenges and the way forward. *Journal of Virus Eradication*, *2*, 20-26.
- Paudel, V., & Baral, K. P. (2015). Women living with HIV/AIDS (WLHA), battling stigma, discrimination and denial and the role of support groups as a coping strategy: a review of literature. *Reprod Health*, *12*, 53. <https://doi.org/10.1186/s12978-015-0032-9>
- Pharris, A., Hoa, N. P., Tishelman, C., Marrone, G., Kim Chuc, N. T., Brugha, R., & Thorson, A. (2011). Community patterns of stigma towards persons living with HIV: a population-based latent class analysis from rural Vietnam. *BMC Public Health*, *11*, 705. <https://doi.org/10.1186/1471-2458-11-705>
- Programme, N. A. (2014). Guidelines for the Clinical Management of HIV infection in Myanmar. *Nay Pyi Taw*.
- Regional Office for South-East Asia, W. H. O. (2016). *Progress report on HIV in the WHO South-East Asia Region, 2016*. WHO Regional Office for South-East Asia. <https://apps.who.int/iris/handle/10665/251727>
- research, C. F. f. A. (2021). History of HIV/AIDS. [https://canfar.com/awareness/about-hiv-aids/#:~:text=Scientists%20believe%20that%20HIV%20originally,other%20parts%20of%20the%20world.](https://canfar.com/awareness/about-hiv-aids/history-of-hiv-aids/#:~:text=Scientists%20believe%20that%20HIV%20originally,other%20parts%20of%20the%20world.)
- Richter, K., Phillips, S. C., McInnis, A. M., & Rice, D. A. (2012). Effectiveness of a multi-country workplace intervention in sub-Saharan Africa. *AIDS Care*, *24*(2), 180-185. <https://doi.org/10.1080/09540121.2011.596513>
- Ritzer, G. (2011). *Sociological Theory* (Eight ed.). Mc Graw-Hill Companies. [https://ccsuniversity.ac.in/bridge-library/pdf/Sociological\\_Theory%20Ritzer.pdf](https://ccsuniversity.ac.in/bridge-library/pdf/Sociological_Theory%20Ritzer.pdf)
- Roxo, U., Mobula, M. L., Walker, D., Ficht, A., & Yeiser, S. (2019). Prioritizing the sexual and reproductive health and rights of adolescent girls and young women within HIV treatment and care services in emergency settings: a girl-centered agenda. *Reproductive health*, *16*(1), 1-13.
- Sano, Y., Antabe, R., Atuoye, K. N., Hussey, L. K., Bayne, J., Galaa, S. Z., Mkandawire, P., & Luginaah, I. (2016). Persistent misconceptions about HIV transmission among males and females in Malawi. *BMC International Health and Human Rights*, *16*(1). <https://doi.org/10.1186/s12914-016-0089-8>
- Seboka, B. T., Hailegebreal, S., Yehualashet, D. E., & Demeke, A. D. (2020). *Factors associated with stigma and discrimination towards people living with HIV/AIDS in Ethiopia*. Research Square Platform LLC. <https://dx.doi.org/10.21203/rs.3.rs-137883/v1>
- Seid, A., & Ahmed, M. (2020). <p>What are the Determinants of Misconception About HIV Transmission Among Ever-Married Women in Ethiopia?</p><p>HIV/AIDS - Research and Palliative Care, Volume 12, 441-448.

- <https://doi.org/10.2147/hiv.s274650>
- Sevelius, J. M., Carrico, A., & Johnson, M. O. (2010). Antiretroviral therapy adherence among transgender women living with HIV. *J Assoc Nurses AIDS Care*, 21(3), 256-264. <https://doi.org/10.1016/j.jana.2010.01.005>
- Shannon, K., & Csete, J. (2010). Violence, condom negotiation, and HIV/STI risk among sex workers. *JAMA*, 304(5), 573-574. <https://doi.org/10.1001/jama.2010.1090>
- Sherrell, Z. (2021). *What to know about HIV stigma and discrimination*. <https://www.medicalnewstoday.com/articles/hiv-stigma>
- Simbayi, L. C., Kalichman, S., Strebel, A., Cloete, A., Henda, N., & Mqeketo, A. (2007). Internalized stigma, discrimination, and depression among men and women living with HIV/AIDS in Cape Town, South Africa. *Soc Sci Med*, 64(9), 1823-1831. <https://doi.org/10.1016/j.socscimed.2007.01.006>
- Simon, S. (2011). Voices from the field: how laws and policies affect HIV responses. <https://unaidspcbngo.org/wp-content/uploads/2012/07/2011-NGO-Report-online-version.pdf>
- Son, N. V., Luan, H. D., Tuan, H. X., Cuong, L. M., Duong, N. T. T., & Kien, V. D. (2020). Trends and Factors Associated with Comprehensive Knowledge about HIV among Women in Vietnam. *Tropical Medicine and Infectious Disease*, 5(2), 91. <https://doi.org/10.3390/tropicalmed5020091>
- Sprague, L., Simon, S., & Sprague, C. (2011). Employment discrimination and HIV stigma: survey results from civil society organisations and people living with HIV in Africa. *Afr J AIDS Res*, 10 Suppl 1, 311-324. <https://doi.org/10.2989/16085906.2011.637730>
- Stangl, A. L., Brady, L. M., & Fritz, K. (2012). Technical Brief: Measuring HIV stigma and discrimination.
- Stangl, A. L., Earnshaw, V. A., Logie, C. H., van Brakel, W., L, C. S., Barré, I., & Dovidio, J. F. (2019). The Health Stigma and Discrimination Framework: a global, crosscutting framework to inform research, intervention development, and policy on health-related stigmas. *BMC Med*, 17(1), 31. <https://doi.org/10.1186/s12916-019-1271-3>
- Suantari, D. (2021). Misconceptions and stigma against people living with HIV/AIDS: a cross-sectional study from the 2017 Indonesia Demographic and Health Survey. *Epidemiology and Health*, 43.
- Survey, I. D. a. H. (2017). *National Population and Family Planning Board (BKKBN), Statistics Indonesia (BPS)*. <https://dhsprogram.com/pubs/pdf/FR342/FR342.pdf>
- T.Gandhi, R. (2022). Antiretroviral Drugs for Treatment and Prevention of HIV Infection in Adults. *JAMA*, 1. <https://doi.org/10.1001/jama.2022.22246>
- Tavoosi, A., Zaferani, A., Enzevaei, A., Tajik, P., & Ahmadinezhad, Z. (2004). Knowledge and attitude towards HIV/AIDS among Iranian students. *BMC Public Health*, 4(1), 1-6.
- Teshale, A. B., & Tesema, G. A. (2022). Discriminatory attitude towards people living with HIV/AIDS and its associated factors among adult population in 15 sub-Saharan African nations. *PLOS ONE*, 17(2), e0261978. <https://doi.org/10.1371/journal.pone.0261978>
- Thanavanh, B., Harun-Or-Rashid, M., Kasuya, H., & Sakamoto, J. (2013). Knowledge, attitudes and practices regarding HIV/AIDS among male high school students in

- Lao People's Democratic Republic. *Journal of the International AIDS Society*, 16(1), 17387.
- Thein, P. T. (2015). Gender equality and cultural norms in Myanmar. INT'L CONFERENCE ON BURMA/MYANMAR STUDIES (Jul. 2015),
- Treves-Kagan, S., Steward, W. T., Ntswane, L., Haller, R., Gilvydis, J. M., Gulati, H., Barnhart, S., & Lippman, S. A. (2016). Why increasing availability of ART is not enough: a rapid, community-based study on how HIV-related stigma impacts engagement to care in rural South Africa. *BMC Public Health*, 16, 87. <https://doi.org/10.1186/s12889-016-2753-2>
- Tshabalala, J., & Visser, M. (2011). Developing a Cognitive Behavioural Therapy Model to Assist Women to Deal with HIV and Stigma. *South African Journal of Psychology*, 41, 17-28. <https://doi.org/10.1177/008124631104100103>
- Tumwikirize, S., & Mokoboto-Zwane, S. (2016). Participation in PLHIV support groups: does it enhance behavioural outcomes. *HIV Curr Res*, 1(1), 104.
- Turan, J. M., Elafros, M. A., Logie, C. H., Banik, S., Turan, B., Crockett, K. B., Pescosolido, B., & Murray, S. M. (2019). Challenges and opportunities in examining and addressing intersectional stigma and health. *BMC Med*, 17(1), 7. <https://doi.org/10.1186/s12916-018-1246-9>
- Ulasi, C. I., Preko, P. O., Baidoo, J. A., Bayard, B., Ehiri, J. E., Jolly, C. M., & Jolly, P. E. (2009). HIV/AIDS-related stigma in Kumasi, Ghana. *Health & place*, 15(1), 255-262.
- UNAIDS. (2007). *Reducing HIV stigma and discrimination: a critical part of national AIDS programmes*. <https://www.aidsdatahub.org/resource/reducing-hiv-stigma-and-discrimination-critical-part-national-aids-programmes-resource>
- UNAIDS. (2012). Key programmes to reduce stigma and discrimination and increase access to justice in national HIV responses. *Guidance note*.
- UNAIDS. (2014). *The Gap Report: People living with HIV*. [https://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS\\_Gap\\_report\\_en.pdf](https://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS_Gap_report_en.pdf)  
[https://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS\\_Gap\\_report\\_en.pdf](https://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS_Gap_report_en.pdf)
- UNAIDS. (2020). Evidence for eliminating HIV-related stigma and discrimination.
- UNAIDS. (2021a). Global HIV & AIDS statistics — Fact sheet. <https://www.unaids.org/en/resources/fact-sheet>
- UNAIDS. (2021b). *UNAIDS FACT SHEET*. <https://www.usaid.gov/global-health/health-areas/hiv-and-aids/technical-areas/dreams/unaids-fact-sheet-2021>
- UNDP. (2012). Legal environment assessment for HIV. An operational guide to conducting national legal, regulatory and policy assessments for HIV.
- Uys, L., Chirwa, M., Kohi, T., Greeff, M., Naidoo, J., Makoae, L., Dlamini, P., Durrheim, K., Cuca, Y., & Holzemer, W. L. (2009). Evaluation of a health setting-based stigma intervention in five African countries. *AIDS Patient Care STDS*, 23(12), 1059-1066. <https://doi.org/10.1089/apc.2009.0085>
- Varas-Díaz, N., Neilands, T. B., Cintrón-Bou, F., Marzán-Rodríguez, M., Santos-Figueroa, A., Santiago-Negrón, S., Marques, D., & Rodríguez-Madera, S. (2013). Testing the efficacy of an HIV stigma reduction intervention with medical students in Puerto Rico: the SPACES project. *J Int AIDS Soc*, 16(3 Suppl 2), 18670. <https://doi.org/10.7448/ias.16.3.18670>

- Vernooy, R., Shrestha, P., & Sthapit, B. (2015). Policy and legal environment. *Community Seed Banks*, 75-81.
- Vreeman, R. C., McCoy, B. M., & Lee, S. (2017). Mental health challenges among adolescents living with HIV. *J Int AIDS Soc*, 20(Suppl 3), 21497. <https://doi.org/10.7448/ias.20.4.21497>
- WELSH, J. J. (2011). *Good News for HIV Victims*. <http://www.personal.psu.edu/afr3/blogs/SIOW/2011/10/good-news-for-hiv-victims.html>
- WHO. (2022a). *HIV/AIDS Overview*. [https://www.who.int/health-topics/hiv-aids#tab=tab\\_1](https://www.who.int/health-topics/hiv-aids#tab=tab_1)
- WHO. (2022b). *WHO data and statistics*. [https://www.who.int/images/default-source/departments/hiv/summary-of-the-global-hiv-epidemic-2021.png?sfvrsn=73ac5b6a\\_9v](https://www.who.int/images/default-source/departments/hiv/summary-of-the-global-hiv-epidemic-2021.png?sfvrsn=73ac5b6a_9v)
- WHO Guidelines Approved by the Guidelines Review Committee. (2013). In *HIV and Adolescents: Guidance for HIV Testing and Counselling and Care for Adolescents Living with HIV: Recommendations for a Public Health Approach and Considerations for Policy-Makers and Managers*. World Health Organization
- Copyright © World Health Organization 2013.
- WHO *HIV Testing Services Dashboard, Myanmar*. (2022). <https://whohts.web.app/MMR>
- WHO, *Myanmar HIV Country Profile*. (2022). <https://cfs.hivci.org/>
- Williamson, R. T., Fiscian, V., Olson, R. U., Poku, F. N., & Whittal, J. (2017). A Reporting System to Protect the Human Rights of People Living with HIV and Key Populations. *Health Hum Rights*, 19(2), 211-222.
- Winskell, K., Miller, K. S., Allen, K. A., & Obong'o, C. O. (2016). Guiding and supporting adolescents living with HIV in sub-Saharan Africa: The development of a curriculum for family and community members. *Child Youth Serv Rev*, 61, 253-260. <https://doi.org/10.1016/j.childyouth.2015.12.017>
- Young, S. D., Hlavka, Z., Modiba, P., Gray, G., Van Rooyen, H., Richter, L., Szekeres, G., & Coates, T. (2010). HIV-related stigma, social norms and HIV testing in Soweto and Vulindlela, South Africa: NIMH Project Accept (HPTN 043). *Journal of acquired immune deficiency syndromes (1999)*, 55(5), 620.
- Zainiddinov, H. (2019). Trends and determinants of attitudes towards people living with HIV/AIDS among women of reproductive age in Tajikistan. *Central Asian Journal of Global Health*, 8(1).
- Zainiddinov, H., & Habibov, N. (2018). A Comparison of Comprehensive HIV/AIDS Knowledge Among Women Across Seven Post-Soviet Countries. *Central Asian Journal of Global Health*, 7(1). <https://doi.org/10.5195/cajgh.2018.295>



## Appendix

### Appendix A: Data map to MDHS 2016 questionnaire and dataset

Variable	Number in Questionnaire	Number in Dataset	Coding
<b>Socio-demographic Characteristics</b>			
Age	16	Mv013 V013	<ol style="list-style-type: none"> <li>1. 15-24</li> <li>2. 25-34</li> <li>3. 35-44</li> <li>4. 45-49</li> </ol>
Relationship Status	3624	Mv501 v501	<ol style="list-style-type: none"> <li>1. Never married</li> <li>2. Married</li> <li>3. Widowed</li> <li>4. Divorced</li> </ol>
Level of Education	19	Mv016 V016	<ol style="list-style-type: none"> <li>1. No education</li> <li>2. Primary</li> <li>3. Secondary</li> <li>4. Higher</li> </ol>
Occupational Status	3684	Mv714 V714	<ol style="list-style-type: none"> <li>1. Working</li> <li>2. Not working</li> </ol>
Exposure to media	89 90 91	Mv157, Mv158, Mv 159	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol>
States/Regions	28	Mv024 V024	<ol style="list-style-type: none"> <li>1. States</li> <li>2. Divisions</li> </ol>
Wealth Quintile	102	Mv190 V190	<ol style="list-style-type: none"> <li>1. Poorest</li> <li>2. Poorer</li> <li>3. Middle</li> <li>4. Higher</li> <li>5. Highest</li> </ol>
<b>Knowledge related to HIV/AIDS</b>			

Prevention Knowledge	2717 3718 3721	Mv754cp, Mv754dp, Mv756 V754cp, V754dp, V756	1. Poor 2. Middle 3. High
Comprehensive Knowledge	3719 3720 3859	Mv754jp, Mv754wp, Mv823 V754mp, V754wp, V823	1. Poor 2. Middle 3. High
Vertical transmission knowledge	3818 3819 3820 3860	Mv774a, Mv774b, Mv774c, Mv824 V774a, V774b, V774c, V824	1. Poor 2. Middle 3. High
<b>Discriminatory attitude toward people living with HIV/AIDS</b>			
If they knew a shopkeeper had HIV, would they still buy fresh vegetables from him?	3861	Mv825 V825	1. Yes 2. No
Permission for a teacher who has HIV to continue teaching	3825	Mv779 V779	1. Yes 2. No
Willing to care for HIV-infected family members at home	3824	Mv778 V778	1. Yes 2. No
Would not you want to hide the HIV status of a family member	3822	Mv777 V777	1. Yes 2. No



SECTION 1. RESPONDENT'S BACKGROUND

## INTRODUCTION AND CONSENT

## INFORMED CONSENT

Mingalabar. My name is \_\_\_\_\_. I am working with the Ministry of Health and Sports. We are conducting a survey about health all over Myanmar. The information we collect will help the government to plan health services. Your household was selected for the survey. The questions usually take about 30 to 60 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.

In case you need more information about the survey, you may contact the person listed on the card that has already been given to your household.

Do you have any questions? May I begin the interview now?

SIGNATURE OF INTERVIEWER: \_\_\_\_\_ DATE: \_\_\_\_\_

RESPONDENT AGREES TO BE INTERVIEWED ... 1      RESPONDENT DOES NOT AGREE TO BE INTERVIEWED ... 2 → END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR ..... <input type="text"/> <input type="text"/> MINUTES ..... <input type="text"/> <input type="text"/>	
102	In what month and year were you born?	MONTH ..... <input type="text"/> <input type="text"/> DON'T KNOW MONTH ..... 98 YEAR ..... <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> DON'T KNOW YEAR ..... 9998	
103	How old were you at your last birthday? COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT.	AGE IN COMPLETED YEARS <input type="text"/> <input type="text"/>	
104	Have you ever attended school?	YES ..... 1 NO ..... 2	→ 108
106	What is the highest grade you completed? IF COMPLETED LESS THAN GRADE ONE, RECORD '00'.	GRADE ..... <input type="text"/> <input type="text"/>	
107	CHECK 106: GRADE 5 OR LOWER <input type="checkbox"/> GRADE 6 OR HIGHER <input type="checkbox"/>		→ 110

## SECTION 9. HIV/AIDS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP																
901	Now I would like to talk about something else. Have you ever heard of an illness called AIDS?	YES ..... 1 NO ..... 2	→ 937																
902	Can people reduce their chance of getting HIV by having just one uninfected sex partner who has no other sex partners?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
903	Can people get HIV from mosquito bites?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
904	Can people reduce their chance of getting HIV by using a condom every time they have sex?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
905	Can people get HIV by sharing food with a person who has AIDS?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
906	Can people get HIV because of witchcraft or other supernatural means?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
907	Is it possible for a healthy-looking person to have HIV?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
908	Can HIV be transmitted from a mother to her baby:  During pregnancy? During delivery? By breastfeeding?	<table> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> <th>DK</th> </tr> </thead> <tbody> <tr> <td>DURING PREG. ....</td> <td>1</td> <td>2</td> <td>8</td> </tr> <tr> <td>DURING DELIVERY ...</td> <td>1</td> <td>2</td> <td>8</td> </tr> <tr> <td>BREASTFEEDING ...</td> <td>1</td> <td>2</td> <td>8</td> </tr> </tbody> </table>		YES	NO	DK	DURING PREG. ....	1	2	8	DURING DELIVERY ...	1	2	8	BREASTFEEDING ...	1	2	8	
	YES	NO	DK																
DURING PREG. ....	1	2	8																
DURING DELIVERY ...	1	2	8																
BREASTFEEDING ...	1	2	8																
909	CHECK 908: AT LEAST <input type="checkbox"/> OTHER <input type="checkbox"/>	ONE 'YES' ↓	→ 911																
910	Are there any special drugs that a doctor or a nurse can give to a woman infected with HIV to reduce the risk of transmission to the baby?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
911	CHECK 208 AND 215:  LAST BIRTH SINCE JANUARY 2013. <input type="checkbox"/>	NO BIRTHS <input type="checkbox"/> → 928 LAST BIRTH BEFORE JANUARY 2013. <input type="checkbox"/> → 928																	
912	CHECK 408 FOR LAST BIRTH: HAD ANTENATAL CARE <input type="checkbox"/>	NO ANTENATAL CARE <input type="checkbox"/> → 920																	
913	CHECK FOR PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY.																		
914	During any of the antenatal visits for your last birth were you given any information about:  Babies getting HIV from their mother? Things that you can do to prevent getting HIV? Getting tested for HIV?	<table> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> <th>DK</th> </tr> </thead> <tbody> <tr> <td>AIDS FROM MOTHER</td> <td>1</td> <td>2</td> <td>8</td> </tr> <tr> <td>THINGS TO DO</td> <td>1</td> <td>2</td> <td>8</td> </tr> <tr> <td>TESTED FOR HIV</td> <td>1</td> <td>2</td> <td>8</td> </tr> </tbody> </table>		YES	NO	DK	AIDS FROM MOTHER	1	2	8	THINGS TO DO	1	2	8	TESTED FOR HIV	1	2	8	
	YES	NO	DK																
AIDS FROM MOTHER	1	2	8																
THINGS TO DO	1	2	8																
TESTED FOR HIV	1	2	8																



NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
930	Do you know of a place where people can go to get tested for HIV?	YES ..... 1 NO ..... 2	→ 932
931	<p>Where is that?</p> <p>Any other place?</p> <p>PROBE TO IDENTIFY EACH TYPE OF SOURCE. IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.</p> <p>_____</p> <p>(NAME OF PLACE(S))</p>	<p>PUBLIC SECTOR</p> <p>GOVERNMENT HOSPITAL ..... A GOVT. HEALTH CENTER (RHC) ... B GOVT. HEALTH POST (SUB-CENTER) ..... C STAND-ALONE VCT CENTER ..... D FAMILY PLANNING CLINIC ..... E MOBILE CLINIC ..... F FIELDWORKER ..... G OTHER PUBLIC SECTOR _____ H (SPECIFY)</p> <p>NGO</p> <p>MARIE STOPES ..... I MYANMAR RED CROSS SOCIETY ..... J PSIM (SUN) ..... K MMA ..... L OTHER NGO SECTOR _____ M (SPECIFY)</p> <p>PRIVATE MEDICAL SECTOR</p> <p>PRIVATE HOSPITAL/CLINIC/ PRIVATE DOCTOR ..... N STAND-ALONE VCT CENTER ..... O PHARMACY ..... P MOBILE CLINIC ..... Q DIAGNOSTIC LABORATORY ..... R OTHER PRIVATE MEDICAL SECTOR _____ S (SPECIFY)</p> <p>OTHER _____ X (SPECIFY)</p>	
932	Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8	
933	If a member of your family got infected with HIV, would you want it to remain a secret or not?	YES, REMAIN A SECRET ..... 1 NO ..... 2 DK/NOT SURE/DEPENDS ..... 8	
934	If a member of your family became sick with AIDS, would you be willing to care for her or him in your own household?	YES ..... 1 NO ..... 2 DK/NOT SURE/DEPENDS ..... 8	
935	In your opinion, if a female teacher has HIV but is not sick, should she be allowed to continue teaching in the school?	SHOULD BE ALLOWED ..... 1 SHOULD NOT BE ALLOWED ..... 2 DK/NOT SURE/DEPENDS ..... 8	
936	Should children age 12-14 be taught about using a condom to avoid getting AIDS?	YES ..... 1 NO ..... 2 DK/NOT SURE/DEPENDS ..... 8	



## SECTION 1. RESPONDENT'S BACKGROUND

## INTRODUCTION AND CONSENT

<p><b>INFORMED CONSENT</b></p> <p>Mingalabar. My name is _____. I am working with the Ministry of Health and Sports. We are conducting a survey about health all over Myanmar. The information we collect will help the government to plan health services. Your household was selected for the survey. The questions usually take about 20 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.</p> <p>In case you need more information about the survey, you may contact the person listed on the card that has already been given to your household.</p> <p>Do you have any questions? May I begin the interview now?</p> <p>SIGNATURE OF INTERVIEWER: _____ DATE: _____</p> <p>RESPONDENT AGREES TO BE INTERVIEWED ..... 1      RESPONDENT DOES NOT AGREE TO BE INTERVIEWED ... 2 → END</p> <p style="text-align: center;">↓</p>	
---	--

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR ..... <input type="text"/> <input type="text"/> MINUTES ..... <input type="text"/> <input type="text"/>	
102	In what month and year were you born?	MONTH ..... <input type="text"/> <input type="text"/> DONT KNOW MONTH ..... 98 YEAR ..... <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> DONT KNOW YEAR ..... 9998	
103	How old were you at your last birthday? COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT.	AGE IN COMPLETED YEARS <input type="text"/> <input type="text"/>	
104	Have you ever attended school?	YES ..... 1 NO ..... 2	→ 108
106	What is the highest grade you completed? IF COMPLETED LESS THAN GRADE ONE, RECORD '00'.	GRADE ..... <input type="text"/> <input type="text"/>	





## SECTION 7. HIV/AIDS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP																
701	Now I would like to talk about something else. Have you ever heard of an illness called AIDS?	YES ..... 1 NO ..... 2	→ 723																
702	Can people reduce their chance of getting HIV by having just one uninfected sex partner who has no other sex partners?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
703	Can people get HIV from mosquito bites?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
704	Can people reduce their chance of getting HIV by using a condom every time they have sex?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
705	Can people get HIV by sharing food with a person who has AIDS?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
706	Can people get HIV because of witchcraft or other supernatural means?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
707	Is it possible for a healthy-looking person to have HIV?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
708	Can HIV be transmitted from a mother to her baby:  During pregnancy? During delivery? By breastfeeding?	<table border="1"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> <th>DK</th> </tr> </thead> <tbody> <tr> <td>DURING PREG. ....</td> <td>1</td> <td>2</td> <td>8</td> </tr> <tr> <td>DURING DELIVERY ...</td> <td>1</td> <td>2</td> <td>8</td> </tr> <tr> <td>BREASTFEEDING ...</td> <td>1</td> <td>2</td> <td>8</td> </tr> </tbody> </table>		YES	NO	DK	DURING PREG. ....	1	2	8	DURING DELIVERY ...	1	2	8	BREASTFEEDING ...	1	2	8	
	YES	NO	DK																
DURING PREG. ....	1	2	8																
DURING DELIVERY ...	1	2	8																
BREASTFEEDING ...	1	2	8																
709	CHECK 708: AT LEAST <input type="checkbox"/> ONE 'YES' ↓	OTHER <input type="checkbox"/>	→ 711																
710	Are there any special drugs that a doctor or a nurse can give to a woman infected with HIV to reduce the risk of transmission to the baby?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8																	
711	CHECK FOR PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY.																		
712	I don't want to know the results, but have you ever been tested to see if you have HIV?	YES ..... 1 NO ..... 2	→ 716																
713	How many months ago was your most recent HIV test?	MONTHS AGO ..... <input type="text"/> <input type="text"/> TWO OR MORE YEARS ..... 95																	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
716	Do you know of a place where people can go to get tested for HIV?	YES ..... 1 NO ..... 2	→ 718
717	<p>Where is that?</p> <p>Any other place?</p> <p>PROBE TO IDENTIFY EACH TYPE OF SOURCE.</p> <p>IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.</p> <p>_____</p> <p>(NAME OF PLACE)</p>	<p>PUBLIC SECTOR</p> <p>GOVERNMENT HOSPITAL ..... A</p> <p>GOVT. HEALTH CENTER (RHC) ... B</p> <p>GOVT. HEALTH POST (SUB-CENTER) ..... C</p> <p>STAND-ALONE VCT CENTER ... D</p> <p>FAMILY PLANNING CLINIC ..... E</p> <p>MOBILE CLINIC ..... F</p> <p>FIELDWORKER ..... G</p> <p>OTHER PUBLIC SECTOR _____ H</p> <p>(SPECIFY)</p> <p>NGO</p> <p>MARIE STOPES ..... I</p> <p>MYANMAR</p> <p>RED CROSS SOCIETY ..... J</p> <p>PS/M (SUN) ..... K</p> <p>MMA ..... L</p> <p>OTHER NGO SECTOR _____ M</p> <p>(SPECIFY)</p> <p>PRIVATE MEDICAL SECTOR</p> <p>PRIVATE HOSPITAL/CLINIC/ PRIVATE DOCTOR ..... N</p> <p>STAND-ALONE VCT CENTER ... O</p> <p>PHARMACY ..... P</p> <p>MOBILE CLINIC ..... Q</p> <p>DIAGNOSTIC LABORATORY ..... R</p> <p>OTHER PRIVATE MEDICAL SECTOR _____ S</p> <p>(SPECIFY)</p> <p>OTHER _____ X</p> <p>(SPECIFY)</p>	
718	Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
719	If a member of your family got infected with the AIDS virus, would you want it to remain a secret or not?	YES, REMAIN A SECRET ..... 1 NO ..... 2 DK/NOT SURE/DEPENDS ..... 8	
720	If a member of your family became sick with AIDS, would you be willing to care for her or him in your own household?	YES ..... 1 NO ..... 2 DK/NOT SURE/DEPENDS ..... 8	
721	In your opinion, if a female teacher has the AIDS virus but is not sick, should she be allowed to continue teaching in the school?	SHOULD BE ALLOWED ..... 1 SHOULD NOT BE ALLOWED ..... 2 DK/NOT SURE/DEPENDS ..... 8	
722	Should children age 12-14 be taught about using a condom to avoid getting AIDS?	YES ..... 1 NO ..... 2 DK/NOT SURE/DEPENDS ..... 8	
723	CHECK 701:  HEARD ABOUT AIDS <input type="checkbox"/> ↓ Apart from AIDS, have you heard about other infections that can be transmitted through sexual contact?  NOT HEARD ABOUT AIDS <input type="checkbox"/> ↓ Have you heard about infections that can be transmitted through sexual contact?	YES ..... 1 NO ..... 2	
724	CHECK 414: HAS HAD SEXUAL INTERCOURSE <input type="checkbox"/> HAS NOT HAD SEXUAL INTERCOURSE <input type="checkbox"/>		→ 732
725	CHECK 723: HEARD ABOUT OTHER SEXUALLY TRANSMITTED INFECTIONS?  YES <input type="checkbox"/> NO <input type="checkbox"/>		→ 727
726	Now I would like to ask you some questions about your health in the last 12 months. During the last 12 months, have you had a disease which you got through sexual contact?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8	
727	Sometimes men experience an abnormal discharge from their penis. During the last 12 months, have you had an abnormal discharge from your penis?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8	
728	Sometimes men have a sore or ulcer near their penis. During the last 12 months, have you had a sore or ulcer near your penis?	YES ..... 1 NO ..... 2 DONT KNOW ..... 8	
729	CHECK 726, 727, AND 728: HAS HAD AN INFECTION (ANY 'YES') <input type="checkbox"/> HAS NOT HAD AN INFECTION OR DOES NOT KNOW <input type="checkbox"/>		→ 732
730	The last time you had (PROBLEM FROM 726/727/728), did you seek any kind of advice or treatment?	YES ..... 1 NO ..... 2	→ 732



## Appendix D: Authorization Letter



Jan 23, 2023

Pyae Phyo Thar  
Chulalongkorn University  
Myanmar  
Request Date: 01/22/2023

Dear Pyae Phyo Thar:

This is to confirm that you are approved to use the following Survey Datasets for your registered research paper titled: "FACTORS ASSOCIATION OF DISCRIMINATORY ATTITUDES TOWARD PEOPLE LIVING WITH HIV/AIDS AMONG ADULT CITIZENS IN MYANMAR: AN ANALYSIS OF 2015-2016 MYANMAR DEMOGRAPHIC AND HEALTH SURVEY":

### Myanmar

To access the datasets, please login at: [https://www.dhsprogram.com/data/dataset\\_admin/login\\_main.cfm](https://www.dhsprogram.com/data/dataset_admin/login_main.cfm). The user name is the registered email address, and the password is the one selected during registration.

The IRB-approved procedures for DHS public-use datasets do not in any way allow respondents, households, or sample communities to be identified. There are no names of individuals or household addresses in the data files. The geographic identifiers only go down to the regional level (where regions are typically very large geographical areas encompassing several states/provinces). Each enumeration area (Primary Sampling Unit) has a PSU number in the data file, but the PSU numbers do not have any labels to indicate their names or locations. In surveys that collect GIS coordinates in the field, the coordinates are only for the enumeration area (EA) as a whole, and not for individual households, and the measured coordinates are randomly displaced within a large geographic area so that specific enumeration areas cannot be identified.

The DHS Data may be used only for the purpose of statistical reporting and analysis, and only for your registered research. To use the data for another purpose, a new research project must be registered. All DHS data should be treated as confidential, and no effort should be made to identify any household or individual respondent interviewed in the survey. Also, be aware that re-distribution of any DHS micro-level data, either directly or within any tool/dashboard, is not permitted. Please reference the complete terms of use at: <https://dhsprogram.com/Data/terms-of-use.cfm>.

The data must not be passed on to other researchers without the written consent of DHS. However, if you have coresearchers registered in your account for this research paper, you are authorized to share the data with them. All data users are required to submit an electronic copy (pdf) of any reports/publications resulting from using the DHS data files to: [references@dhsprogram.com](mailto:references@dhsprogram.com).

Sincerely,

*Bridgette Wellington*

Bridgette Wellington  
Data Archivist  
The Demographic and Health Surveys (DHS) Program

## Appendix E: Ethical Approval of Chulalongkorn University



The Research Ethics Review Committee for Research Involving Human Research Participants,  
Group I, Chulalongkorn University

Chamchuri 1 Building, 2nd Floor, 254 Phayathai Road, Pathumwan, Bangkok 10330 Thailand

Telephone: 02-218-3202, 02-218-3049 Email: eccu@chula.ac.th

COA No. 121/66

### Certificate of Approval Exemption for Ethics Review

**Study Title No. 660052** : FACTORS ASSOCIATION OF DISCRIMINATORY ATTITUDES TOWARD  
PEOPLE LIVING WITH HIV/AIDS AMONG ADULT CITIZENS IN MYANMAR: AN  
ANALYSIS OF 2015-2016 MYANMAR DEMOGRAPHIC AND HEALTH SURVEY

**Principal Investigator** : Mr. Pyae Phyo Thar

**Place of Proposed Study/Institution** : College of Public Health Sciences, Chulalongkorn University

This Research proposal is exempted for ethics review in compliance with the Office for Human Research Protections (OHRP Exempt Categories) 45 CFR part 46.101(b).

Certified under condition: To conduct this research project, the researcher (s) must strictly adhere to research proposal approved by the committee. If there is any amendment, it must be sent to the committee for review before carrying on the project.

Signature   
(Associate Prof. Prida Tasanapradit)  
Chairman

Signature   
(Assistant Prof. Dr. Raveenan Mingpakane)  
Secretary

**Date of Approval** : 9 June 2023

#### Remarks

Final report (AF 01-15) and abstract is required for a one year (or less) research/project and report within 30 days after the completion of the research/project.



Digital Certificate

Study Title No. 660052  
Date of Approval 09 Jun 2023  
Approval Expire date 08 Jun 2024

## Appendix F: Timeline of the Research Activity

<b>Stage</b>	<b>Research Activity</b>	<b>Timeline</b>
1.	Proposal Development	October 2022 to January 2023
2.	Proposal Examination	20 February 2023
3.	Ethical Review Chula	March 2023
4.	Data Request to DHS program	March 2023
5.	Data Analysis	April 2023
6.	Report writing	April 2023
7.	Language Editing	May 2023
8.	Proceeding Report Submission to conference	June 2023
9.	Thesis Examination	04 July 2023
10.	Submission of Thesis	July 2023
11.	Conference Oral Presentation	07 July 2023

## Appendix G: Budgets

<b>List</b>	<b>Item Total (THB)</b>
• A4 paper	2,000
• Copy	3,500
• Printer and ink cartridge	3,000
• Transportation (Taxi)	6,000
• Analysis data program	6,000
• Office supplies	1,500
• Book design or media related to the project	3,000
• Textbook documents related to the project	3,000
<b>Total</b>	<b>28,000</b>

**Total amount is 28,000 (Baht)**

**Total amount in letter – twenty-eight thousand Baht**



## VITA

**NAME** Pyae Phyo Thar  
**DATE OF BIRTH** 09-04-1991  
**PLACE OF BIRTH** Magway, Myanmar  
**INSTITUTIONS ATTENDED** Defense Services Medical Academy  
**HOME ADDRESS** S.K. Apartment Charonepol 577/3 Banthatthong Road Wangmai, Pathumwan, Bangkok 10330 Thailand



จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY