

**ROLE OF DEPRESSION AND WELL-BEING IN HIV TRANSMISSION  
RISK BEHAVIOUR OF PEOPLE LIVING WITH HIV/AIDS**

**Ms. LALTHAZUALI**

**(Regn. No. – MZU/ M.Phil./ 224 of.01.05.2015)**

Dissertation submitted for the Degree of Master of Philosophy in Psychology

**DEPARTMENT OF PSYCHOLOGY  
SCHOOL OF SOCIAL SCIENCES  
MIZORAM UNIVERSITY  
AIZAWL: 796004  
2015**



**DEPARTMENT OF PSYCHOLOGY  
MIZORAM UNIVERSITY**

**AIZAWL-796004**

Dated: 09<sup>th</sup> December, 2015

**CERTIFICATE**

This is to certify that the present piece of research titled “Role Of Depression And Well-Being In HIV Transmission Risk Behaviour Of People Living With HIV/AIDS” is the bonafide research conducted by Miss Lalthazuali, Regn. No. MZU/M.Phil./ 224 of 01/05/2015, under my supervision. Miss Lalthazuali worked methodically for her dissertation being submitted for the Degree of Master of Philosophy in Psychology of the Mizoram University.

This is to further certify that the research conducted by Miss Lalthazuali has not been submitted in support of application of this or any other University or an institute of learning.

(Dr. H.K. LALDINPUII FENTE)  
SUPERVISOR

## **DECLARATION**

I, Lalthazuali, hereby declare that the subject matter of this dissertation is the record of work done by me, that the contents of this dissertation did not form basis for the award of any previous degree to me or to the best of my knowledge to anybody else, and that the dissertation has not been submitted by me for any research degree in any other University or Institute.

This is being submitted to Mizoram University for the degree of Master of Philosophy in Psychology.

(LALTHAZUALI)

(Dr. H.K. LALDINPUII FENTE)

Supervisor

(Dr. ZOKAITLUANGI)

Head

Department of Psychology

## ACKNOWLEDGEMENT

My deepest gratitude to my Supervisor, Dr. H.K. Laldinpui Fente, for her never ending patience with me and her diligent and invaluable supervision, and for being so generous as to share her excellent knowledge with me, and always understanding my shortcomings and problems. Her quest knowledge, creativity and unconditional support and invaluable guidance throughout the whole process has brought forth this piece of original research.

I wish to thank the Almighty God, who has always been my strength and always stood by me throughout the whole period of this dissertation.

To my mother and my elder sister, who has been a source of loving encouragement all the way to every academic endeavor that I have encountered. I am grateful for your confidence in me.

To my close friends Machhani, Nunui and Marami for being there for me the whole time and helping me and always stood by me in my hour of need. I am blessed to have you all.

To ART PLUS Centre, Civil Hospital, Aizawl, I would like to extend my heartiest gratitude to all the staff and medical officers who has been helping me during the time of data collect and grant me a permission to conduct my research work.

Dr. Zokaitluangi, Head of the Department of Psychology, Mizoram University for her advice, unfailing support and encouragement.

And finally, to the Principal, St. Charles Convent School for her depth of patience and understanding throughout my study and to all my colleagues of St. Charles Convent School, who gave me their emotional assistance and compromises when I so needed them.

(LALTHAZUALI)

Aizawl:  
the 18<sup>th</sup> December, 2015

# Contents

	Page No.
List of Tables.....	i
List of Appendices.....	ii-iii
Chapter – I	
Introduction.....	1 – 13
Chapter – II	
Statement of the Problem.....	14- 24
Chapter – III	
Methods and Procedures.....	25 - 30
Chapter – IV	
Results and Discussions.....	31 - 57
Chapter – V	
Summary and Conclusion.....	58 - 64
References.....	65 - 72
Appendices.....	73 - 87

## LIST OF TABLES

- Tables- 1.1: Cronbach's Alpha, Mean, *SD* VALUES, Skewness and Kurtosis for full scale of Center for Epidemiologic Studies Depression (CES-D) for Mizo adult male and female PLHA.
- Tables- 1.2: Independent Sample *t*-test for 'Sex' (man and women) on depression of Mizo adult PLHA.
- Tables- 1.3: Interscale relationships, Cronbach's Alpha, Mean, *SD* values, Skewness and Kurtosis for subscales and full scale of Functional Assessment of Human Immunodeficiency Virus Infection scale (FAHI scale) for Mizo adult male and female PLHA.
- Tables- 1.4: Independent Sample *t*-test for 'Sex' (man and women) on FAHI of Mizo adult PLHA
- Tables- 1.5: Cronbach's Alpha, Mean, *SD* values, Skewness and Kurtosis for full scale of HIV Risk- taking Behaviour Scale(HRBS) for Mizo adult male and female PLHA.
- Tables- 1.6: Independent Samples Mann-Whitney *U* test on 'Sex' (man and women on HRBS(global HIV risk behaviour) of Mizo adult PLHA.
- Tables- 1.7: Interscale relationships, Cronbach's Alpha, Mean, *SD* values, Skewness and Kurtosis for subscales and full scale of The Revised Sociosexual Orientation Inventory for Mizo adult male and female PLHA.
- Tables- 1.8: Independent Sample *t*-test for 'Sex' (man and women) on FAHI of Mizo adult PLHA
- Tables- 2.1: Relationship between depression, well-being and HIV transmission risk behaviour among Mizo adult male PLHA.
- Tables- 2.2: Relationship between depression, well-being and HIV transmission risk behaviour among Mizo adult female PLHA.
- Tables- 3.1.a, b, c, d,: Regression analysis predicting HIV transmission risk behaviour from depression among Mizo adult male PLHA.

Tables-	3.2.a, b, c, d.: Regression analysis predicting HIV transmission risk behaviour from well-being sub-factors in Mizo adult male PLHA.
Tables-	3.2.e, f, g, h.: Regression analysis predicting HIV transmission risk behaviour from global well-being (FAHI total) in Mizo adult male PLHA.
Tables-	3.3.a, b, c, d.: Regression analysis predicting HIV transmission risk behaviour from depression in Mizo adult female PLHA.
Tables-	3.4.a, b, c, d.: Regression analysis predicting HIV transmission risk behaviour from well-being among Mizo adult female PLHA.
Tables-	3.4.e, f, g, h.: Regression analysis predicting HIV transmission risk behaviour from global well-being (FAHI total) among Mizo adult female PLHA.
Table-	4: Levels of depression, well-being and HIV Transmission risk behavior of Mizo adult PLHA

## **LIST OF APPENDICES**

- Appendix – 1 : Specimen copy of Centers for Epidemiological Studies–  
Depression scale (CES-D; Radloff, 1977).
- Appendix – 2 : Specimen copy of Functional Assessment of Human  
Immunodeficiency Virus Infection scale (FAHI; Peterman, Cella,  
Mo, & McCain, 1997).
- Appendix – 3 : Specimen copy of The Revised Sociosexual Orientation  
Inventory ( SOI-R; Penke, L. and Asendorpf J.B., 2008).
- Appendix – 4 : Specimen copy of The HIV Risk-taking Behaviour Scale  
(HRBS; Ward, J., Darke, S., & Hall, W., 1990)
- Appendix – 5 : Specimen copy of the Background Demographic Sheet.



Chapter-I

## **INTRODUCTION**

AIDS (acquired immunodeficiency syndrome) is a chronic, potentially life-threatening condition caused by the human immunodeficiency virus (HIV) which originated in non-human primates in Sub-Saharan Africa. While various sub-groups of the virus acquired human infectivity at different times, the global pandemic had its origins in the emergence of one specific strain – HIV-1 subgroup M – in Léopoldville in the Belgian Congo (now Kinshasa in the Democratic Republic of the Congo) in the 1920s (Gallagher, 2014). By damaging our immune system, HIV interferes with our body's ability to fight the organisms that cause disease.

Following initial infection of HIV, a person may experience a brief period of influenza-like illness. This is typically followed by a prolonged period without symptoms. As the infection progresses, it interferes more and more with the immune system, making the person much more susceptible to common infections like tuberculosis, as well as opportunistic infections and tumors that do not usually affect people who have working immune systems. The late symptoms of the infection are referred to as AIDS (Sepkowitz, 2001).

HIV and AIDS is one of the most complicated and bewildering social challenges faced by contemporary societies due to its strong ties with sexual and societal stigmatized behavior. Contracting HIV may lead to difficulties related to self-esteem, coping, social isolation, and poor psychological well-being.( Parker , Aggleton , Attawel , Pulerwitz & Brown. 2010) . According to WHO, an estimated 2.1 million individuals worldwide became newly infected with HIV in 2013. This includes over 240,000 children (below 15 years). Most of these children live in sub-Saharan Africa and were infected by their HIV-positive mothers during pregnancy, childbirth or breastfeeding.

Technically, AIDS is defined by either a CD4 count of under 200 cells per microliter ( $\mu\text{L}$ ), or by the diagnosis of an AIDS-defining illness (a disease associated specifically with HIV infection). Normal CD4 counts range from between 500 to 1600 cells per  $\mu\text{L}$ . If left untreated, the average survival time for a person with an AIDS diagnosis is 6-19 months. By contrast, a 35-year-old started on antiretroviral therapy (with a CD4 count of 350 or over) can expect a life span of 80 years or more, according to researchers at the UK Collaborative HIV Cohort Study (May, Gompels, and Sabin, 2012). A CD4+ count is a blood test to determine how well the immune system is working in people who have been diagnosed with human immuno deficiency virus (HIV). CD4+ cells are a type of white blood cell. White blood cells are important in fighting infections. CD4+ cells are also called T-lymphocytes, T-cells, or T-helper cells HIV infects CD4+ cells. The number of CD4+ cells helps determine whether other infections (opportunistic infections) may occur. The pattern of CD4+ counts over time is more important than any single CD4+ value because the values can change from day to day. The CD4+ pattern over time shows the effect of the virus on the immune system (Pagana, 2010). Two types of HIV exist: HIV-1 and HIV-2. HIV-1 is more virulent, is more easily transmitted and is the cause of the vast majority of HIV infections globally (Reeves, Doms, 2002).

HIV/AIDS has had a great impact on society, both as an illness and as a source of discrimination. The disease also has significant economic impacts. There are many misconceptions about HIV/AIDS such as the belief that it can be transmitted by casual non-sexual contact. The disease has also become subject to many controversies involving religion. It has attracted international medical and political attention as well as large-scale funding since it was identified in the 1980s (Harden & Victoria, 2012)

HIV is transmitted primarily via unprotected sexual intercourse (including anal and oral sex), contaminated blood transfusions, hypodermic needles, and from mother to child during pregnancy, delivery, or breastfeeding (Markowitz, edited by William, Rom, Steven, 2007). Some bodily fluids, such as saliva and tears, do not transmit HIV. Prevention of HIV infection, primarily through safe sex and needle-exchange programs, is a key strategy to control the spread of the disease. There is no cure or vaccine; however, antiretroviral treatment can slow the course of the disease and may lead to a near-normal life expectancy. While antiretroviral treatment reduces the risk of death and complications from the disease, these medications are expensive and have side effects. Without treatment, the average survival time after infection with HIV is estimated to be 9 to 11 years, depending on the HIV subtype (UNAIDS, WHO, 2007) HIV is highly transmissible through the sharing of needles and other injection equipment as a result of which, it can spread very rapidly within networks of Injecting drug users (IDUs) who share injecting equipment with each other. Once HIV prevalence is high in the IDU population, it can expand quickly into their sexual networks.

Some IDUs are also sex workers, which can quickly link HIV transmission in the IDU networks to transmission in the larger high risk sexual networks. (Mizoram State AIDS Control Society, 2014). With regard to unprotected heterosexual contacts, estimates of the risk of HIV transmission per sexual act appear to be four to ten times higher in low-income countries than in high-income countries (Boily, Baggaley, Wang, Masse, White, Hayes, Alary, 2009). In low-income countries, the risk of female-to-male transmission is estimated as 0.38% per act, and of male-to-female transmission as 0.30% per act; the equivalent estimates for high-income countries are 0.04% per act for female-to-male transmission, and 0.08% per act for male-to-female transmission (Boily et al., 2009). The risk of transmission from anal intercourse is especially high, estimated as 1.4–1.7% per act in both heterosexual and homosexual contacts (Boily et al., 2009). While the risk of transmission from oral sex is

relatively low, it is still present (Yu & Vajdy, 2010). The risk from receiving oral sex has been described as "nearly nil";(Stürchler & Dieter, 2006) however, a few cases have been reported. The per-act risk is estimated at 0–0.04% for receptive oral intercourse (Dosekun & Fox, 2010). In settings involving prostitution in low-income countries, risk of female-to-male transmission has been estimated as 2.4% per act and male-to-female transmission as 0.05% per act (Boily et al., 2009)

Risk of transmission increases in the presence of many sexually transmitted infections and genital ulcers. Genital ulcers appear to increase the risk approximately fivefold (Boily et al.,2009) Other sexually transmitted infections, such as gonorrhea, chlamydia, trichomoniasis, and bacterial vaginosis, are associated with somewhat smaller increases in risk of transmission. (Dosekun & Fox, 2010) The viral load of an infected person is an important risk factor in both sexual and mother-to-child transmission (Anderson, 2012). During the first 2.5 months of an HIV infection a person's infectiousness is twelve times higher due to this high viral load (Dosekun & Fox, 2010). If the person is in the late stages of infection, rates of transmission are approximately eightfold greater (Boily et al., 2009). Commercial sex workers (including those in pornography) have an increased rate of HIV (Aral & Sevgi, 2013). Rough sex can be a factor associated with an increased risk of transmission (Klimas, Koneru & Fletcher, 2008). Sexual assault is also believed to carry an increased risk of HIV transmission as condoms are rarely worn, physical trauma to the vagina or rectum is likely, and there may be a greater risk of concurrent sexually transmitted infections (Draughon & Sheridan, 2012)

Two main clinical staging systems are used to classify HIV and HIV-related disease for surveillance purposes: the WHO disease staging system for HIV infection and disease,(WHO, 2007) and the CDC classification system for HIV infection. The CDC's classification system is more frequently adopted in developed countries. Since the WHO's

staging system does not require laboratory tests, it is suited to the resource-restricted conditions encountered in developing countries, where it can also be used to help guide clinical management. Despite their differences, the two systems allow comparison for statistical purposes.

The World Health Organization first proposed a definition for AIDS in 1986. Since then, the WHO classification has been updated and expanded several times. The WHO system uses the following categories:

- Primary HIV infection: May be either asymptomatic or associated with acute retroviral syndrome.
- Stage I: HIV infection is asymptomatic with a CD4<sup>+</sup> T cell count (also known as CD4 count) greater than 500 per microlitre ( $\mu\text{l}$  or cubic mm) of blood. May include generalized lymph node enlargement. (Worobey,
- Stage II: Mild symptoms which may include minor mucocutaneous manifestations and recurrent upper respiratory tract infections. A CD4 count of less than 500/ $\mu\text{l}$ .
- Stage III: Advanced symptoms which may include unexplained chronic diarrhea for longer than a month, severe bacterial infections including tuberculosis of the lung, and a CD4 count of less than 350/ $\mu\text{l}$ .
- Stage IV or AIDS: severe symptoms which include toxoplasmosis of the brain, candidiasis of the esophagus, trachea, bronchi or lungs and Kaposi's sarcoma. A CD4 count of less than 200/ $\mu\text{l}$ . (WHO. 2007)

The United States Center for Disease Control and Prevention also created a classification system for HIV, and updated it in 2008 and 2014.

Poor psychological well-being, poor physical health, and substance use are risk factors for unprotected sex across populations, and have been implicated in the behavior patterns of HIV-positive adults specifically (Lovejoy, Heckman, Sikkema, Hansen, Kochman, Suhr, Garske & Johnson, 2008). Social isolation and low levels of social support are more common among older HIV-positive persons, compared to their younger counterparts, (Crystal, Akincigil, Sambamoorthi, Wenger, Fleishman, John, Zingmond, David, Hays, Ron, Bozzette, Samuel, Shapiro & Martin, 2003 ) complicating both opportunities and motivation for sexual encounters. Depression is a state of low mood and aversion to activity that can affect a person's thoughts, behavior, feelings and sense of well-being (Salmans & Sandra, 1997). Depressed people can feel sad, anxious, empty, hopeless, helpless, worthless, guilty, irritable or restless. They may lose interest in activities that were once pleasurable, experience loss of appetite or overeating, have problems concentrating, remembering details or making decisions, and may contemplate, attempt or commit suicide. Insomnia, excessive sleeping, fatigue, aches, pains, digestive problems or reduced energy may also be present (NIMH, 2012).

HIV is a chronic and life-threatening illness and, like other such illnesses, can be stressful to manage. Its life-threatening nature may instigate fears of impending mortality. Moreover, the medical sequelae of HIV infection, its associated opportunistic infections, and side effects of antiretroviral treatment can mimic symptoms of depression (i.e., fatigue, concentration problems, somatic symptoms, decreased appetite/weight loss). From a cognitive-behavioral perspective (Safren, Gonzalez, & Soroudi; 2007), these physical symptoms can be part of a cycle of continued depression. Specifically, individuals can develop negative cognitions about side effects (e.g., “They remind me of my illness”) that maintain depression, potentially increasing the likelihood of behavioral symptoms of depression such as avoidance or reduced engagement in other activities.

Depression is the most frequent neuropsychiatric or psychological disorder among people living with HIV (PLHA), with prevalence estimated as high as 36 % (Pieper and Treisman 2005; Phillips 2004; Wolff , Alvarado & Wolff, 2010) HIV depression also impairs quality of life, adherence to Highly Active Antiretroviral Therapy ( HAART), and the outcome of antiretroviral treatment. Also, HIV depression is associated with risky sexual behavior, which in turn facilitates viral transmission, increasing mortality and morbidity (Schuster et al., 2012). The most prevalent symptoms for HIV depression are insomnia, anhedonia, fatigue, loss of appetite, and difficulties with memory and concentration (Wolff et al., 2010). Although these are well known features of depression, HIV depression remains underdiagnosed and undertreated (Pieper & Treisman 2005; Phillips, 2004). Other factors that might account for the high level of depression among PLHA are related to risk factors for HIV. Specifically, PLHA disproportionately come from marginalized groups in the U.S., including the economically disadvantaged, ethnic and sexual minorities, and those with a history of substance use, sex work, and trauma (Kalichman, 1998). Individuals in these at-risk groups are often subject to discrimination and stressors that can contribute to poor mental health outcomes, even before acquiring an HIV diagnosis. (Gonzalez, Hendriksen, Collins, Duran, Safren, Latinos and HIV/AIDS, 2009). Because HIV is associated with these marginalized statuses, the disease itself has become highly stigmatized—leading to problems such as nondisclosure of one’s HIV status and social isolation—further increasing the risk of depression (Simoni, Demas, Mason, Drossman & Davis, 2000).

In HIV samples, as in general population studies, depression rates for women are elevated, although in some studies this is true independent of HIV serostatus. Moore et al., (1999) in a multisite study of 871 HIV+ women and 439 demographically matched HIV-seronegative women in economically and socially disadvantaged environments, found that both groups reported high levels of adverse events and depressive symptoms unrelated to



HIV status. In contrast, Morrison et al., (2002) found rates of major depression among HIV+ women (19%) to be four times greater than the rate among HIV-seronegative women (5%); Evans et al. 2002, studying 93 women from disadvantaged backgrounds, also found higher rates of major depression among HIV+ women (15% vs 10%).

Not only is depression a distressing and impairing condition, but it also negatively affects a variety of self care behaviors needed for optimal management of HIV disease (Rabkin., 2008). For example, patients with depression have been found to initiate ART at lower CD4 cell counts and higher HIV-1 RNA levels compared to patients without depressive disorders (Tegger, Crane, Tapia, Uldall, Holte & Kitahata, 2008) and depressive symptoms have been related to poor adherence to ART once initiated (Kacanek, Jacobson, Spiegelman, Wanke, Isaac, & Wilson .,2009). Individuals with depressive symptoms and non-adherence according to pharmacy refills were at almost a 6-fold greater risk for mortality (Lima, Geller, Bangsberg, Patterson, Daniel, Kerr,et al., 2007). Additionally, depression and substance abuse are co-morbid, with as many as one-third of depressed patients having co-occurring substance use disorders (Davis, Uezato, Newell & Frazier.,2008). Among PLHA in particular, depression has been associated with substance use (Dixit, & Crum .,2000), leading to poorer health-related quality of life and antiretroviral non-adherence. Finally, suicidality is an important symptom of depression that must be routinely assessed. Although suicide rates have decreased among PLHA with the introduction of ART, they remain higher than in the general population and are associated with older age, male gender, injection drug use, and advanced clinical stage (Keiser, Spoerri, Brinkhof, Hasse, Gayet-Ageron , et al.,2008)

Mental health can be seen as an unstable continuum, where an individual's mental health may have many different possible values (Keyes & Corey, 2002). Mental wellness is generally viewed as a positive attribute, even if the person does not have any diagnosed mental health condition. This definition of mental health highlights emotional well-being, the

capacity to live a full and creative life, and the flexibility to deal with life's inevitable challenges (Graham & Michael, 2014).

Mental health has been linked to HIV infection in studies of developed as well as developing countries. People living with HIV/AIDS (PLHA) are generally subject to higher prevalence of mental illness. In North America, it has been shown that HIV-related stigma is associated with low social support, poor mental health, and poor physical health (Logie & Gadalla, 2009). Mental conditions such as depression, anxiety, and stress disorder, and psychosocial factors related to HIV/AIDS such as experience of stigma and lack of trust in the healthcare system or government, are further linked to poorer medication adherence and risk behavior in the studies of the US and Western Europe. The psychological attributes associated with HIV infection therefore have important implications in health outcomes, quality of life, and further transmission of HIV (Whetten, Reif, Whetten, & Murphy-McMillan, 2008).

In the developing-country context where HIV prevalence is much higher, such as sub-Saharan Africa, studies also indicated that PLHA tend to have more mental health problems than HIV-negative people in general (Brandt, 2009). Although relevant studies are still limited and the body of research remains fragmented in terms of its methodology, sampling design, and targeted population, the importance of mental well-being in influencing the quality of life for PLHA has been attracting more research attention and calling on provision of mental health services in AIDS programs in recent years (Collins, Holman, Freeman, & Patel, 2006). Other studies have also clearly supported that people with HIV and AIDS are also affected with various forms of mental disorders (Kim, Mazenga, Devend, Ahmed, Sharp, Mhango, *et al.*, 2013). A study that was conducted among HIV positive people who were attending Antiretroviral Therapy (ART) clinics in Mzuzu found 14.4% as a prevalence rate of psychological distress among these people (Mwale, Stewart & Mathanga, 2007)

Similar studies have indicated that almost half of people who have HIV and AIDS in Africa suffer from some form of mental disorder, commonly depression (Brandt, 2009)

Strong evidence for the depression-to-risk relationship comes from intervention studies with men having sex with men (MSM) and PLHA, which have found that improving mental health leads to reduced sexual risk behavior (Sikkema, Watt, Drabkin, Meade, Hansen, & Pence, 2010). Increases in depression and decreases in well-being among sexually active MSM may result in externalizing symptoms, such as sensation-seeking and the use of sex to avoid or alleviate negative affect, as opposed to internalizing symptoms, such as withdrawal (Mustanski, 2007); these externalizing symptoms may lead to sexual risk taking. Indeed, studies have suggested that moderately depressed individuals may regulate negative affective states by engaging in sexual behaviors (Shrier et al., 2012).

Despite strong evidence for the depression-to-risk path, changes in sexual risk behavior may also lead to changes in depression and well-being. When HIV-positive MSM engage in behavior that may put a partner at risk, they may feel regret or shame (Wilson, Cook, & Valera, 2013), and these feelings may lead to decreased well-being. However, the few prospective studies exploring the relationship between affect and sexual risk behavior provide little evidence to substantiate the risk-to-depression path (Mustanski, 2007). Nonetheless, bidirectional causality is plausible for a within-person link between depression and sexual risk behavior. Further research for explaining the within-person association will require longitudinal studies capturing time varying process variables, such as substance use and daily stressors, in addition to psychometrically robust measures of depression and sexual risk behavior.

Risk factors for HIV and decreased mental-health functioning includes: gender inequality, being female, poverty and violence, burden associated with unequal responsibility for multiple roles (Voisin, 2006). These confounding social issues increase the likelihood of

psychological consequences for women. A theoretical framework to understand these risk factors can be found in Hale and Vasques (2011) in describing violence against women with HIV, use concepts of structural, cultural and direct violence. The concept of structural violence was initiated by Johan Galtung and further developed by Paul Farmer who was influenced by his experiences working with people with HIV in Haiti in the Caribbean (Farmer, 1990). Class, race, gender, area of residence and processes such as globalisation can affect susceptibility to HIV and mental health problems as well as experiences following diagnosis including subsequent mental health (Hale & Vasquez, 2011).

Many newly diagnosed HIV-positive persons modify behaviors to reduce the likelihood of onward transmission of HIV (Dombrowski, Harrington, & Goldon, 2013). Sexual behavior modifications include the use of condoms, serosorting by which HIV-positive persons engage in unprotected sex only with other HIV-positive persons, the practice of lower HIV transmission risk sexual behaviors, such as oral sex or mutual masturbation with HIV-negative partners, or sexual abstinence (Golub et al., 2010). However, not all newly diagnosed HIV-positive persons entirely eliminate HIV transmission risk behaviors (Fox et al., 2009) and, among those who do, recent data portend a later rebound in sexual risk taking that stabilizes by 12 months after initial HIV diagnosis (Dombrowski et al., 2013). Studies have shown that people who are living with HIV & AIDS are increasingly vulnerable to a number of conditions related to their mental well-being; a number of these may even influence an individual's suicidality profile. These can include, among others, mood disorders such as depression and bipolar disorder, acute stress and anxiety reactions, obsessive-compulsive thought patterns around disease progression, bereavement reactions, personality disorders and psychoses. Cognitive impairment and the use of substances have also been shown to be important factors. Such conditions have been shown to place individuals at a higher risk of contracting HIV as a result of their engaging in risky sexual behaviour, as well

as likely misconceptions as to the routes of transmission of the virus. Amongst the youth, factors such as depression, rebelliousness and impulsivity have been shown to be indirectly associated with high-risk sexual practices, and thus a higher risk of HIV infection.

There are two important facets which form the basis of explanations of the findings that have consistently shown higher rates of mental health disorders in individuals living with HIV compared with 'normal' clinical samples. Firstly, mental health disorders, including those related to or arising as a result of substance-abuse, have been shown to be related to an increased risk of HIV & AIDS infection, as well as to have a considerable potential impact on treatment success. Conversely and concurrently, it is important to note that some mental health conditions can arise as a direct result of HIV infection. Thus, an elevated risk for psychiatric conditions may be directly caused by HIV, be exacerbated by the virus or, in fact, present as a precursor to infection.

Researchers also suggest that sexual orientation influences the association between social support and psychological well-being among people living with HIV/AIDS (McDowell & Serovich, 2007). Women living with HIV/AIDS experience lower quality of life, fewer social supports and more depressed than men living with HIV/AIDS (Cederfjäll, Langius-Eklöf, Lidman & Wredling, 2001).

## Chapter-II

### **STATEMENT OF THE PROBLEM**

In the context of HIV/AIDS, depression is an often overlooked but a prevalent and potentially dangerous condition that can influence not only quality of life, relationships, employment, and adherence to medical care, but also perhaps survival. Depression is associated with isolated lives, the absence of pleasure, and social and vocational impairment. Depression is also associated with failure to maintain a proper diet and exercise regimen and to adhere to medical care. Other than substance use disorders, depression is the most prevalent psychiatric disorder among HIV-positive (HIV+) adults (Rabkin, 2008).

In fact, in an earlier version of the standard criteria for diagnosing mental disorders, “loss of interest in or enjoyment of sex” was one of the nine criteria used to diagnose depression (DSM-III, 1980), although this did not appear again in the later editions of the DSMs. Research findings regarding sexual risk behavior in depressed HIV+ adults have been inconsistent; some studies have found lower levels of risk, whereas others have reported increased risk behavior in states of depression, as reviewed by Bradley et al.(2008). Whether risk behavior, or indeed any sexual behavior, increases in depressed HIV+ adults with low libido whose depression is successfully treated has not been systematically investigated enough. In the early 1990s, ethical questions were raised about a study in which men with AIDS, low libido, and low serum testosterone levels were treated with intramuscular testosterone, (Wagner, Rabkin & Rabkin, 1997) on the theory that any “increase in sexual desire” among HIV-infected men presents a public health risk. However, another commentator disagreed, (Tiefer, 1997) and the authors noted that it is the obligation of health providers to offer treatment for a medical deficiency state (hypogonadism) that has been diagnosed. The same argument would apply to treatment of depression. Although alleviation of depression is likely to restore libido if it is diminished during depression, another likely effect is to offset the hopelessness and nihilism that can underlie risky sexual behavior.

HIV sexual transmission risk behavior was defined as having unprotected sex at last sex encounter with any partner in the previous 12 months.(Bunnell, Opio, & Musinguzi et.al., 2008) HIV-seropositive individuals who are aware of their infection and who engage in high-risk activity may also pose a significant risk for transmission in the community. Indeed, recent outbreaks of sexually transmitted diseases (STDs) among persons with longstanding HIV infection suggest that there are ongoing risk behaviors among some groups (Centers for Disease Control and Prevention, 2001). Ongoing risk behavior for HIV transmission has been described for men who have sex with men (MSM) and for other populations reporting injection drug use (IDU) as a risk factor for HIV transmission(Erbelding, Stanton, Quinn & Rompalo, 2000).

Sociosexual orientation (or sociosexuality) is the individual difference in the willingness to engage in sexual activity outside of a committed relationship. Individuals with a more *restricted* sociosexual orientation are less willing to engage in casual sex; they prefer greater love, commitment and emotional closeness before having sex with romantic partners. Individuals who have a more *unrestricted* sociosexual orientation are more willing to have casual sex and are more comfortable engaging in sex without love, commitment or closeness (Simpson & Gangestad, 1991). Bisexual women are significantly less restricted in their sociosexual attitudes than both lesbian and heterosexual women. Bisexual women are also the most unrestricted in sociosexual behavior, followed by lesbians and then, heterosexual women. (Schmitt, 2007). Gay and bisexual men are similar to heterosexual men in sociosexual attitudes, in that they express relatively unrestricted attitudes relative to women. However, gay men are the most unrestricted in sociosexual behavior, followed by bisexual men and then, heterosexual men. This may be because gay men have more potential mating partners who prefer short-term, casual sexual encounters (Schmitt, 2007)



Unrestricted sociosexuality is associated with early life experiences with sex, more frequent sexual activity and a greater number of lifetime sex partners. Unrestricted men tend to have greater rape myth acceptance, past sexual aggression and more conservative attitudes about women than restricted men. Unrestricted women tend to have more sexual fantasies involving dominance and lower levels of sexual conservatism than restricted women (Yost & Zurbriggen, 2006)

Risk factors for HIV and decreased mental-health functioning includes: gender inequality, being female, poverty and violence, burden associated with unequal responsibility for multiple roles and violence (Voisin, 2006). Mental health has been linked to HIV infection in studies of developed as well as developing countries. People living with HIV/AIDS (PLHA) are generally subject to higher prevalence of mental illness. In North America, it has been shown that HIV-related stigma is associated with low social support, poor mental health, and poor physical health (Logie & Gadalla, 2009). Mental conditions such as depression, anxiety, and stress disorder, and psychosocial factors related to HIV/AIDS such as experience of stigma and lack of trust in the healthcare system or government, are further linked to poorer medication adherence and risk behavior in the studies of the US and Western Europe. The psychological attributes associated with HIV infection therefore have important implications in health outcomes, quality of life, and further transmission of HIV (Whetten, Reif, Whetten, & Murphy-McMillan, 2008).

Research up until the present has found that high rates of needle sharing have been a common practice for some intravenous drug users (IDU) (Morlet, Darke, Guinan, Wolk, & Gold, 1990). It is now well known that the sharing of needles and syringes puts the IDUs concerned at risk for HIV via the transmission route of HIV-contaminated blood (Centers for Disease Control, 1989). Although moves have been made in some countries to provide IDU (Intravenous drug user) with easily available needles and syringes through the setting up of

agencies like needle and syringe exchanges, this has not been a universally accepted practice on the part of governments. Even where needles and syringes are freely available, it has been found that some IDU continue to share their injection equipment regardless of this availability and regardless of the risk they pose to themselves and to others (Darke, Hall, & Carless, 1990).

Given the high incidence of needle sharing among IDU, injection equipment cleaning practices are of critical importance. Bleach has been shown to be viricidal and there have been education campaigns in many countries to encourage IDU to clean their equipment with bleach if they are going to share. Clearly, if a person is sharing, then the decontamination procedures they have been using will need to be assessed to gain a proper impression of their risk for HIV importance, both from the perspective of the spread of HIV within that population, and in relation to the spread of the virus to the non intravenous drug using population (Feucht, Stephens, & Roman, 1990). Again there has been a widespread emphasis on education to reduce risk in the area of sexual behaviour, though of course this has been focussed at the general population, not just at IDU. The use of condoms has been encouraged as a form of safe sex. For IDU, it could be argued that due to the added risk of needle sharing, the use of condoms should also be encouraged even with regular, monogamous sexual partners.

It is not uncommon for female, and to a lesser extent male, IDU to support their drug use by prostitution (Philpot, Harcourt, & Edwards, 1989). Engaging in prostitution is another potential area of risk for IDU, not only for themselves, but for their customers if they engage in unsafe sexual practices. Finally, one sexual practice that has consistently been shown to be a high risk activity in relation to the spread of HIV is penetrative anal sex (Turner, Miller, & Moses, 1989). IDU are as much at risk if they engage in anal sex as any other group. A group of people who are at risk for HIV due to their drug use practices may put others at risk if they

engage in unprotected sex with them. They will, in addition, be at the same risk as anyone else of contracting and spreading the virus through sexual activity (Ward, Darke, & Hall, 1990)

Decade since AIDS was first diagnosed, behavioral research has focused intensively on risk reduction change processes and, to a lesser extent, on mental health needs of persons with HIV conditions. Although research to date has yielded important findings for primary prevention efforts and has identified some psychological dimensions relevant to mental health interventions, there is a pressing need for much more systematic intervention outcome research in both the prevention/behavior change and emotional coping areas. Progress in these areas will be facilitated by better linkage of intervention approaches to behavioral theory; identification of intervention elements that produce HIV risk behavior change; evaluated field-testing of promising intervention models; continued focus on populations that remain at risk (such as gay men and iv drug users); and expansion of prevention efforts to urban, poor, and minority populations increasingly threatened as AIDS/HIV enters a "2nd wave." Although AIDS is still a relatively new problem, existing behavioral medicine conceptual models and intervention strategies can be adapted to meet the enormous challenges created by AIDS and HIV infection. (Psyc INFO Database Record (c) 2011 APA).

In India the first case of HIV infection was detected in 1986 among commercial sex workers in Chennai. Subsequently the Government of India initiated programmes of prevention and raising awareness under the Medium Term Plan (1990-92), the first National AIDS Control Plan (NACP-I, 1992-99) and the second plan (NACP-II, 1992-2006). N The HIV surveillance highlights an overall reduction in adult HIV prevalence analysis of epidemic projections has revealed that the estimated annual HIV incidence (new infections) has declined by about 56 percent over the last decade (2000-2009). Wider access to ART has resulted in decline of the number of people dying due to AIDS-related causes. This is one of

the most important evidences of the impact of various interventions and scaled-up prevention strategies under the National AIDS Control Programme (NACP). Based on HIV Sentinel Surveillance 2008-09, it is estimated that 23.9 lakh people are infected with HIV in India, of whom 39% are female and 4.4% are children. The estimated adult HIV prevalence in India was 0.32% (0.26% - 0.41%) in 2008 and 0.31% (0.25% - 0.39%) in 2009. The adult HIV prevalence was 0.26% among women and 0.38% among men in 2008, and 0.25% among women and 0.36% among men in 2009. Among the states, Manipur has shown the highest estimated adult HIV prevalence (1.40%) followed by Andhra Pradesh (0.90%), Mizoram (0.81%), Nagaland (0.78%), Karnataka (0.63%) and Maharashtra (0.55%). Besides these states, Goa, Chandigarh, Gujarat, Punjab and Tamil Nadu have shown estimated adult HIV prevalence greater than national prevalence (0.31%), while Delhi, Odhisa, West Bengal, Chhattisgarh and Puducherry have shown estimated adult HIV prevalence of 0.28- 0.30%.

ACP Phase-III (2007-2012) had the overall goal of halting and reversing the epidemic in India.

In Mizoram, the first case of HIV infection was seen in an injecting drug user during October 1990. Initially HIV transmission in Mizoram was drug-driven, through sharing of infected syringes and needles. The 1990s saw the Mizo youths devastated by the twin epidemic of drug addiction and HIV/AIDS, many youths turning to heroin which managed to find its way from The Golden Triangle. A large number of youths also took to injecting an oral analgesic drug called Proxyvon, with the resultant widespread toxic effects like abscesses, amputation of limbs, tissue necrosis etc. Majority of HIV infection occurred among the IDUs and their partners. In 1992, the Government of Mizoram established the State AIDS Cell at the Directorate of Health Services headed by the Joint Director of Health Services. Mizoram State AIDS Control Society (MSACS) came into existence on the 22<sup>nd</sup>

July 1998 under the Chairmanship of the Secretary, Health and Family Welfare. The State AIDS Policy was approved by the Council of Ministers on the 22<sup>nd</sup> October 1999.

The Care, Support and Treatment of People Living with HIV/AIDS (PLHA) is an important component of NACP-III and aims to provide comprehensive management to PLHA with respect to prevention and treatment of Opportunistic Infections, Antiretroviral Therapy (ART), psychosocial support, home based care, positive prevention and impact mitigation. The free ART services were introduced on 1<sup>st</sup> April, 2004 in India. Since then, the services have been scaled-up to 306 centres providing ART to 4,12,125 patients across the country by the end of 2011-12. In order to facilitate the delivery of ART services nearer to the beneficiaries, concept of Link ART Centre (LAC) was conceived and presently 612 LAC have been established.

The ART centres are established mainly in the Medicine Departments of Medical Colleges and District Hospitals in the Government Sector. However, some ART centres are functioning in the sub-district and area hospitals also. The centres are set up based on prevalence of HIV in the district/ region, volume of PLHA detected and capacity of the institution to deliver ART related services. The main objective of Anti-retroviral Therapy (ART) Centre is to provide comprehensive services to eligible persons with HIV/AIDS including ART. National Aids Control Organisation's (NACO) supports additional personnel (doctors, counselors, nurses, pharmacist, data managers and care coordinators) at these centres based on patient load. NACO also provides facilities for CD4 testing at these sites and supplies ARV drugs, CD4 kits and drugs required for treatment of Opportunistic Infections.

In Mizoram, following facilities have been established under Care, Support and Treatment (CST) division- 3(Three) A.R.T Centres-at Aizawl Civil Hospital (started in Feb,2006), Champhai Civil Hospital (started in Dec,2010) and Lunglei Civil Hospital (started in Feb 2011). Aizawl ART Centre has been elevated to the status of ART Plus Centre, which

means that Alternative first line and second line ART treatment can be given at this centre. There are 5(five) Link A.R.T Centres at Saiha, Lawngtlai, Serchhip, Kolasib and Mamit. Till 3<sup>rd</sup> February 2015: Total no of PLHIV Registered at Aizawl ART centre are 6291, Ever started on ART are- 3524 out of this 204 are below 15yrs. No of children (from birth till 15yrs of age) HIV infected registered are-283. Non-adherence ART expired are-344 including 4 children and ART adherence expired are- 479 including 14 children.

Mizoram status of HIV/AIDS since October 1990 to October 2014 is given in the following. Number of blood tested is 297375 out of this HIV positive are – 9637 and number of expired are -587. The different modes of transmission of HIV/AIDS along with percentages are:- Sexual Contact (3668 male and 2967 female; 68.85%), Injecting drug users (IDU; 2037 male –and 357 female; 24.84%), Perinatal, 172 male and female 182; 3.67%) and others (Not specified male – 150 and female – 104 i.e. 2.64%). According to Age, Sex proportion of HIV positive Cases in the age group below 14years of age are 183 male and 197 female which is 3.94%. In the age group between 15-24, HIV infected are 1218 male and 913female which 22.11%. In the age group between 25-34, HIV infected are 2668 male and in 1388 female which is 42.09%. In the age group between 35-49, HIV infected are 1668 male and 975 female which was 27.43%. In the age group 50yrs and above HIV infected male are 290 and female are 136 which was 4.42%. And other not specified group male HIV infected are 0 and female HIV infected are 1 which was 0.01%. (Mizoram State Aids Control Society, 2014)

In view of the foregoing, the study was attempt to highlight the role of mental well-being and depression on HIV transmission risk behaviour among people living with HIV/AIDS in Aizawl district, where sexual contact is the main mode of transmission of HIV/AIDS followed by intravenous drug use. Anxiety and depression represent the most common mental disorders worldwide in HIV positive population and therefore, depression

and mental well-being were used as indicators to assess the mental health status of PLHA. Many research had been conducted in HIV/AIDS but most studies did not measure much about the predictor of their HIV transmission risk behaviour. Empirical evidence about the relationships between these factors will provide better understanding of the challenges facing PLHA among Mizo people and set scientific foundations for future intervention development.

**OBJECTIVES OF THE STUDY:** Given the theoretical and empirical foundations pertaining to the research problem, the present study is concerned with the following objectives:

1) To highlight gender differences in well-being, depression and HIV transmission risk behaviour among PLHA.

2) To examine the relationship between depression and HIV transmission risk behaviour among PLHA.

3) To examine the relationship between well-being and HIV transmission risk behaviour among the sample.

4) To highlight the contribution of levels of depression and well-being on HIV transmission risk behaviour among PLHA.

5) To determine the status of depression, well-being and HIV transmission risk behaviour among the whole sample.

**HYPOTHESIS:** Following the review of literature pertaining to well-being and depression on HIV transmission risk behaviour and the research objectives put forth, it is hypothesized that:-

1) Males are expected to have higher HIV transmission risk behaviour and poorer well-being and lower depression than females among PLHA.

2) It was expected that depression will show positive correlations with HIV transmission risk behaviour among PLHA.

3) It was expected that well-being will show negative correlation with HIV transmission risk behaviour among PLHA.

4) Depression and well-being will substantially contribute to HIV transmission risk behaviour among PLHA.

5) The sample of PLHA are expected to show poor well-being and high depression and HIV transmission risk behaviour.



## Chapter-III

### **METHODS AND PROCEDURES**

## **SAMPLE**

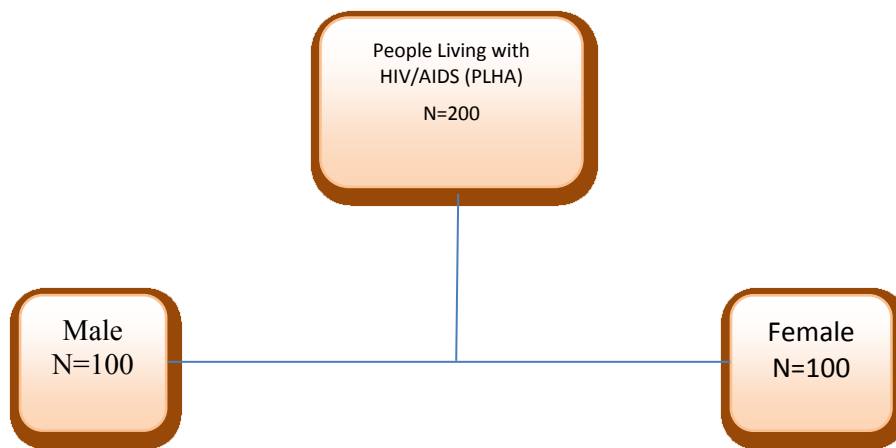
The sample consisted of randomly selected 200 Mizo adults comprising of 100 males and 100 females among people living with HIV/AIDS. The 100 (male) Mizo adults, with their age ranging from 16 to 54 years (mean age=33.59) and 100 (female) Mizo adults, with their age ranging from 18 to 54 years (mean age= 33.82) were randomly sampled from ART (Antiretroviral Therapy) Centre, Civil Hospital, Aizawl, Mizoram. All the participants were from Aizawl District. Half of them, 49.5% of the participants had less than a high school education, 40% had completed high school, 10% had some college or post-high school education .5% was Ph.d. Approximately, half of the participants (50%) were engaged with government job and private business and 30% were unemployed, while 3% were students. Most of them (75%) were brought up in an intact family, while 12% were brought up by their relatives and 8% were came from broken families. On socio-economic status, 13.5% belonged to B.P.L families and majority(86%) were from the middle class standard families. The present sample revealed that 51% were married, and 21% were unmarried, while 28% were divorced or separated from their spouses. Majority of the participants (56.5%) got diagnosed with this disease more than 3 years, while 11% got diagnosed with this disease not more than 1 year, while 23% got diagnosed not more than 2 years and a few of them 9.5% were diagnosed not more than 6 months . Most of the participants (90%) were currently residing with their families and relatives while 10% of them lived alone. Almost all the participants 98.5% had relatives and friends to support them but a few of them .05% did not have any other relatives who could support them. Three fourth of the participants (75%) got infected from sexual contact and 21% were through intravenous drug use and a few of them 2.5% were due to blood transfusion. Most of the participants (73.5%) were not yet on ART while only 26.55% were ART adherents. More than half of the participants 68.5% were visiting ART centre once in a month, 18% were visiting sometimes, 3.5% were visiting once

in a week, 2.25% were visiting twice in a month and only a few of them 2.5% never visit (they were newly diagnosed and did not yet on ART)

## DESIGN OF THE STUDY

The study incorporated separate-group design (male and female) as depicted in Figure.1 below to highlight the effects of depression and well-being on HIV transmission risk behaviour among the target groups of people living with HIV/AIDS (PLHA) in Mizoram.

Figure-1: Separate Group design depicting distribution of participants of the design.



## PROCEDURE

The Adult participants were randomly selected from ART PLUS(Antiretroviral Therapy) Centre, Civil Hospital, Aizawl, Mizoram. After obtaining the necessary consents institutionally and individually from the ART Centre and the participants, and careful explanations of the instructions for completing the booklets containing measures of the variables, the participants were required to fill out the booklet anonymously containing the following scales: Centers for Epidemiological Studies–Depression scale (CES-D; Radloff, 1977), Functional Assessment of Human Immunodeficiency Virus Infection scale (FAHI

scale for well-being; Peterman, Cella, Mo, & McCain, 1997), The HIV Risk-taking Behaviour Scale (HRBS; Jeff. W., Shane. D., Wayne. H., 1990), and the Revised Sociosexual Orientation Inventory (SOI-R; Penke, L. and Asendorpf J.B., 2008). The background demographic sheets were then filled up by each subject with assured confidentiality. Each response session lasted for approximately 30 minutes.

## **PSYCHOLOGICAL TOOLS**

### **1. Measurement of depression**

#### *i) Centers for Epidemiological Studies–Depression scale (CES-D; Radloff, 1977)*

The CES-D is a 20-item scale widely used to assess depressed affect in diverse populations. The score is the sum of the responses on 20 questions using 4-point Likert type scales. Possible range is 0-60. If more than four questions had missing answers, the CES-D questionnaire are not scored. A score of 16 points or more is considered depressed. Reverse scoring should be done for questions No. 4, 8, 12, and 16, Rarely (Less than 1 day)= 3, Some (1-2 days) =2, Occasionally (3-4 days)= 1 and Most (5-7 days)= 0.

### **2. Measurement of well-being**

#### *i).Functional Assessment of Human Immunodeficiency Virus Infection scale (FAHI; Peterman, Cella, Mo, & McCain, 1997)*

The FAHI is used to assess well-being in People Living with HIV/AIDS (PLHA). Five subscales, comprising of 47 items measuring functional and global well-being, physical, social, cognitive and emotional well-being, were used to form a general well-being index. The score is the sum of 47 questions. Possible range is 0- 188. Negatively stated items are reversed by subtracting the response from “4”. After reversing proper items, all subscale

items are summed to a total, which is the subscale score. For all FACIT scales and symptom indices of which FAHI is a part, the higher the score the better the Quality of Life.

### 3. Measurement of HIV Transmission risk behaviour

Regarding HIV Transmission risk behaviour, two measures of HIV Transmission risk behaviour were selected for use in this study for the purpose of measurement of the constructs as well as for the purpose of cross-validation of the scale in the absence of local psychometrically sound measure of the constructs in the target population.

i). *The Revised Sociosexual Orientation Inventory ( SOI-R; Penke, L. and Asendorpf J.B., 2008)*

The SOI-R (Sociosexual Orientation Inventory-Revised) is a short self-report measure of global sociosexual orientations. It assesses sociosexuality along a single broad dimension, with high scores indicating an *unrestricted* sociosexual orientation (i.e., an overall more promiscuous behavioral tendency) and low scores indicating a *restricted* sociosexual orientation. It consists of nine items, three for each of the three facets - behaviour, desire and attitude. All items are answered on 5-point rating scales . Item 6 should be reverse-scored. Items 1 to 3 are aggregated (summed or averaged) to form the Behavior facet, items 4 to 6 form the Attitude facet, and items 7 to 9 form the Desire facet. Finally, all nine items can be aggregated to form a full scale score that represents the global sociosexual orientation. The Revised Sociosexual Orientation Inventory ( SOI-R with 5 point rating scales; Penke, L. and Asendorpf J.B., 2008 ) was developed as a measure of short self-report measure of global sociosexual orientations.

ii) *The HIV Risk-taking Behaviour Scale (HRBS; Ward, J., Darke, S., & Hall, W., 1990)*

The HRBS is a brief, 11 item questionnaire that measures HIV risk-taking behaviours in two sections, one for drug use and one for sexual activity, and takes into account both the risk to IDUs themselves and the risk they pose to others. The items cover both injecting and sexual behavior. All items are scored on 0-5 point scale, with a higher score indicating a higher degree of risk taking. These scores are added up to provide measure of drug use risk taking behaviour, and a global HIV risk behaviour score. Scores on the whole test range then from 0-55, with a higher scores indicating a greater degree of risk taking behaviour.

The outcome of the overall analyses are presented in the chapter to follow.

## Chapter-IV

### **RESULTS AND DICUSSIONS**

## **Psychometric properties of the behavioural measures**

In order to examine the role of depression and well-being in HIV transmission risk behaviour among adult male and female people living with HIV/AIDS (PLHA) and to highlight the levels of depression and well-being of Mizo Adult PLHA along the lines of gender (male and female), subject-wise scores on the specific items of the measure of depression level (Centers for Epidemiological Studies–Depression scale; CESD), and the measure of well-being (Functional Assessment of Human Immunodeficiency Virus Infection scale; FAHI) and the two measures of HIV transmission risk behaviour (HIV Risk-taking Behaviour Scale and Sociosexual Orientation Inventory-Revised), were separately prepared and analyzed to check their psychometric adequacy for measurement purposes among Mizo Adult PLHA men and women respectively. The psychometric adequacy of the behavioural measures was analyzed by employing SPSS in a step-wise manner for men and women in an effort to evolve consistency in the results.

The psychometric checks of the behavioural measures included (i) item-total coefficients of correlation (and the relationships between the specific items of the sub-scales as an index of internal consistency), (ii) reliability coefficients (Cronbach's alpha of sub-scales and full scales), (iii) relationships between the scales to relate the constructs in the target population and for cross validation of the measures. Further, the Mean and *SD* values were included for comparison of the test scores between the groups, and the skewness and kurtosis with standard errors of both the full scales and sub-scales to check the data distributions for further statistical analyses.

### **1 .Psychometric adequacy of Centers for Epidemiological Studies–Depression scale (CES-D; Radloff, 1977)**

The results of reliability coefficients (Cronhbach alpha), values of Mean, *SD*, Skewness and Kurtosis on CES-D scale over the two levels of analyses are given together in Table 1.3.



for men and women. Results revealed robust item-total coefficients of correlations ranging from .33 to .74 and an adequate order of reliability coefficients ranging from Cronbach's alpha of .89 to .91, over the levels of analyses: males and females respectively. The data was neither skewed nor kurtotic. The scale has also been found reliable (Alpha > .85) in the research conducted by Hann, Winter, & Jacobsen., (1999)

1.1: Cronbach's Alpha, Mean, SD values, Skewness and Kurtosis for Center for Epidemiologic Studies depression (CES-D) for male and female Mizo PLHA.

	MALE (N=100)	FEMALE (N=100)
Cronbach's Alpha	.895	.910
Mean	19.07	18.37
SD	10.81	10.79
Skewness/S.E	.870/.241	.796/.241
Kurtosis/S.E	.872/.478	.918/.478

The predictive validity of the CES-D was separately highlighted by applying independent sample *t* test on 'Sex' (men and women) given in Table – 1.2 which indicated that the parametric assumption of homogeneity of variance was also not violated. Non-significant 'sex' effect on depression was observed, with men (Mean= 19.07) scoring more or less the same on depression level as women (Mean= 18.37) in the target population. Although gender differences are usually found in depression with higher scores in women than in men , (Morrison et al., 2002; Evans et al. 2002), this result finds support from studies by Ingram, Jones, Fass, Neidig, and Song (1999) who also did not find gender difference in depression in HIV-Infected patients in their study.

Table – 1.2: Independent Sample *t* test for ‘Sex’ (men and women) on depression among PLHA Mizo adults

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Depression	Equal variances assumed	.097	.756	.458	198	.647	.700	1.528	-2.313	3.713
	Equal variances not assumed			.458	198.00	.647	.700	1.528	-2.313	3.713

**2. Psychometric Adequacy of Functional Assessment of Human Immunodeficiency Virus Infection scale (FAHI Scale ; Peterman, Cella, Mo, & McCain, 1997)**

The results of reliability coefficients (Cronbach's alpha), values of Mean, *SD*, Skewness and Kurtosis on FAHI over the levels of analyses (male and female) are given together in Table 1.3. Results revealed substantial item-total coefficients of correlation (and relationships between the items of the specific scales) for the sub-scales of FAHI - Physical well-being (PW), Emotional well-being (EW), Functional & Global well-being (FGW), Social well-being (SW) and Cognitive well-being (CW), and an order of reliability coefficients ranging from Cronbach’s alpha of .88 to .91 for PW, .85 to .86 for EW, .88 to .85 for FGW, .71 to .70 for SW and .60 to .69 for CW , and .93 to a .93 for the full scale of FAHI over the levels of analyses: for males and females respectively. These results finds support from findings by Viala-Danten, Dubois, Gilet, Martin, Peeters, & Cella (2010) where internal reliability of the FAHI was found good in non-substance-abusing samples, with Cronbach’s alphas ranging from 0.72 to 0.94. The FAHI scores have been responsive to changes in disease severity, with worsened patients showing reductions in total scores and improved patients showing increases in total scores.

1.3: Interscale relationships, Cronbach's Alphas, Mean, *SD* values, Skewness and Kurtosis for subscales and full scale of Functional Assessment of Human Immunodeficiency Virus Infection scale ( FAHI) for Mizo adult male and female PLHA .

SCALES	MALE (N=100)						FEMALE (N=100)					
	PW	EW	FGW	SW	CW	TT	PW	EW	FGW	SW	CW	TT
PW	1						1					
EW	.542 <sup>(**)</sup>	1					.615 <sup>(**)</sup>	1				
FGW	.576 <sup>(**)</sup>	.659 <sup>(**)</sup>	1				.561 <sup>(**)</sup>	.659 <sup>(**)</sup>	1			
SW	.225 <sup>(*)</sup>	.336 <sup>(**)</sup>	.389 <sup>(**)</sup>	1			.207 <sup>(*)</sup>	.336 <sup>(**)</sup>	.401 <sup>(**)</sup>	1		
CW	.631 <sup>(**)</sup>	.587 <sup>(**)</sup>	.620 <sup>(**)</sup>	.256 <sup>(*)</sup>	1		.607 <sup>(**)</sup>	.490 <sup>(**)</sup>	.432 <sup>(**)</sup>	.136	1	
TT	.802 <sup>(**)</sup>	.834 <sup>(**)</sup>	.876 <sup>(**)</sup>	.531 <sup>(**)</sup>	.750 <sup>(**)</sup>	1	.802 <sup>(**)</sup>	.802 <sup>(**)</sup>	.822 <sup>(**)</sup>	.486 <sup>(**)</sup>	.645 <sup>(**)</sup>	1
Cronbach's Alpha	.88	.85	.88	.71	.70	.93	.91	.86	.85	.70	.60	.93
Mean	37.43	17.48	34.24	24.6	8.16	121.94	35.21	14.83	32.37	21.38	7.15	110.00
SD	10.067	9.013	10.761	5.858	2.946	30.331	12.313	9.420	10.633	6.464	2.938	32.074
Skewness/ S.E	-.650/.241	.141/.241	-.489/.241	-1.222/.241	-.479/.241	-.188/.241	-.731/.241	.594/.241	-.498/.241	-.621/.241	-.028/.241	-.206/.241
Kurtosis/ S.E	-.188/.478	-1.115/.478	-.513/.478	1.417/.478	-.379/.478	-.654/.478	-.451/.478	-.443/.478	-.232/.478	.362/.478	-.876/.478	-.700/.478

The predictive validity of the FAHI was separately highlighted by applying independent sample *t* test on 'Sex' (men and women), the results of which are given in Table – 1.4 which indicated a -significant 'sex' effect on Emotional well-being, Social well-being, Cognitive well-being and total general well-being (FAHI). Results revealed that men scored significantly higher than women in Emotional well-being (Mean=17.48 versus Mean=14.83 ) Social well-being (Mean=24.6 versus versus Mean=21.38 ), Cognitive well-being(Mean=8.16 versus Mean=7.15) and in total general wellbeing (Mean=121.94 versus Mean=110) in the target population. Most studies that combine HIV and health related quality of life (HRQOL) are composed primarily of male, white subjects. Studies that do make mention of the female cohort, seem to agree that HIV females tend to have decreased health related quality of life regardless of the instrument used (Cederfjall et al, 2001). It may be noted that higher scores in FAHI indicates better quality of life.

Table –1.4: Independent Sample *t* test on ‘Sex’ (men and women) on FAHI of Mizo adults PLHA.

		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
PWTOTAL	Equal variances assumed	6.278	.013	1.396	198	.164	2.22000	1.59054	-.91657	5.35657	
	Equal variances not assumed			1.396	190.481	.164	2.22000	1.59054	-.91733	5.35733	
EWTOTAL	Equal variances assumed	.001	.971	2.033	198	.043	2.65000	1.30380	.07887	5.22113	
	Equal variances not assumed			2.033	197.615	.043	2.65000	1.30380	.07884	5.22116	
FGWTT	Equal variances assumed	.063	.802	1.236	198	.218	1.87000	1.51283	-1.11332	4.85332	
	Equal variances not assumed			1.236	197.972	.218	1.87000	1.51283	-1.11332	4.85332	
SWTOTAL	Equal variances assumed	1.926	.167	3.771	198	.000	3.29000	.87246	1.56950	5.01050	
	Equal variances not assumed			3.771	196.112	.000	3.29000	.87246	1.56940	5.01060	
CWTT	Equal variances assumed	.028	.866	2.427	198	.016	1.01000	.41611	.18942	1.83058	
	Equal variances not assumed			2.427	197.999	.016	1.01000	.41611	.18942	1.83058	
FAHITOTAL	Equal variances assumed	.928	.337	2.705	198	.007	11.94000	4.41448	3.23457	20.64543	
	Equal variances not assumed			2.705	197.385	.007	11.94000	4.41448	3.23440	20.64560	

### 3. Psychometric adequacy of HIV Risk- taking Behaviour Scale (HRBS; Ward, J., Darke, S., & Hall, W., 1990)

The results of reliability coefficients (Cronbach's alpha), values of Mean, *SD*, Skewness and Kurtosis on HRBS (global HIV risk behavior score) over the levels of analyses (male and female) are given together in Table 1.5. Results revealed substantial item-total coefficients of correlation for the global HIV risk behavior, and an order of reliability coefficients ranging from a more or less acceptable Cronbach's alpha of .63 to .65 for the HRBS (global HIV risk behavior score) over the levels of analyses (male and female),

yielding generally lower alphas than the original studies by Ward, J., Darke, S., & Hall, W., (1990).

1.5.: Interscale relationships, Cronbach’s Alpha, Mean, *SD* values, Skewness and Kurtosis for HIV Risk-taking Behaviour Scale (HRBS) for Mizo adult male and female PLHA.

HRBS	Male (N=100)	Female (N=100)
Cronbach’s Alpha	.634	.65
Mean	3.24	1.32
S.D	4.87	3.53
Skewness/S.E (lg10 transformed)	.65/ .241	2.17/ .241
Kurtosis/ S.E (lg10 transformed)	-1.27/ .478	3.27/ .478

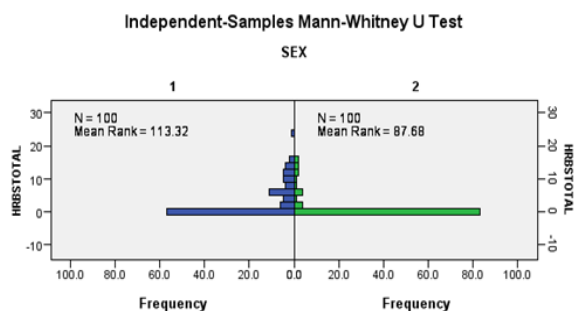
It may be noted that the data for both males and females on the HRBS (global HIV risk behaviour) were highly skewed and kurtotic indicating non-normal distribution of scores. Further, the assumption of homogeneity of variance was violated. Transformation of scores was done which solved the problem only for the men’s data. Therefore, non-parametric statistic of Mann-Whitney *U* test was resorted to for proper interpretation of the scores regarding predictive validation of the HRBS on ‘Sex’ (men and women) given in Table – 1.6. Results indicated significant ‘sex’ effect on HRBS, with men (Mean= 3.24; Mean Rank=113.32 ) scoring higher on HIV risk taking behaviour than women (Mean= 1.32; Mean Rank=87.68) in the target population. This result also finds support from recent research by Haruna & Ago (2014) where males were more likely to engage in riskier behaviours or activities and perceive themselves as less susceptible to HIV/AIDS.

Table–1.6: Independent Samples Mann-Whitney *U* test on ‘Sex’ (men and women) on HRBS (global HIV risk behavior) of Mizo adults PLHA.

### Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of HRBSTOTAL is the same across categories of SEX.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.



Total N	200
Mann-Whitney U	3,718.500
Wilcoxon W	8,768.500
Test Statistic	3,718.500
Standard Error	331.690
Standardized Test Statistic	-3.864
Asymptotic Sig. (2-sided test)	.000

#### 4 .Psychometric adequacy of The Revised Sociosexual Orientation Inventory ( SOI-R; Penke, L. and Asendorpf J.B., 2008)

The reliability coefficients (Cronbach alpha), relationship between the scales, values of Mean, *SD*, Skewness and Kurtosis on SOI-R sub- scales ( Behv=Behaviour facet, Atti= Attitude facet Desire=Desire facet and) and full scale over the levels of analyses (male and female) are given together in Table 1.7. Results revealed substantial item-total coefficients of correlation ranging from .25 to .84 for the sub-scales (Behv, Atti, Desire) and full scale, an order of reliability coefficients ranging from Cronbach's alpha of .62 to .80 for Behv,

extremely low .25 to .14 for Atti, .80 to .70 for Desire, and .72 to a .52 for the full scale SOI-R over the levels of analyses: for males and females respectively.

Penke and Asendorpf (2008) found that the three sub scales of the SOI-R were highly correlated to each other, and achieved good internal consistencies (.83, .81, .82, and .85 for the total score and the facets Behavior, Attitude, and Desire, respectively). However, in this study, the reliability of the attitude subscale was consistently extremely low rendering it inapplicable in the target population of this study. Data was also found to be skewed and kurtotic but which were solved by logarithmic transformation of scores.

1.7: Interscale relationships, Cronbach’s Alphas, Mean, SD values, Skewness and Kurtosis for subscales and full scale of The Revised Sociosexual Orientation Inventory ( SOI-R ) for adult male and female Mizo PLHA.

	MALE (N=100)				FEMALE (N=100)			
Scales	Behv	Atti	Desire	SOI-R TT	Behv	Atti	Desire	SOI-R TT
B	<b>1</b>				<b>1</b>			
A	<b>.344(**)</b>	<b>1</b>			<b>.122</b>	<b>1</b>		
D	<b>.491(**)</b>	<b>.386(**)</b>	<b>1</b>		<b>.539(**)</b>	<b>.020</b>	<b>1</b>	
TT	<b>.791(**)</b>	<b>.758(**)</b>	<b>.782(**)</b>	<b>1</b>	<b>.805(**)</b>	<b>.647(**)</b>	<b>.590(**)</b>	<b>1</b>
Cronbach’s Alpha	.62	.25	.80	.72	.80	.14	.70	.52
Mean	7.41	6.95	6.02	20.38	4.41	5.87	3.46	13.74
SD	2.74	2.82	2.40	6.19	2.27	2.29	.98	3.77
Skewness/S.E	-.562/.241	.588/.241	.094/.241	-.274/.241	1.27/.241	.432/.241	2.114/.241	.721/.241
Kurtosis/S.E	-.419/.478	.679/.478	-.174/.478	.612/.478	.845/.478	1.258/.478	4.372/.478	1.505/.478

The predictive validity of the SOI-R was separately highlighted by applying independent sample *t* test on ‘Sex’ (men and women), the results of which are given in Table – 1.8. excluding the Attitude sub-scale due to its poor reliability. Results indicated a significant ‘sex’ effect on both Behaviour facet and full scale SOI-R, with men (Means=



7.41 and 20.38) scoring significantly higher than women (4.41, and 13.74) on the behaviour facet and full scale respectively in the target population, conforming to studies conducted by Ellis & Symons (1990) where on average, men have unrestricted fantasies more often, are more willing to have sex with strangers, and wish for a larger diversity of future sex partners (Buss & Schmitt, 1993). It may be noted that high scores indicated an *unrestricted* sociosexual orientation (i.e., an overall more promiscuous behavioral tendency) and low scores indicated a *restricted* sociosexual orientation.

Table –1.8: Independent Sample *t* test on ‘Sex’ (men and women) on SOI-R of PLHA Mizo adults.

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
BEHAVLOG	Equal variances assumed	.016	.901	9.360	198	.000	.23214	.02480	.18324	.28105
	Equal variances not assumed			9.360	197.853	.000	.23214	.02480	.18324	.28105
log of SOIRTT	Equal variances assumed	5.278	.023	9.748	198	.000	.16532	.01696	.13187	.19876
	Equal variances not assumed			9.748	188.929	.000	.16532	.01696	.13186	.19877

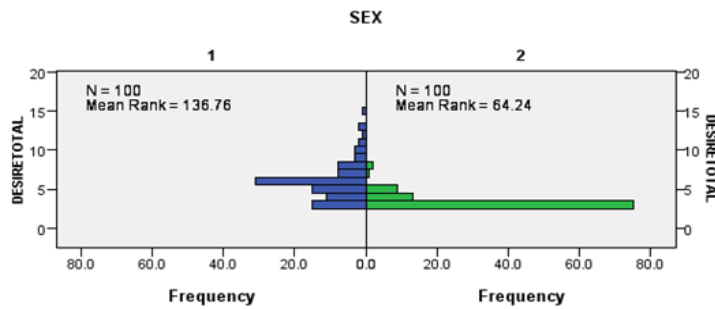
As neither the transformation of scores nor Winsorizing for the Desire sub-scale of SOI-R did not solve the problem of violations of assumptions of parametric statistics, non-parametric Mann-Whitney *U* test was used to determine gender differences. The results given in Table. 1.9: indicated significant ‘sex’ effect on Desire subscale of SOI-R, with men (Mean= 6.02; Mean Rank=136.76 ) scoring higher on Desire for more promiscuous behaviour than women (Mean= 3.46; Mean Rank=64.24) in the target population conforming to studies by Penke and Asendorpf (2008) who also found significant ‘sex’ effect on Desire subscale of SOI-R, with men (Mean=5.62) scoring higher than women (Mean=3.96)

### Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of DESIRETOTAL is the same across categories of SEX.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

### Independent-Samples Mann-Whitney U Test



Total N	200
Mann-Whitney U	1,374.500
Wilcoxon W	6,424.500
Test Statistic	1,374.500
Standard Error	388.587
Standardized Test Statistic	-9.330
Asymptotic Sig. (2-sided test)	.000

The overall results of the psychometric checks of the measures of depression, well-being and HIV transmission risk behaviour indicated the trustworthiness of the scales of CES-D, FAHI and HRBS for use in the target population, ie., Mizo adult male and female PLHA. However, the attitude subscale of SOI-R was found to be lacking in reliability in the present study. The examination of gender differences proved the first hypotheses that males will show higher HIV transmission risk behaviour. They also showed higher *unrestricted* sociosexual orientation (i.e., an overall more promiscuous behavioral tendency). However the hypotheses that men will have poorer well-being and lower depression were refuted by the

results as men were found to have higher emotional, social, cognitive and total general well-being than women and more or less the same levels of depression.

## **RELATONSHIPS BETWEEN DEPRESSION, WELL-BEING AND HIV TRANSMISSION RISK BEHAVIOUR**

A major objective of this study was to examine the relationships between depression and HIV transmission risk behaviour as well as well-being and HIV transmission risk behaviour in the sample. In order to examine these relationships, Pearson's  $r$  (Coefficients of Correlation) were computed between the measures of depression (CES-D), well-being (FAHI) and HIV transmission risk behaviour (HRBS and SOI-R) separately for men and women as significant gender differences were observed. The results are given in table 2.1 and table 2.2 for men and women separately.

Results of the relationships between depression, well-being and HIV Transmission risk behaviour among **Mizo male adult PLHA** given in tables 2.1 and 2.2 revealed that depression was significantly negatively correlated with physical well-being, emotional well-being, functional & global well-being, social well-being, cognitive well-being and full scale well-being, and significantly positively correlated with HIV risk-taking behaviour. The well-being scale (Physical, emotional, functional, social and cognitive) was found to be significantly negatively correlated with HIV risk taking behaviour scale. However, the SOI-R measuring global sociosexual orientation towards promiscuous behaviour was hardly related to any of the other constructs except for the attitude subscale which was significantly positively correlated with HIV risk taking behaviour scale, but which was extremely low in its reliability index. Thus, the results pertaining to the sociosexual orientation in relation to HIV risk-taking behaviour, depression and well-being may be regarded as inconclusive and it be dropped from further analyses in this study, but be looked

into in future research endeavours. Sociosexual orientation (orientation to sexual promiscuous behaviour) as reflective of HIV transmission risk behaviour could not be ascertained by this study contrary to the initial expectations.

Likewise, the relationships between the measures of depression, well-being and HIV transmission risk taking behaviour were also computed for **Mizo female adult PLHA** . The results given in table 2.2 revealed similar results as found in the male participants but with weaker relationships among the variables.

Table-2.1: Relationship between depression, well-being and HIV transmission risk behaviour among male PLHA Mizo adults.

**MALE Correlations**

SCALES	CESDTT	PWTT	EWTT	FGWTT	SWTT	CWTT	FAHITT	HRBSTT	BEHVT	ATTITT	DESIRTT	SOIRTT
CESDTT	1											
PWTOTAL	-.607**	1										
EWTTOTAL	-.621**	.542**	1									
FGWTT	-.692**	.576**	.659**	1								
SWTTOTAL	-.388**	.225*	.336**	.389**	1							
CWTT	-.673**	.631**	.587**	.620**	.256*	1						
FAHITOTAL	-.772**	.802**	.834**	.876**	.531**	.750**	1					
HRBSTOTAL	.424**	-.358**	-.203*	-.278**	-.183	-.283**	-.340**	1				
BEHVTOTAL	.028	.016	.075	-.022	-.086	-.041	-.003	.010	1			
ATTITOTAL	-.010	.052	.089	.030	-.120	.022	.035	.262**	.344**	1		
DESIRETT	.143	-.089	-.094	-.060	.007	-.066	-.084	.073	.491**	.386**	1	
SOIRTOTAL	.063	-.004	.037	-.019	-.090	-.034	-.018	.152	.791**	.758**	.782**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Table-2.2: Relationship between depression, well-being and HIV transmission risk behaviour among female PLHA Mizo adults.

**FEMALE Correlations**

SCALES	CESDTT	PWTT	EWTT	FGWTT	SWTT	CWTT	FAHITT	HRBSTT	BEHVTT	ATTITT	DESRETT	SOIRTT
CESDTT	1											
PWTOTAL	-.641**	1										
EWTOTAL	-.660**	.615**	1									
FGWTT	-.680**	.561**	.511**	1								
SWTOTAL	-.252*	.207*	.267**	.401**	1							
CWTT	-.571**	.607**	.490**	.432**	.136	1						
FAHITOTAL	-.784**	.857**	.802**	.822**	.486**	.645**	1					
HRBSTOTAL	.263**	-.288**	-.268**	-.169	-.199*	-.221*	-.307**	1				
BEHVTOTAL	.085	-.186	.035	-.041	.078	-.061	-.065	.131	1			
ATTITOTAL	.034	.035	.057	-.037	-.051	-.114	.003	.139	.077	1		
DESIRETOTAL	.029	-.161	-.021	.035	.043	-.003	-.045	-.007	.507**	-.032	1	
SOIRTOTAL	.079	-.132	.050	-.038	.027	-.107	-.049	.161	.780**	.643**	.545**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

In summary, the results of the relationships among depression, well-being and HIV risk-taking behaviour proved the second and third hypotheses set forth for this study: a) that depression will show positive correlations with HIV transmission risk behaviour among the PLHA, and b) that well-being will show negative correlation with HIV transmission risk behaviour among both male and female adults PLHA. Therefore, the higher the level of depression, the higher the HIV transmission risk behaviour; and the better the well-being the, lesser the HIV risk-taking behaviour among the Mizo adult male and female PLHA.

## **PREDICTING ROLE OF DEPRESSION AND WELL-BEING IN HIV TRANSMISSION RISK BEHAVIOUR AMONG MIZO PLHA.**

The predictability of HIV transmission risk behaviour from depression and well-being was attempted to be highlighted for men and women Mizo adult PLHA by applying simple linear regression analyses separately. As already mentioned, data screening revealed that the assumption of homogeneity of variance underlying parametric statistics was violated especially for the HIV transmission risk behaviour. Therefore, robust regression (Bootstrapping 1000 samples) was applied for a more reliable interpretation of the scores. It may be noted here that the Revised Sociosexual Orientation Inventory (SOI-R) was not taken up for further analyses due to its questionable reliability in the target population as well as its non-significant linear relationships with the rest of the measures of the criterion and predictor variables.

Results of the simple linear regression analysis predicting HIV transmission risk behaviour from depression among **Mizo adult male PLHA** (Tables 3.1.a to 3.1.d) indicated that **depression** was a highly significant predictor of **HIV transmission risk behaviour**, with 18% of the variance in HIV transmission risk behaviour being significantly explained by depression [ $b = .191(.078, .306)$ ,  $p = .005$  bootstrap 1000]. The positive beta (.424) indicated that there was an increase in HIV transmission risk behaviour with increase in depression among the male PLHA sample. This result finds support from research by Hutton, Lyketsos, Zenilman, Thompson, & Erbelding where depressed patients of STD clinic were found to be more likely to have sex for money or drugs, to have had sex with an intravenous drug user, to have sex when "high" on alcohol or drugs, to have a greater number of lifetime sex partners, and to abuse alcohol or drugs than were nondepressed patients.

Tables 3.1.a to 3.1.d: Regression analysis predicting HIV transmission risk behaviour from depression among Mizo adult male PLHA.

**3.1.a:**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.424 <sup>a</sup>	.180	.172	4.43416	2.050

- a. Predictors: (Constant), CESDTT
- b. Dependent Variable: HRBSTOTAL

**3.1.b:**

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	423.385	1	423.385	21.533	.000 <sup>b</sup>
	Residual	1926.855	98	19.662		
	Total	2350.240	99			

- a. Dependent Variable: HRBSTOTAL
- b. Predictors: (Constant), CESDTT

**3.1.c:**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.408	.903		-.452	.652
	CESDTT	.191	.041	.424	4.640	.000

- a. Dependent Variable: HRBSTOTAL

**3.1.d:**

**Bootstrap for Coefficients**

Model		B	Bootstrap <sup>a</sup>				
			Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval	
						Lower	Upper
1	(Constant)	-.408	.017	1.058	.702	-2.618	1.733
	CESDTT	.191	-.001	.062	.005	.078	.306

- a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Similarly, the predictability of HIV transmission risk behaviour from well-being was separately analyzed for **physical well-being, emotional well-being, functional & global well-being, social well-being and cognitive well-being for Mizo adult male PLHA.** Results (tables 3.2.a to 3.2.d) revealed that the well-being sub-factors together was a significant predictor of HIV transmission risk behaviour, with 14.7% of the variance in HIV transmission risk behaviour being explained by the well-being factors together. However, none of the single sub-factors of well-being on their own could significantly predict the HIV transmission risk behaviour. This result finds support from a recent studies by Chandra, Satyanarayana, Satishchandra, Satish, and Kumar (2010) indicating that men have significantly better quality of life (QOL) than women in all areas.

Tables 3.2.a: to 3.2.d: Regression analysis predicting HIV transmission risk behaviour from well-being sub-factors in Mizo adult male PLHA

**3.2.a:**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.384 <sup>a</sup>	.147	.102	4.61704	1.820

a. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, PWTOTAL, FGWTT

b. Dependent Variable: HRBSTOTAL

c. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, EWTOTAL, FGWTT

d. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, PWTOTAL, EWTOTAL

e. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, FGWTT, PWTOTAL

f. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, FGWTT, EWTOTAL

g. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, EWTOTAL, PWTOTAL

**3.2.b:**

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	346.434	5	69.287	3.250	.009 <sup>b</sup>
	Residual	2003.806	94	21.317		
	Total	2350.240	99			



a. Dependent Variable: HRBSTOTAL

b. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, PWTOTAL, FGWTT

c. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, EWTOTAL, FGWTT

d. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, PWTOTAL, EWTOTAL

e. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, FGWTT, PWTOTAL

f. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, FGWTT, EWTOTAL

g. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, EWTOTAL, PWTOTAL

**3.2.c:**

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	11.892	2.475		4.806	.000		
PWTOTAL	-.138	.063	-.286	-2.190	.031	.533	1.877
EWTOTAL	.045	.073	.084	.617	.539	.494	2.025
FGWTT	-.039	.065	-.087	-.602	.549	.438	2.282
SWTOTAL	-.078	.087	-.094	-.902	.369	.837	1.195
CWTT	-.122	.227	-.074	-.538	.592	.480	2.085

a. Dependent Variable: HRBSTOTAL

**3.2.d:**

**Bootstrap for Coefficients**

Model	B	Bootstrap <sup>a</sup>				
		Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval	
					Lower	Upper
1 (Constant)	11.892	-.031	2.814	.001	6.728	17.617
PWTOTAL	-.138	-6.486E-005	.080	.095	-.318	.014
EWTOTAL	.045	.001	.069	.516	-.091	.183
FGWTT	-.039	.004	.071	.580	-.165	.108
SWTOTAL	-.078	-.002	.094	.416	-.271	.110
CWTT	-.122	-.011	.238	.603	-.571	.314

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

As none of the single sub-factors of well-being (sub-scales of FAHI - physical well-being, emotional well-being, functional & global well-being, social well-being and cognitive well-being) on their own could significantly predict the HIV transmission risk behaviour of Mizo adult male PLHA, **global well-being** (total score of FAHI, reflective of quality of life) was examined as a predictor (results given in Tables 3.2.e to 3.2.h) which was found to explain 11.6% of the variance in HIV transmission risk behaviour [ $b = -.055(-.092, -.018)$ ,  $p$

= .007 bootstrap 1000] with the negative beta (-.340) indicating that the higher the global well-being or quality of life, the lesser the HIV transmission risk behaviour in **Mizo adult male PLHA**. This result finds support from a recent studies by Chandra, Satyanarayana, Satishchandra, Satish, and Kumar (2010) indicating that men have significantly better quality of life (QOL) than women in all areas.

Tables 3.2.e to 3.2.h: Regression analysis predicting HIV transmission risk behaviour from global well-being (FAHI total) in Mizo adult male PLHA

**3.2.e:**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.340 <sup>a</sup>	.116	.106	4.60563	1.798

a. Predictors: (Constant), FAHITOTAL

b. Dependent Variable: HRBSTOTAL

**3.2.f:**

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	271.481	1	271.481	12.799	.001 <sup>b</sup>
	Residual	2078.759	98	21.212		
	Total	2350.240	99			

a. Dependent Variable: HRBSTOTAL

b. Predictors: (Constant), FAHITOTAL

**3.2.g:**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.897	1.917		5.163	.000
	FAHITOTAL	-.055	.015	-.340	-3.578	.001

a. Dependent Variable: HRBSTOTAL

### 3.2.h:

**Bootstrap for Coefficients**

Model	B	Bootstrap <sup>a</sup>					
		Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval		
					Lower	Upper	
1	(Constant)	9.897	-.036	2.376	.003	5.505	14.407
	FAHITOTAL	-.055	6.949E-005	.018	.007	-.092	-.018

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Similar linear regression analyses were computed for the **female sample of Mizo adult PLHA** which revealed similar results as for men but with weaker predictions. A closer look at the regression analyses for women indicated that **depression** again was a significant predictor of HIV transmission risk behaviour, with 6.9% of the variance in HIV transmission risk behaviour being explained by depression [ $b = .086$  (.034, .157),  $p = .027$  bootstrap 1000]. The positive Beta (.263) indicated that the higher the depression the more the HIV transmission risk behaviour in Mizo female PLHA. This result also finds support from recent research by Klein, Elifson, & Sterk (2008) who found that depression was a key-mediating variable in HIV transmission risk behaviour, having its primary influence on women's risky practices through its impact upon their attitudes.

Tables 3.3.a: to 3.3.d: Regression analysis predicting HIV transmission risk behaviour from depression in Mizo adult female PLHA.

### 3.3.a:

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.263 <sup>a</sup>	.069	.060	3.42557	1.510

a. Predictors: (Constant), CESDTT

b. Dependent Variable: HRBSTOTAL

**3.3.b:**

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85.779	1	85.779	7.310	.008 <sup>b</sup>
	Residual	1149.981	98	11.735		
	Total	1235.760	99			

a. Dependent Variable: HRBSTOTAL

b. Predictors: (Constant), CESD TT

**3.3.c:**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.263	.678		-.388	.699
	CESD TT	.086	.032	.263	2.704	.008

a. Dependent Variable: HRBSTOTAL

**3.3.d:**

**Bootstrap for Coefficients**

Model		B	Bootstrap <sup>a</sup>				
			Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval	
						Lower	Upper
1	(Constant)	-.263	-.021	.467	.561	-1.303	.549
	CESD TT	.086	.001	.034	.027	.034	.157

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Similarly, the predictability of HIV transmission risk behaviour from well-being was separately analyzed for **physical well-being, emotional well-being, functional and global well-being, social well-being and cognitive well-being**. Results (tables 3.4.a to 3.4.h) revealed that the sub-factors of well-being together was a significant predictor of HIV transmission risk behaviour, with 11.8% of the variance in HIV transmission risk behaviour being explained by well-being together. However, none of the sub factors of well-being alone could significantly predict the behaviour as for the men's data. In opposite to our findings, results revealed from a study conducted by Van Servellan et al. (2002) women had more

HIV symptoms, poorer functioning, and greater disruptions in physical and psychosocial well-being as compared with men in PLHA.

Tables 3.4.a to 3.4.d: Regression analysis predicting HIV transmission risk behaviour from well-being among Mizo adult female PLHA

**3.4.a:**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.344 <sup>a</sup>	.118	.071	3.40507	1.411

- a. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, FGWTT, PWTOTAL
- b. Dependent Variable: HRBSTOTAL
- c. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, EWTOTAL, PWTOTAL
- d. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, PWTOTAL, EWTOTAL
- e. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, PWTOTAL, FGWTT
- f. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, EWTOTAL, FGWTT
- g. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, FGWTT, EWTOTAL
- h. Predictors: (Constant), CWTT, FGWTT, EWTOTAL, SWTOTAL, PWTOTAL
- i. Predictors: (Constant), CWTT, EWTOTAL, SWTOTAL, FGWTT, PWTOTAL
- j. Predictors: (Constant), CWTT, FGWTT, SWTOTAL, EWTOTAL, PWTOTAL

**3.4.b:**

**ANOVA<sup>a</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	145.880	5	29.176	2.516	.035 <sup>b</sup>
1 Residual	1089.880	94	11.594		
Total	1235.760	99			

- a. Dependent Variable: HRBSTOTAL
- b. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, FGWTT, PWTOTAL
- c. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, EWTOTAL, PWTOTAL
- d. Predictors: (Constant), CWTT, SWTOTAL, FGWTT, PWTOTAL, EWTOTAL
- e. Predictors: (Constant), CWTT, SWTOTAL, EWTOTAL, PWTOTAL, FGWTT
- f. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, EWTOTAL, FGWTT
- g. Predictors: (Constant), CWTT, SWTOTAL, PWTOTAL, FGWTT, EWTOTAL
- h. Predictors: (Constant), CWTT, FGWTT, EWTOTAL, SWTOTAL, PWTOTAL
- i. Predictors: (Constant), CWTT, EWTOTAL, SWTOTAL, FGWTT, PWTOTAL
- j. Predictors: (Constant), CWTT, FGWTT, SWTOTAL, EWTOTAL, PWTOTAL

**3.4.c:**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	5.307	1.500		3.538	.001		
PWTOTAL	-.056	.041	-.194	-1.352	.180	.455	2.196
EWTOTAL	-.047	.049	-.126	-.972	.334	.561	1.784
FGWTT	.031	.043	.092	.716	.476	.568	1.761
SWTOTAL	-.084	.058	-.154	-1.448	.151	.827	1.209
CWTT	-.072	.150	-.060	-.482	.631	.602	1.661

a. Dependent Variable: HRBSTOTAL

**3.4.d:**

Model	B	Bootstrap <sup>a</sup>				
		Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval	
					Lower	Upper
1 (Constant)	5.307	-.005	1.798	.013	2.027	8.657
PWTOTAL	-.056	-9.024E-005	.038	.144	-.135	.015
EWTOTAL	-.047	-.001	.034	.167	-.122	.015
FGWTT	.031	.000	.048	.520	-.059	.124
SWTOTAL	-.084	.002	.058	.157	-.217	.038
CWTT	-.072	-.003	.159	.657	-.422	.203

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

As none of the sub factors of well-being alone could significantly predict the behaviour as was found for the male sample, **global well-being** (total scores of FAHI) was examined which was found to explain 9.4% of the variance in HIV transmission risk behaviour [ $b = -.034$  (-.059, -.010),  $p = .018$  bootstrap 1000]. The negative Beta (-.307) also indicated that the higher the global well-being, the lesser the HIV transmission risk behaviour in mizo adult female PLHA. These results have contributed to a limited accumulating research literature where it was also found (Sikkema et al., 2010) that improving mental health leads to reduced sexual risk behavior.

Tables 3.4.e to 3.4.h: Regression analysis predicting HIV transmission risk behaviour from global well-being (FAHI total) among Mizo adults female PLHA

**3.4.e:**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.307 <sup>a</sup>	.094	.085	3.37997	1.472

a. Predictors: (Constant), FAHITOTAL

b. Dependent Variable: HRBSTOTAL

**3.4.f:**

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116.189	1	116.189	10.170	.002 <sup>b</sup>
	Residual	1119.571	98	11.424		
	Total	1235.760	99			

a. Dependent Variable: HRBSTOTAL

b. Predictors: (Constant), FAHITOTAL

**3.4.g:**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.035	1.213		4.151	.000
	FAHITOTAL	-.034	.011	-.307	-3.189	.002

a. Dependent Variable: HRBSTOTAL

**3.4.h:**

**Bootstrap for Coefficients**

Model	B	Bootstrap <sup>a</sup>					
		Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval		
					Lower	Upper	
1	(Constant)	5.035	-.067	1.533	.010	2.157	8.038
	FAHITOTAL	-.034	.001	.012	.018	-.059	-.010

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

It may be summarized that depression and well-being both play significant predicting roles in HIV transmission risk behaviour of Mizo adult male and female PLHA. Substantial proportions of the variance in HIV transmission risk behaviour could be explained by depression and well-being. This proved the fourth hypothesis of the study. It may be noted that the prediction of HIV risk-taking behaviour from depression and well-being was stronger for men as compared to women in this study.

Regarding the fifth hypothesis where it was expected to highlight the level of depression, well-being and HIV transmission risk behaviour of adult male and female Mizo PLHA, their mean scores on the respective measures of depression, well-being and HIV transmission risk behaviour were compared to the standard norm given in the manual of the scales. In depression (CES-D), the mean score of 19.7 for male and 18.37 for female were higher than the standard cut-off score for elevated depression which is fixed at 16 (Radloff, 1977), indicating that adult male and female Mizo PLHA were generally found to be depressed (with no significant differences between them). In well-being (FAHI scale), the mean score of 121.94 for male and 110 for female were found to be within the third quartile range of scores indicating a generally good quality of life. It may be noted that other ongoing researches among PLHA in Mizoram (Department of Psychology, Mizoram University) have revealed generally good QOL. In HIV transmission risk behaviour, the mean score of 3.24 for male and 1.32 for female were found to be generally as high as in other studies among PLHA (Zhu, Birnbaum, Carroll-Scott, Evans, Fiellin and Wang, 2014).



Table. 4: Levels of Depression, Well-being and HIV transmission risk behaviour of Mizo adults PLHA.

Scales	Male	Female	Normative Data
Depression	19.7	18.37	16 ( <i>Radloff, 1977</i> )
Physical well-being	37.43	35.21	24.2 (n=361)
Emotional well-being	17.48	14.83	20.4
Functional & global well-being	34.24	32.37	32.2
Social well-being	24.6	21.38	21.4
Cognitive well-being	8.16	7.15	8.1
FAHI TOTAL	121.94	110	106.3 ( <i>Peterman, Cella, Mo, &amp; McCain, 1997</i> )
HRBS	3.24	1.32	2.35 ( <i>Ward, J., Darke, S., &amp; Hall, W., 1990</i> )

Chapter –V

**SUMMARY AND CONCLUSION**

Given the theoretical underpinnings and empirical background of depression, well-being, and HIV transmission risk behaviour, the main concern of the present study was to highlight the predicting role of depression and well-being in HIV transmission risk behaviour of people living with HIV/AIDS. Embedded within this were the hypotheses of gender differences, positive correlations of HIV transmission risk behaviour with depression, and negative correlation with well-being among Mizo male and female adult PLHA. It was also attempted to highlight the level of HIV risk-taking behaviour, depression and well-being of the sample of Mizo male and female adult PLHA.

To achieve the objectives, 100 Mizo male adult PLHA, with their age ranging from 16 to 54 years (mean age=33.59) and 100 Mizo female adult PLHA, with their age ranging from 18 to 54 years (mean age= 33.82) were randomly sampled from ART (Antiretroviral Therapy) Centre, Civil Hospital, Aizawl, Mizoram. Background demographic variables indicated that all the participants were from Aizawl District. Half of them, 49.5% of the participants had less than a high school education, 40% had completed high school, 10% had some college or post-high school education .5% was Ph.d. Approximately, half of the participants (50%) were engaged with government job and private business and 30% were unemployed, while 3% were students. Most of them (75%) were brought up in an intact family, while 12% were brought up by their relatives and 8% were came from broken families. On socio-economic status, 13.5% belonged to B.P.L families and majority (86%) were from the middle class standard families. The present sample revealed that 51% were married, and 21% were unmarried, while 28% were divorced or separated from their spouses. Majority of the participants (56.5%) got diagnosed with this disease more than 3 years, while 11% got diagnosed with this disease not more than 1 year, while 23% got diagnosed not more than 2 years and a few of them 9.5% were diagnosed not more than 6 months . Most of the participants (90%) were currently residing with their families and relatives while 10% of

them lived alone. Almost all the participants 98.5% had relatives and friends to support them but a few of them .05% did not have any other relatives who could support them. Three fourth of the participants (75%) got infected from sexual contact and 21% were through intravenous drug use and a few of them 2.5% were due to blood transfusion. Most of the participants (73.5%) were not yet on ART while only 26.55% were ART adherents. More than half of the participants (68.5%) were visiting ART centre once in a month, 18% were visiting sometimes, 3.5% were visiting once in a week, 2.25% were visiting twice in a month and only a few of them 2.5% never visit (they were newly diagnosed and were not yet on ART).

One measure of depression viz., Centers for Epidemiological Studies–Depression scale (CES-D; Radloff, 1977) and measure of subjective well-being viz., Functional Assessment of Human Immunodeficiency Virus Infection scale (FAHI; Peterman, Cella, Mo, & McCain, 1997) and two measures of HIV transmission risk behaviour, one directly measuring HIV transmission risk behavior, viz., HIV Risk- taking Behaviour Scale (HRBS; Ward, J., Darke, S., & Hall, W., 1990) and the other measuring orientation to sexual promiscuity which was expected to reflect HIV risk behaviour, viz., The Revised Sociosexual Orientation Inventory (SOI-R; Penke, L. and Asendorpf J.B., 2008) were selected to measure the variables of interest. Subject-wise scores on the specific items of the scales were separately prepared and analyzed to check their psychometric adequacy for measurement purposes across the samples: both Mizo male and female adult PLHA. The psychometric checks of the behavioural measures included (i) item-total coefficient of correlation (and the relationship between the specific items of the sub-scales as an index of internal consistency), (ii) reliability coefficients (Cronbach's alpha of sub-scales and full scales), (iii) relationships between the scales to relate the constructs in the target population and for cross validation of the measures. Further, the Mean and *SD* values were included for comparison of the test

scores between the groups, and the skewness and kurtosis with Standard Errors of both the full scales and sub scales to check the data distributions for further statistical analyses (Miles & Shevlin, 2004)

Results of the psychometric checks of the behavioural measures of depression (Centers for Epidemiological Studies–Depression scale; CES-D) generally stood fast the test of psychometric check of reliability for use in the population under study i.e , Mizo adult male and female PLHA. The CES-D scale yielded generally higher alphas than the original studies (Hann, Winter & Jacobsen, 1999). The measure of well-being (Functional Assessment of Human Immunodeficiency Virus Infection scale; FAHI scale) also found replicability in the target population, which yielded generally higher alphas than the original studies by Viala-Danten, Dubois, Gilet, Martin, Peeters & Cella (2010). On the full scale of FAHI, higher score would indicate overall well-being and better quality of life whereas lower scores would reflect a poorer quality of life. The behavioural measures of HIV transmission risk behaviour, viz., HIV Risk-taking behaviour Scale (HRBS) and Sociosexual Orientation Inventory - Revised (SOI-R) also generally stood fast the test of psychometric checks of reliability for use in the population under study but with lower alphas than the original studies. Infact, the Attitude subscale of the SOI-R was found to be extremely low in reliability (Cronbach's Alpha) and was found not replicable in the target population of Mizo adult male and female PLHA in this study.

In order to infer the validity of the behavioural measures and examine the hypotheses of gender differences at the same time, independent sample *t* test and Mann-Whitney *U* test were used (depending on the fulfilment or violations of statistical assumptions) for 'sex' effects on each of the measures of depression, well-being and HIV risk-taking behaviour. The results on 'sex' effects proved the first hypotheses that males will show higher HIV transmission risk behaviour than females. However, the hypotheses that men will have poorer

well-being and lower depression than women were refuted by the results as men were found to have higher emotional, social, cognitive and total general well-being than women and more or less the same levels of depression. This provides evidence for population specificity of gender-wise scores in men and women on well-being and depression as also found to differ in different studies. It may be noted that other ongoing researches among PLHA in Mizoram (Department of Psychology, Mizoram University) have also revealed generally good quality of life (QOL).

It was hypothesized that depression will show positive correlations with HIV transmission risk behaviour among the PLHA, and that well-being will show negative correlation with HIV transmission risk behaviour among both male and female adults PLHA. Indeed, these hypotheses were proven. The higher the level of depression the higher the HIV transmission risk behaviour and the better the well-being the lesser the HIV risk taking behaviour among the Mizo male and female adult PLHA. Substantial proportions of the variance in HIV transmission risk behaviour could be explained by depression and well-being. These observations provided corroborative evidences that depression and well-being play a role in HIV transmission risk behaviour among the PLHA which proved the fourth hypothesis of the study. It may be noted that the prediction of HIV risk-taking behaviour from depression and well-being was stronger for men as compared to women in this study.

Regarding the fifth hypothesis where it was expected to highlight the level of depression, well-being and HIV transmission risk behaviour of adult male and female Mizo PLHA, results indicated that adult male and female Mizo PLHA were generally found to be depressed (with no significant differences between them). However, their well-being scores reflecting quality of life were found to be generally average. Other ongoing researches among PLHA in Mizoram (Department of Psychology, Mizoram University) have revealed generally good QOL (Quality of Life). The mean score of HIV risk-taking behaviour in male and

female were found to be generally as high as in other studies (Ward et al., 1990; Zhu, Birnbaum, Carroll-Scott, Evans, Fiellin and Wang, 2014).

In conclusion, it may be said that these results attained the main concerns of the study which, however, was not without **limitations**. First, these data were obtained from ART Centre, Civil Hospital, in Aizawl city, Mizoram. Thus, results may not be totally generalizable to other HIV-positive individuals in rural areas. Second, the study relied on self-report measures of sensitive issues like number of sexual partners and drug use in their past life. Thus, it is likely that high-risky behaviors leading to HIV infection were underreported in the data despite the utmost care in rapport and assurance of confidentiality to ensure honesty in responses. Third, we used a one-month time frame to examine risk behavior and to minimize recall problems. We, therefore, did not capture risk behaviors over longer periods. Finally, we did not know the types of prevention services currently or previously received by the patients in the study. All patients were expected to have received counseling concerning risk reduction as they were all registered at the ART Centre, but we could not evaluate changes in the risk of transmission post counselling per se. Additional research studies that are aimed at other behavioral variables will help us to understand what features of care are most associated with reductions in HIV transmission behaviors.

Despite these limitations, this study represents an important step forward in describing the complexities of the relationship between well-being, depression and sexual risk behavior in the Mizo population. Future research should obtain more fine-grained data to examine stressors that are related to negative affect and may prompt engagement in sexual risk behavior. The present study could only address whether people who had high levels of depression also exhibit high levels of sexual risk behavior, and that poor well-being and poor quality of life may have led to HIV transmission risk behaviour. However, it could not tell us about within-person changes in depression and well-being and their associations with HIV

transmission risk behaviour. Understanding this phenomenon will allow for the development of tailored interventions that may alleviate negative affect and its sequelae in PLHA. Further, longitudinal research designs with repeated measures should be attempted as it has been known that depression and psychological well-being change over time (Perdue, Hagan, Thiede, & Valleroy, 2003)

In view of the literature and observations regarding depression, well-being and HIV transmission risk behaviour, and looking at the picture of HIV/AIDS scene in Mizoram and the deficits in information pertaining to behavioural changes post seropositivity, this study was attempted to highlight the predicting role of well-being and depression on HIV transmission risk behaviour among people living with HIV/AIDS in Aizawl District, where sexual contact was the main mode of transmission of HIV/AIDS followed by intravenous drug use.

Many research had been conducted in HIV/AIDS but studies that measure much about the predictor of their HIV transmission risk behaviour is still lacking. It was found in this study that depression and well-being both play significant predicting roles in HIV transmission risk behaviour of adult male and female Mizo PLHA. These Empirical evidence about the relationships between these factors is hoped to provide better understanding of the challenges facing PLHA among Mizo people and set scientific foundations for future development of intervention programmes, especially with a view to improve overall mental health among PLHA which may have the potential to reduce HIV risk-taking behaviors.



## **REFERENCES**

- Alvy, L. M., McKirnan, D. J., Mansergh, G., Koblin, B., Colfax, G. N., Flores, S. A., . . . Project MIX Study Group. (2011). "Depression is associated with sexual risk among men who have sex with men, but is mediated by cognitive escape and self efficacy". *AIDS and Behavior*, 15, 1171–1179. doi:10.1007/s10461-010-9678-z
- Anderson, J. (2012). "Women and HIV: motherhood and more". *Current Opinion in Infectious Diseases* 25 (1): 58–65.
- Aral., & Sevgi. (2013). *The New Public Health and STD/HIV Prevention: Personal, Public and Health Systems Approaches*. Springer. p. 120.
- Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Biggar, R. (1990). "AIDS incubation in 1891 HIV seroconverters from different exposure groups", *AIDS*, 4(11):1059-1066.
- Boily, MC., Baggaley, RF., Wang, L., Masse, B., White, RG., Hayes RJ, Alary, M. (2009). "Heterosexual risk of HIV-1 infection per sexual act: systematic review and meta-analysis of observational studies". *The Lancet Infectious Diseases* 9 (2): 118–129.
- Bradley, M., Remien, R., & Dolezal, C. (2008). –"Depression symptoms and sexual HIV risk behavior among serodiscordant couples". *Psychosomatic Medicine*, 70:186–191. In JG. Rabkin (Eds), *HIV and Depression: 2008 Review and Update* (pp 168). Current Medicine Group LLC
- Brandt, R. (2009). "The Mental Health of People Living with HIV/AIDS in Africa: A Systematic Review." *African Journal of AIDS Research*, 8, 123-133. In G.S. Sungani., A.Sefasi. ., & M. Pindani. (Eds.), *Mental Health Problems Affecting People Who Have HIV and AIDS in Malawi: A Review* (pp. 190). Scientific Research Publishing Inc.
- Brooks, A., Meade, C.S., Potter, J.S., Lokhnygina, Y., Calsyn, D.A., & Greenfield, S.F. (2010). "Gender Differences in the Rates and Correlates of HIV Risk Behaviors Among Drug Abusers". Informa Healthcare USA, Inc.
- Bunnell, R., Opio, A., Musinguzi, J., Kirungi, W., Ekwaru, P., Mishra, V., Hladik, W., Kafuko, J., Madraa, E., & Mermin, J. (2008). "HIV transmission risk behaviour among HIV- infected adults in Uganda: results of a nationally representative survey". *AIDS*, Vol 22 No.5. 617-624
- Buss D.M., & Schmitt D.P. (1993). "Sexual strategies theory: an evolutionary perspective on human mating". *Psychological Review*; 100(2):204–232.
- Cederfjäll C, Langius-Eklöf A, Lidman K, Wredling R. (2001). "Gender differences in perceived health-related quality of life among patients with HIV infection". *AIDS Patient Care and STDs* ; 15:31–39. In M. C, Mayo (Eds). *Gender differences in quality of life in persons infected with HIV*. (pp. 11). B.S.N., Illinois Wesleyan University.
- Centre for Disease Control. (1989). "Acquired immunodeficiency syndrome associated with intravenous drug use- United State, 1988. *Morbidity and Mortality Weekly Report*, 38, 165-170
- Center for Disease Control and Prevention. (2001). "Morbidity and Mortality weekly report". US Department of Health & Human Services.
- Centers for Disease Control and Prevention, (2011). "HIV surveillance-United States, 1981-2008". *Morbidity and Mortality Weekly Report*, 60(21):689-693.
- Chandra, PS., Satyanarayana, VA., Satishchandra, P., Satish, KS., and Kumar, K. (2010). "Do Men and Women with HIV Differ in their Quality of Life? A Study from South India". *AIDS Behaviour*.
- Collins, P. Y., Holman, A. R., Freeman, M. C., & Patel, V. (2006). "What is the relevance of mental health to HIV/AIDS care and treatment programs in developing countries? A systematic review". *AIDS*, 20(12)
- Crystal S, Akincigil A, Sambamoorthi U, et al., (2003). "The diverse older HIV-positive population: A national profile of economic circumstances, social support, and quality of life". *Journal of*

- Acquired Immuno Deficiency Syndrome* ; 33(suppl 2):S76 –S83. . In S.A. Golub., J.C. Tomassilli., D.W. Pantaloop., M. Brennan., S.E. Karpiak., & JT. Parsons (Eds.). *Prevalence and Correlates of Sexual Behaviour and Risk Management Among HIV-Positive Adult Over 50*. (615). American Sexually Transmitted Diseases Association.
- Darke, S., Hall, W., & Carless, J. (1990). “ Drug use, injecting practices and sexual behaviour of opiod users in Sydney, Australia. *British Journal of Addiction*, 85(12)
- Davis L, Uezato A, Newell JM, Frazier E.,(2008). “Major depression and comorbid substance use disorders.” *Current Opin Psychiatry*. 2008;21:14–8.
- Dixit A.R., & Crum R.M., (2000). “Prospective study of depression and the risk of heavy alcohol use in women.” *American Journal of Psychiatry*. 2000; 157(5):751–8.
- Dombrowski, J. C., Harrington, R. D., & Golden, M. R., (2013). “Evidence for the long-term stability of HIV transmission-associated sexual behavior after HIV diagnosis”. *Sexually Transmitted Diseases*, 40, 41-45.
- Dosekun, O., & Fox, J. (2010). "An overview of the relative risks of different sexual behaviours on HIV transmission". *Current Opinion in HIV and AIDS* 5 (4):2917.
- Draughon, J.E., & Sheridan, D.J. (2012). "Nonoccupational post exposure prophylaxis following sexual assault in industrialized low-HIV-prevalence countries: a review". *Psychology, health & medicine* 17 (2): 235–54.
- Ellis, B.J., & Symons, D. (1990). “Sex differences in sexual fantasy: An evolutionary psychological approach”. *The Journal of Sex Research*, 27, 527-555.
- Erbelding, E.J., Stanton, D., Quinn, TC., & Rompalo, A. (2000). “Behavioral and biologic evidence of persistent high-risk behavior in an HIV primary care population”. US National Library of Medicine National Institutes of Health.
- Evans, D., Ten., Have, T., & Douglas, S., et al. (2002). –“Association of depression with viral load, CD8 T lymphocytes, and natural killer cells in women with HIV infection”. *American Journal of Psychiatry* , 159:1752–1759. In JG. Rabkin (Eds.), *HIV and Depression: 2008 Review and Update* (pp 165). Current Medicine Group LLC.
- Farmer, P. (1990). *AIDS and accusation: Haiti and the geography of blame*. Harvard: Harvard University. In S.B. Donna., D.J. Lisa., M. Fayette., & Y. Edilma (Eds.). *Mental Health of Carribean Women with HIV/ AIDS* (pp 1006). Psychology. Vol 3. No.12, 1005-1009.
- Feucht, T.E., Stephens, R.C., & Roman, S.W. (1990). “The sexual behaviour of intravenous drug users: Assessing the riskof sexual transmission of HIV . *Journal of Drug Issues*, 20, 195-213.
- Fox, J., White, P. J., MacDonald, N., Weber, J., McClure, M., Fidler, S., & Ward, H. (2009). Reductions in HIV transmission risk behaviour following diagnosis of primary HIV infection: A cohort of high-risk men who have sex with men. *HIV Medicine*, 10, 432-438
- Gallagher, J. ( 2014). "Aids:Origin of pandemic 'was 1920s Kinshasa".BBC. Retrieved October 5, 2014.
- Golub, S. A., Tomassilli, J. C., Pantalone, D. W., Brennan, M., Karpiak, S. E., & Parsons, J. T. (2010). “Prevalence and correlates of sexual behavior and risk management among HIV-positive adults over 50”. *Sexually Transmitted Diseases*, 37, 615-620
- Gonzalez, J., Hendriksen, E., Collins, E., Duran, R., Safren, S., Latinos and HIV/AIDS (2009): examining factors related to disparity and identifying opportunities for psychosocial intervention research. *AIDS Behaviour*.;13:582–602. In J.M Simoni, A. Steven., Safren., E.Lisa., I. Cynthia., & J. Matthew., et al.(Eds). *Challenges in Addressing Depression in HIV Research: Assessment, Cultural Context, and Methods* (pp. 2). Springer Science+ Business Media, LLC.
- Gorbach, P. M., Weiss, R. E., Jeffries, R., Javanbakht, M., Drumright, L. N., Daar, E. S., & Little, S. J. (2011). “Behaviors of recently HIV-infected men who have sex with men in the year postdiagnosis: Effects of drug use and partner types”. *Journal of Acquired Immuno Deficiency Syndromes*, 56, 176-182.

- Graham., & Michael, C. (2014). *Facts of Life: ten issues of contentment*. Outskirts Press. pp. 6–10.
- Hale, F., & Vasquez, M. (2011). *Violence against women living with HIV/AIDS: A background paper*. Washington DC: Development Connections and International Community of Women Living with HIV/AIDS. In S.B. Donna., D.J. Lisa., M. Fayette., & Y. Edilma (Eds). *Mental Health of Carribean Women with HIV/ AIDS* (pp 1006). Psychology. Vol 3. No.12, 1005-1009.
- Hann, D., Winter, K., & Jacobsen, P. (1999). "Measurement of depressive symptoms in cancer patients. Evaluation of the Center for Epidemiological Studies Depression Scale (CES-D)". *Journal of Psychosomatic Research*, 46, 437-443.
- Harden., & Victoria, A. (2012). *AIDS at 30: A History*. Potomac Books Inc. p. 324.
- Haruna. A., & Ago.H.A., (2014). "Perceived Susceptibility to Hiv/Aids: Influence of Traditional Gender Role on Risky Behaviour among Youth" *International Journal of Health Sciences*, Vol. 2, No. 2, pp. 59-74.
- Hirshfield S, Remien, R.H, Humberstone, M, et al.,(2004). "Substance use and high risk sex among men who have sex with men: a national online study in the USA. *AIDS Care*;16:1036–1047.
- Hutton, HE., Lyketsos, CG.,Zenilman, JM., Thompson, RE., & Erbeding, EJ. (2004). "Depression and HIV risk behaviors amongpatients in a sexually transmitted disease clinic. *American Journal of Psychiatry*, 161 (5): 912-4
- Ingram, K, Jones, D., Fass, R., Neidig, J., & Song, Y. (1999) Social support and unsupportive social interactions: Their association with depression among people living with HIV. *AIDS Care*, 11 (3),313-330.
- Joint United Nations Programme on HIV/AIDS.(2012). "UNAIDS Report on the Global AIDS Epidemic ." ISBN 978-92-9173-996-7; ref. UNAIDS/JC2417E.
- Kacanek D, Jacobson D, Spiegelman D, Wanke C, Isaac R,Wilson I.,(2009): "Incident depression symptoms are associated with poorer HAART adherence: a longitudinal analysis from the Nutrition for Healthy Living study. *Journal of Acquire Immune Deficiency Syndrome*. Epub ahead of print.
- Kalichman, SC. ( 1998). "Understanding AIDS: advances in research and treatment". *America Psychological Association*. Washington, DC. . In J.M. Simoni., A. Steven., Safren., E.Lisa., I. Cynthia., & J. Matthew., et al.(Eds). *Challenges in Addressing Depression in HIV Research: Assessment, Cultural Context, and Methods* (pp. 2). Springer Science+ Business Media, LLC.
- Keiser O, Spoerri A, Brinkhof M, Hasse B, Gayet-Ageron A, Tissot F, et al., (2008) Suicide in HIV-infected individuals and the general population in Switzerland. *American Journal of Psychiatry*. 2010;167(2):143–50.
- Keyes., & Corey. (2002). "The mental health continuum: from languishing to flourishing in life". *Journal of Health and Social Behaviour* 43 (2): 207–222.
- Kim, M.H., Mazenga, A.C., Devend, R.A., Ahmed, S., Sharp, C., Mhango, J.K., et al., (2013) "Prevalence of Depression amongst HIV Infected Adolescents in Malawi". *Proceedings of the 7th IAS Conference on HIV Pathogenesis, Treatment and Prevention*, Kuala Lumpur, 30 June-03 July 2013. . In G.S. Sungani., A.Sefasi. ,& M. Pindani. (Eds.), *Mental Health Problems Affecting People Who Have HIV and AIDS in Malawi: A Review* (pp. 190). Scientific Research Publishing Inc.
- Klein, H., Elifson, KW, & Sterk, CE (2008). "Depression and HIV risk behavior practices among at risk women. *Women Health*, 48(2): 167-88. Doi:10.1080/ 036024080231605
- Klimas, N., Koneru, AO., & Fletcher, MA. (2008). "Overview of HIV". *Psychosomatic Medicine* 70 (5): 523–30
- Lima V, Geller J, Bangsberg D, Patterson T, Daniel M, Kerr T,et al., (2007). "The effect of adherence on the association between depressive symptoms and mortality among HIV-infected individuals first initiating HAART." *AIDS*,21(9):1175–83. *Challenges in Addressing*

- Depression in HIV Research: Assessment, Cultural Context, and Method* (pp.2) Springer Science+Business Media, LLC 2010
- Logie, C., & Gadalla, T. M. (2009). "Meta-analysis of health and demographic correlates of stigma towards people living with HIV". *AIDS Care*, 21(6), 742-753
- Lovejoy, TL., Heckman, TG., & Sikkema KJ, et al., (2008). "Patterns and correlates of sexual activity and condom use behavior in persons 50-plus years of age living with HIV/AIDS". *AIDS Behavior* 2; 12:943–956. In AS. Golub., CJ. Tomassilli., WD. Pantaloop., M. Brennan., S.E. Karpiak., & JT. Parsons (Eds). *Prevalence and Correlates of Sexual Behaviour and Risk Management Among HIV-Positive Adult Over 50*. (615). American Sexually Transmitted Diseases Association.
- Markowitz, edited by William N. Rom ; associate editor, Steven B. (2007). *Environmental and occupational medicine* (4th edition.). Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins. p. 745.
- May, M., Gompels, M., & Sabin, C. (2012). "Life expectancy of HIV-1-positive individuals approaches normal conditional on response to antiretroviral therapy: UK Collaborative HIV Cohort Study." *Journal of the International AIDS Society*; 15(4): 18078.
- McDowell, TL., & Serovich, JM. (2007). "The effect of perceived and actual social support on the mental health of HIV-positive persons". *AIDS Care* ; 19:1223–1229. In K. Oppong Asante (Eds.), *Social Support and the Psychological Well-being of People Living with HIV/AIDS in Ghana*. (pp. 341). doi: <http://dx.doi.org/10.4314/ajpsy.v15i5.42>
- Miles, J., & Shevlin, M. (2011). "Applying Regression and Correlation. A guide for students and Researchers". SAGE Publications.
- Mizoram State AIDS Control Society. (2014). " A brief report of Mizoram status on HIV/AIDS"
- Moore, J., Schuman, P., & Schoenbaum, E., et al. (1999). – " Severe adverse events and depressive symptoms among women with, or at risk for, HIV infection in four cities in the United States of America". *AIDS* ; 13:2459–2468. In JG. Rabkin (Eds.), *HIV and Depression: 2008 Review and Update* (pp 164). Current Medicine Group LLC
- Morlet, A., Drake, S., Guinan, J, J., Wolk, J & Gold, J. (1990). "Intravenous drug users who present to the Albion St(AIDS) Centre for diagnosis and management of human immunodeficiency virus infection". *Medical Journal of Australia*, 152, 78-80.
- Morrison, MF., Petitto, J., & Ten Have T, et al. (2002). "Depressive and anxiety disorders in women with HIV infection". *American Journal of Psychiatry*, 159:789–796. In JG. Rabkin (Eds.), *HIV and Depression: 2008 Review and Update* (pp 164). Current Medicine Group LLC.
- Mustanski, B. (2007). "The influence of state and trait affect on HIV risk behaviors: A daily diary study of MSM". *Health Psychology*, 26, 618–626. In P.A. Wilson., G. Stadler., M.R. Boone., & N. Bolger. (Eds.), *Fluctuations in Depression and Well-being are Associated With Sexual Risk Episode Among HIV-Positive Men*. (pp. 3). American Psychological Association.
- Mwale, C.M., Stewart, R. & Mathanga, D. (2007). "The Prevalence of Psychological Distress and Associated Factors among People Living with AIDS Attending Antiretroviral Therapy Clinics in Mzuzu, Malawi: A Cross Sectional Descriptive Study". *Malawi Medical Journal*, 19, 56. . In G.S. Sungani., A.Sefasi. ,& M. Pindani. (Eds.), *Mental Health Problems Affecting People Who Have HIV and AIDS in Malawi: A Review* (pp. 190). Scientific Research Publishing Inc.
- NIMH. (2012). Depression. [nimh.nih.gov](http://nimh.nih.gov). Retrieved 15 October 2012.
- Pagana, K.D., & Pagana, T.J. (2010). *Mosby's Manual of Diagnostic and Laboratory Tests*, 4th edition. St. Louis: Mosby Elsevier.
- Parker P, Aggleton P, Attawel K, Pulerwitz J, Brown L. (2010). "HIV/AIDS related stigma and discrimination: a conceptual framework and an agenda for action. Horizons Program". The Population Council. Accessed at: <http://www.popcouncil.org/pdfs/horizons/>

- Penke, L., & Asendorpf, J.B. (2008). "Beyond global sociosexual orientations: A more differentiated look at sociosexuality and its effects on courtship and romantic relationships". *Journal of Personality and Social Psychology*, 95, 1113-1135.
- Perdue, T., Hagan, H., Thiede, & Valleroy, L. (2003). "Depression and HIV risk behavior among Seattle-area injection drug users and young men who have sex with men." *AIDS Education and Prevention*. Vol.15.81-92
- Peterman, A. H., Cella, D., Mo, F., & McCain, N. (1997). "Psychometric validation of the revised Functional Assessment of Human Immunodeficiency Virus Infection (FAHI) quality of life instrument". *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, 6, 572–584. doi:10.1023/A: 1018416317546
- Philpot, C.R., Harcourt, C.L., & Edwards, J.M. (1989). "Drug use by prostitutes in Sydney. *British Journal of Addiction*," 84, 499-505. In J. Ward., S. Darke., & W. Hall (Eds), *The Hiv Risk-Taking Behaviour Scale (Hrbs) Manual*. (pp.3). National Drug and Alcohol Research Centre.
- Pieper, A.A., & Treisman. G. (2005). "Drug treatment of depression in HIV positive patients:safety considerations". *Drug Safe* 28(9):753–762.
- Rabkin JG. (2008). "HIV and Depression 2008 Review and Update". Current Medicine Group LLC.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401. doi:10.1177/014662167700100306
- Reeves J.D., & Doms R.W. (2002). "Human immunodeficiency virus type 2". *The Journal of general virology* 83 (Pt 6): 1253–65.
- Reisner SL, Mimiaga MJ, Skeer M, et al.,(2009). "Clinically significant depressive symptoms as a risk factor for HIV infection among black MSM in Massachusetts". *AIDS Behaviour*;13:798–810.
- Robertson, J.R., Skidmore, C.A., & Roberts, J.J.K. (1988). "HIV infection in intravenous drug users: A follow up study indicating changes in risk-taking behaviour. *British Journal of Addiction*, 83, 387-391.
- Safren S, Gonzalez J, Soroudi N.(2007). "Coping with chronic illness: a cognitive-behavioral approach for adherence and depression." New York: Oxford University Press. *Challenges in Addressing Depression in HIV Research: Assessment, Cultural Context, and Methods* (pp.2). Springer Science+Business Media, LLC 2010
- Safren, S.A.,& Heimberg, R.G.(1999). "Depression, hopelessness, suicidality, and related factors in sexual minority and heterosexual adolescents". *Journal Consult Clinical Psychology*;67:859–866. In S.A,Safren., S.L., Reisner., M.J., Mimiaga., & R.D. Stall., (Eds), *Mental Health and HIV risk in men who have sex with men* ,(pp. 74). *Journal of Acquired Immune Deficiency Syndrome*.
- Salmans, & Sandra (1997). *Depression: Questions You Have – Answers You Need*. People's Medical Society. ISBN 978-1-882606-14-6.
- Schmitt, D.P. (2007). "Sexual strategies across sexual orientations: How personality traits and culture relate to sociosexuality among gays, lesbians, bisexuals, and heterosexuals. *Journal of Psychology and Human Sexuality*, 18, 183-214(pg 125).
- Schuster R, Bornovalova M, Hunt. E. (2012). "The influence of depression on the progression of HIV: direct and indirect effects". *Behavior Modification* 36:123–145.
- Sepkowitz, K.A. (2001), "AIDS—the first 20 years". *New England Journal of Medicine*, 344 (23): 1764– 1772
- Shrier, L. A., Walls, C., Lops, C., Kendall, A. D., & Blood, E. A. (2012). "Substance use, sexual intercourse, and condom nonuse among depressed adolescents and young adults". *Journal of Adolescent Health*, 50, 264– 270. In P.A. Wilson., G. Stadler., M.R. Boone., & N. Bolger. (Eds.), *Fluctuations in Depression and Well-being are Associated With Sexual Risk Episode Among HIV-Positive Men*. (pp. 3). American Psychological Association.

- Simbayi LC, Kalichman S, Strebel A, Cloete A, Henda N, et al. (2007). "Internalized stigma, discrimination, and depression among men and women living with HIV/AIDS in Cape Town, South Africa". *Social Science Medicine* 64: 1823–1831.
- Simoni J., Demas P., Mason H., Drossman J., & Davis M.(2000). "HIV disclosure among women of African descent: associations with coping, social support, and psychological adaptation". *AIDS Behavior*; 4(2):147–58. In J.M Simoni, A. Steven., Safren., E.Lisa., I. Cynthia., & J. Matthew., et al.(Eds). *Challenges in Addressing Depression in HIV Research: Assessment, Cultural Context, and Methods* (pp. 2). Springer Science+ Business Media, LLC.
- Simpson, J. A., & Gangestad, S.W. (1991). "Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology*, 60, 870-883.
- Sikkema, K. J., Watt, M. H., Drabkin, A. S., Meade, C. S., Hansen, N. B., & Pence, B. W. (2010). "Mental health treatment to reduce HIV transmission risk behavior: A positive prevention model". *AIDS and Behavior*,14, 252–262. In P.A. Wilson., G. Stadler., M.R. Boone., & N. Bolger. (Eds.), *Fluctuations in Depression and Well-being are Associated With Sexual Risk Episode Among HIV-Positive Men.* (pp. 3). American Psychological Association.
- Stall, R., Mills,T.C., Williamson, J, et al.,(2003). "Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men". *American Journal Public Health*;93:939–942.
- Stimson, GV., Donoghoe, LA., & Dolan, K. (1998), "HIV transmission risk behaviour of clients attending needle exchange schemes in England and Scotland. *British Journal of Addiction*, 83, 1449-1455.
- Stürchler, & Dieter A. (2006). "Exposure a guide to sources of infections". Washington, DC: ASM Press. p. 544. ISBN 978-1-55581-376-5.
- Tegger MK, Crane HM, Tapia KA, Uldall KK, Holte SE, Kitahata MM.(2008). "The effect of mental illness, substance use, and treatment for depression on the initiation of highly active antiretroviral therapy among HIV-infected individuals." *AIDS Patient Care STDS*;22(3):233–43. *Challenges in Addressing Depression in HIV Research: Assessment, Cultural Context, and Method* (pp.2) Springer Science+Business Media, LLC 2010
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Hiller, L., Joseph, S., Parkinson, J., Secker, J.,& Stewart-Brown, S. (2006). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *Health Quality of Life Outcomes* 2007, 5:63
- Tiefer L. (1997). –" Response to testosterone injection study and Fisher's concerns". *Journal of Sexual Research*, 34:37. In JG. Rabkin (Eds.), *HIV and Depression: 2008 Review and Update* (pp 168). Current Medicine Group LLC.
- Turner, C.F., Miller, H.G., & Moses, L.E.(Eds). (1989). *AIDS: Sexual behaviour and intravenous Drug Use*. Washington: National Academy Press.
- UNAIDS, WHO ( 2007). "2007 AIDS epidemic update" (PDF). Retrieved 2008-03-12.
- Van S,G., Aguirre, M., Sarna, L., Brecht, M,L.(2002). "Differential predictors of emotional distress in HIV-infected men and women". *Western Journal of Nursing Research* 2002;24(1):49–72.
- Viala-Danten, M., Dubois, D., Gilet, H., Martin, S.,Peeters, K., & Cella, D. (2010). "Psychometric evaluation of the functional assessment of HIV infection (FAHI) questionnaire and its usefulness in clinical trials". *Quality of Life Research*, 19, 12151227.
- Voisin, (2006). "Ex- porting a US HIV/AIDS prevention program to a Caribbean island- nation". *International Social Work*, 49, 75-86.
- Ward.J., Darke, S., & Hall, W. (1990). The HIV risk taking behaviour scale (HRBS) Manual. National Drug And Alcohol Research Centre.
- Wagner G, Rabkin J,& Rabkin R. (1997). –" Effects of testosterone replacement on sexual interest, function and behavior in HIV+ men". *Journal of Sex Research*, 34:27–33; 37–38. In JG.

- Rabkin (Eds.), *HIV and Depression: 2008 Review and Update* (pp 168). Current Medicine Group LLC.
- Whetten, K., Reif, S., Whetten, R., & Murphy-McMillan, L. K. (2008). "Trauma, Mental Health, Distrust, and Stigma Among HIV-Positive Persons: Implications for Effective Care". *Psychosomatic Medicine*, 70(5), 531-538.
- World Health Organization. (2007). "*WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children.*" (PDF). Geneva: pp. 6–16. ISBN 978-92-4-159562-9.
- Wilson, P. A., Cook, S. H., & Valera, P. (2013). *Affect and sexual encounters among HIV-positive gay men: A situation-level analysis*. Manuscript submitted for publication. In P.A. Wilson., G. Stadler., M.R. Boone., & N. Bolger. (Eds.), *Fluctuations in Depression and Well-being are Associated With Sexual Risk Episode Among HIV-Positive Men*. (pp. 3). American Psychological Association
- Yost, M.R., & Zurbriggen, E.L. (2006). "Gender differences in the enactment of sociosexuality: An examination of implicit social motives, sexual fantasies, coercive sexual attitudes, and aggressive sexual behaviour. *Journal of Sex Research*, 43, 163-173.
- Yu, M., & Vajdy, M. (2010). "Mucosal HIV transmission and vaccination strategies through oral compared with vaginal and rectal routes". *Expert opinion on biological therapy* **10**(8): 1181–95
- Zhu, G. A., Birnbaum, N., Carroll-Scott, A., Evans, L Lynn E Fiellin, L. L and Wang, E.A., (2015). "Gender differences in HIV risk behaviors in individuals recently released from prison: results of a pilot study". *Health and Justice*. 3:6



## APPENDIX – I

HIV/ AIDS hi drugs inchiu leh sex hman atanga inkai chhawn te anih ve bawk avangin zawhna te hi hriat sual a awmluh nan thukhuh leh pehhel awm lova siam a ni a, Saptawng hnuaiah hian Mizo tawng dah zel a ni. I hmuh dan dik tak , nangmaha a dik dan ber in khawngaih in zawhna te hi I chhang dawn nia. Research na atan chauh a tih a ni a, I mimal chhanna hi CONFIDENTIAL tlat a ni.

### DEPRESSION SCREENING

Center For Epidemiologic Studies Depression (CES-D): A hnuaia zawhna hi ilo in hriat thin dan emaw I nundan phung thin ani maithei. Khawngaih takin karkhat liamta chhunga ilo in hriatdan thin ang kha a piaha awlah hian tarlang la. Zawhna tinah chhanna pakhat chauh I pe zel dawn nia.

	During the past week ( <i>Karkhat liamta chhung khan</i> )	Rarely or none of the time (less than 1 day) ( <i>Ngai manglo or engtiklai mahin (ni khat aia tlem)</i> )	Some or a little the time(1-2 days) ( <i>A chang changin or tlemtein; ni 1-2 chhung vel)</i> )	Occasionally or a moderate amount of time (3-4 days) ( <i>A laihawl vel; ni 3-4 chhung vel)</i> )	Most or all of the time (5-7 days) ( <i>Lutuk or engtik lai pawhin; ni 5-7 chhung vel)</i> )
1.	I was bothered by things that usually don't bother me. ( <i>Buaina tur a ka ngaih ngailoh thilah ka buai thin ta tlat mai</i> )				
2.	I did not feel like eating; my appetite was poor. ( <i>Thil eichakna ka neilo. Ka chaw lak a thalo thin</i> )				
3.	I felt that I could not shake off the blues even with help from my family or friends. ( <i>Ka chhungte leh thiante puihna dawng mah ila ka nguina hi a reh thei dawnlo in ka hre thin.</i> )				
4.	I felt I was just as good as other people. ( <i>Midangte ang thoa thah ka inngai thin</i> )				
5.	I had trouble keeping my mind on what I was doing. ( <i>Ka thiltih laiah rilru pek harsa ka ti thin.</i> )				

6.	I felt depressed. ( <i>Lungngai leh beidawng takin ka awm thin.</i> )				
7.	I felt that everything I did was an effort. ( <i>Ka thiltih reng reng tang tunga ti ang maiin ka in hria.</i> )				
8.	I felt hopeful about the future. ( <i>Hmalam hun hi beiseiawm riau in ka hre thin</i> )				
9.	I thought my life had been a failure. ( <i>Ka nun hi hlawhchhamna angah ka ngai thin</i> )				
10.	I felt fearful. ( <i>Hlauhna in min man thin.</i> )				
11.	My sleep was restless. ( <i>Ka mu tha theilo / Thin thi-in ka muhil theilo.</i> )				
12.	I was happy. ( <i>Ka hlim thin</i> )				
13.	I talked less than usual. ( <i>A pangngai aiin ka tawng tlem thin</i> )				
14.	I felt lonely. ( <i>Mal ngawih ngawihin ka in hre thin</i> )				
15.	People were unfriendly. ( <i>Tupawh mai hi an nelawm loh</i> )				
16.	I enjoyed life. ( <i>Nuam ti takin ka nung thin</i> )				
17.	I had crying spells. ( <i>Ka tap leh ringawt zel</i> )				
18.	I felt sad. ( <i>Ka lungngai thin</i> )				
19.	I felt that people dislike me. ( <i>Tupawh mai hian min ngaina lovin ka hre thin</i> )				
20.	I could not get going. ( <i>Hmasawn turin ke ka pen hlei theilo</i> )				

APPENDIX - II

FAHI (VERSION 4)

**PHYSICAL WELL-BEING:** A hnuaia **THU TE HI I** natna **ANG NEI TE IN A** pawimawh

**AN TIH A NI A, TUN NI SARIH LIAMTA A I AWMDAN MIL ZEL IN A CHHANNA ZINGA PAKHAT HI NANGMAHAH A DIKDAN BERIN I THAI DAWN NIA.**

Khawngaihin **TLAR** tinah hian tun ni 7 kalta chhunga I awmdan milin chhanna pakhat zel thai bial or tick ang che.

		Not at all ( <i>Teuhlo</i> )	A little bit. ( <i>Tlem tein</i> )	Some What ( <i>Ve deuh chauh</i> )	Quite a bit. ( <i>Ve viau mai</i> )	Very much. ( <i>Tehren g mai</i> )
1.	I have lack of energy. ( <i>Ka taksa hi a chak tha tawklo</i> )	0	1	2	3	4
2.	I have nausea. ( <i>Ka luak a chhuak thin</i> )	0	1	2	3	4
3.	Because of my physical condition ,I have trouble meeting the needs of my family. ( <i>Ka taksa dinhmun avang hian ka chhungte mamawh ka phuhru zo lo thin</i> )	0	1	2	3	4
4.	I have pain ( <i>Na ka nei</i> )	0	1	2	3	4
5.	I am bothered by side effects of treatment.( <i>Damdawi/ ka in enkawlna hian nghawng thalo a nei ang tih hlauhthawwna ka nei thin</i> )	0	1	2	3	4
6.	I feel ill. ( <i>Ka nuamsam lo</i> )	0	1	2	3	4
7.	I am forced to spend time in bed. ( <i>Khumah hian mu hahdam lo theilo in ka awm thin</i> )	0	1	2	3	4

8.	I have been short of breath. ( <i>Thaw/ boruak khamlo in ka awm thin</i> )	0	1	2	3	4
----	--	---	---	---	---	---

		Not at all ( <i>Teuhl o</i> )	A little bit. ( <i>Tlem tein</i> )	Some What ( <i>Ve deuh chauh</i> )	Quite a bit. ( <i>Ve viau mai</i> )	Very much. ( <i>Tehren g mai</i> )
9.	I am bothered by change in weight. ( <i>Ka taksa rihna danglam hian ka rilru a tibuai</i> )	0	1	2	3	4
10.	I get tired easily. (Ka hah hma hle thin)	0	1	2	3	4
11.	I feel fatigued. (Ka chau ngawih ngawih reng mai)	0	1	2	3	4
12.	I feel weak all over. (Ka pum mai hian ka chaklo hle in ka in hria)	0	1	2	3	4
13.	I have been coughing. (Ka khuh reng mai)	0	1	2	3	4

**EMOTIONAL WELL-BEING/ LIVING WITH HIV:** Khawngaihin **TLAR** tinah hian tun ni 7 **kalta chhunga** I awmdan milin chhanna pakhat zel thi bial or tick ang che.

1.	I feel sad. ( <i>Ka lungngai thin</i> )	0	1	2	3	4
2.	I feel nervous. ( <i>Ka zam thin</i> )	0	1	2	3	4
3.	I worry about dying. ( <i>Thih ka hlau thin</i> )	0	1	2	3	4
4.	I worry that my condition will get worse. ( <i>Ka dinhmun hi a chhiat belh zel ang tih ka hlau thin</i> )	0	1	2	3	4
5.	I am unhappy with my appearance. ( <i>Ka landan hian miti hlimlo thin</i> )	0	1	2	3	4

6.	It is hard to tell other people about my infection. ( <i>Midang hnen a ka natna chungchang hrilh hi a harsa</i> )	0	1	2	3	4
7.	I worry about spreading my infection. ( <i>Ka natna hi midang va kaidarh ka hlau thin</i> )	0	1	2	3	4
8.	I am concerned about what the future holds for me. ( <i>Ka hmalam hun tur ka ngaihtuahna hian minti lungngai thin</i> )	0	1	2	3	4
9.	I worry about the effect of stress on my illness. ( <i>Ka rilru hahna hian ka natna a tizual ang tih hlahna ka nei thin.</i> )	0	1	2	3	4
10.	I am embarrassed by my illness. ( <i>Ka natna avang hian ka zak thin</i> )	0	1	2	3	4

**TUN NI SARIH LIAMTA A I AWMDAN MIL ZELIN A CHHANNA ZINGA  
PAKHAT HI NANGMAHAH A DIKDAN BERIN I THAI DAWN NIA.**

**FUNCTIONAL AND GLOBAL  
WELL-BEING**

		Not at all ( <i>Teuhlo</i> )	A little bit. ( <i>Tlem tein</i> )	Some What ( <i>Ve deuh chauh</i> )	Quite a bit. ( <i>Ve viau mai</i> )	Very much. ( <i>Tehre ng mai</i> )
1.	I am able to work (including work at home) ( <i>Hna ka thawk thei(in lam hna tiamin)</i> )	0	1	2	3	4
2.	My work (including work at home) is fulfilling. ( <i>Ka hna (inchhung hna tiamin) ah hian ka lawm</i> )	0	1	2	3	4
3	I am able to enjoy life. ( <i>Ka nun hi nuam ti takin ka hmang thei</i> )	0	1	2	3	4
4.	I have accepted my illness. ( <i>Ka natna vei hi ka pawm thlap</i> )	0	1	2	3	4

		Not at all ( <i>Teuhlo</i> )	A little bit. ( <i>Tlem tein</i> )	Some What ( <i>Ve deuh chauh</i> )	Quite a bit. ( <i>Ve viau mai</i> )	Very much. ( <i>Tehre ng mai</i> )
5.	I am sleeping well. ( <i>Ka mu tha thei</i> )	0	1	2	3	4
6.	I am enjoying the things I usually do for fun. ( <i>Ka thil nuam tih thin te kha nuam ti takin ka la ti zel</i> )	0	1	2	3	4
7.	I am content with the quality of my life right now. ( <i>Ka nundan phung ah hian ka lungawi tawk</i> )	0	1	2	3	4
8.	I am satisfied with how I am coping with my illness. ( <i>Ka natna chungchanga keimah ka in her rem danah hian ka lungawi tawk</i> )	0	1	2	3	4
9.	I am losing hope in the fight against my illness. ( <i>Ka natna ka beihlet kawngah hian beisei vak ka nei tawh lo</i> )	0	1	2	3	4
10.	I feel sexually attractive. ( <i>Ka itawm tawkin ka in hria</i> )	0	1	2	3	4
11.	I have good appetite. ( <i>Ka thil ei a tui hle</i> )	0	1	2	3	4
12.	I feel motivated to do things. ( <i>Thil engpawh thatho taka tih chakna ka nei thin</i> )	0	1	2	3	4
13.	I am hopeful about the future. ( <i>Ka hmalam hunah hian beisei ka nei ani.</i> )	0	1	2	3	4

**SOCIAL WELL-BEING:**

**TUN NI SARIH LIAMTA A I AWMDAN MIL ZELIN A CHHANNA ZINGA  
PAKHAT HI NANGMAHAH A DIKDAN BERIN I THAI DAWN NIA.**

		Not at all ( <i>Teuhlo</i> )	A little bit. ( <i>Tlem tein</i> )	Some What ( <i>Ve deuh chauh</i> )	Quite a bit. ( <i>Ve viau mai</i> )	Very much. ( <i>Tehre ng mai</i> )
1.	I feel close to my friend. ( <i>Ka thiante nen inpawh tawwna tha tak kan nei in ka hria</i> )	0	1	2	3	4
2.	I get emotional support from my family ( <i>Ka chhungten rilru lamah min chhawmdawl thin</i> )	0	1	2	3	4
3.	I get support from my friends ( <i>Ka thiante hian min chhawmdawl thin</i> )	0	1	2	3	4
4.	My family has accepted my illness. ( <i>Ka chhungten ka natna hi min pawmpui thlap tawh</i> )	0	1	2	3	4
5.	I am satisfied with family communication about my illness. ( <i>Kan chhengkua a ka natna chungchanga kan in pawh tawn dan hi ka lungawi e</i> )	0	1	2	3	4
6.	I feel close to my partner (or the person who is my main support. ( <i>Ka kawppui/ min enkawltu ber nen hian kan in zawmna a tha in ka hria</i> )	0	1	2	3	4
7.	I have people to help me if I need it. ( <i>Tanpui ka ngaih hun apianga min puitu tur ka nei</i> )	0	1	2	3	4

*I tun dinhmunah sex lama I in hmandan emaw hmanloh dan emaw ngaihtuah lovin, khawngaihin a hnuaia zawhna hi chhang ang che. I chhang duh chiahlo anih pawhin khawngaihin  boxchhungah hian thaila chuan a dawt section ami zawhna ah I kalsan dawn  nia.*

		Not at all (Teuhlo)	A little bit. (Tlem tein)	Some What (Ve deuh chauh)	Quite a bit. (Ve viau mai)	Very much. (Tehre ng mai)
8.	I am satisfied with my sex life. (Sex chungchanga ka nundan ah hian ka lungawi tawk)	0	1	2	3	4

### COGNITIVE FUNCTIONING

1.	My thinking is clear. (Ka ngaihtuahna hi a fim)	0	1	2	3	4
2.	I have trouble concentrating. (Insawrbing deuh taka thil ngaihtuah lamah harsatna ka nei)	0	1	2	3	4
3.	I have trouble remembering things. (Thil hriat rengna lamah harsatna ka nei)	0	1	2	3	4



## THE HIV RISK-TAKING BEHAVIOUR SCALE

**Drug Use Section:**

1. How many times have you hit up (i.e. injected any drugs) in the last month?  
(*Thlakhat liamta chhung khan vawi engzat nge damdawi a I inchiu?*)

Hasn't hit up ( <i>La Inchiulo</i> ).....	0
Once a week or less ( <i>Kar khatah vawikhat or aia tlem</i> ).....	1
More than once a week ( <i>Kar khatah vawi khat aia tam mahse nikhatah vawikhat aia</i> (but less than once a day) <i>tlem</i> .....	2
Once a day ( <i>Ni khatah vawi khat</i> ).....	3
2-3 times a day ( <i>Ni khatah vawi 2-3</i> ).....	4
More than 3 times a day ( <i>Ni khatah vawi 3 aia tam</i> ).....	5

N.B. TUN THLA KALTA CHHUNGA I INJECTION MIAHLOH CHUAN ZAWHNA 7  
(PASARIHNA) ATANG DAIHIN CHHAN ZAWM RAWH.

2. How many times in the last month have you used a needle after someone else had already used it? (*Thlakhat liamta chhung khan vawi engzat nge midang hman hnu hriau I hman?*)

No times ( <i>Vawi khatmah</i> ).....	0
One time ( <i>Vawi khat</i> ).....	1
Two times ( <i>Vawi hnih</i> ).....	2
3-5 times ( <i>Vawi 3 leh vawi 5 inkar</i> ) .....	3
6-10 times ( <i>Vawi 6 leh vawi 10 inkar</i> ) .....	4
More than 10 times ( <i>Vawi 10 aia tam</i> ).....	5

3. How many different people have used a needle before you in the last month?  
(*Thlakhat liamta khan mi engzat in nge hriau I hman hma khan lo hmang hman?*)

None ( <i>Tumahin</i> ).....	0
One person ( <i>Mi pakhatin</i> ).....	1
Two people ( <i>Mi pahnihin</i> ) .....	2
3-5 people ( <i>Mi 3 atanga 5 inkar</i> ).....	3
6-10 people ( <i>Mi 6 atanga 10 inkar</i> ).....	4
More than 10 people ( <i>Mi 10 aia tam</i> ).....	5

4. How many times in the last month has someone used a needle after you have used it?  
(*Thlakhat liamta chhung khan vawi engzat nge midang in I hriau hman hnu an hman?*)

No times ( <i>Vawi khatmah</i> ).....	0
One time ( <i>Vawi khat</i> ).....	1
Two times ( <i>Vawi hnih</i> ).....	2
3-5 times ( <i>Vawi 3 leh vawi 5 inkar</i> ).....	3
6-10 times ( <i>Vawi 6 leh vawi 10 inkar</i> ) .....	4
More than 10 times ( <i>Vawi 10 aia tam</i> ).....	5

5. How often, in the last month, have you cleaned needles before re-using them?  
*(Thlakhat liamta chhung khan engtia zingin nge hriau I hman hmaa I tihfai?)*

Doesn't re-use ( <i>Hmang nawnlo</i> ).....	0
Every time ( <i>Ti fai ziah</i> ).....	1
Often( <i>Ti fai zing</i> ).....	2
Sometimes ( <i>A chang changin</i> ).....	3
Rarely ( <i>Ngai manglo</i> ).....	4
Never ( <i>Ngailo</i> ).....	5

6. Before using needles again, how often in the last month did you use bleach to clean them?  
*(I syringe hman hnu I hman nawn leh dawnin bleach hmangin thla liamta khan engtia zingin nge I tihfai?)*

Doesn't re-use ( <i>Hmang nawnlo</i> ).....	0
Every time ( <i>Ti fai ziah</i> ).....	1
Often( <i>Ti fai zing</i> ).....	2
Sometimes ( <i>A chang changin</i> ).....	3
Rarely ( <i>Ngai manglo</i> ).....	4
Never ( <i>Ngailo</i> ).....	5

**DRUG Use Sub-Total** \_\_\_\_\_

**SEXUAL BEHAVIOUR SECTION:**

7. How many people, including clients, have you had sex with in the last month?  
*(Thla liamta khan mi engzat nge sex I hmanpui?)*

None ( <i>Tumah nen</i> ) .....	0
One person ( <i>Mi pakhat nen</i> ) .....	1
Two people ( <i>Mi pahnih nen</i> ) .....	2
3-5 people ( <i>Mi 3 atanga 5 inkar</i> ) .....	3
6-10 people ( <i>Mi 6 atanga 10 inkar</i> ) .....	4
More than 10 people ( <i>Mi 10 aia tam</i> ).....	5

N.B. TUN THLA KALTA CHHUNGA SEX I HMAN MIAHLOH CHUAN HEMI SECTION ZAWHNA ATANGIN I CHHAN ZAWM DAWN NIA

8. How often have you used condoms when having sex with your regular partner(s) in the last month? (*Thla Liamta ah Khan engtia zingin nge I kawp thin pangngai te nen condom hmanga sex in hman?*)

- No reg. partner (*Kawp thin pangngai neilo*) .....0
- Every time ( *Condom hmang ziah*).....1
- Often (*Hmang zing*) .....2
- Sometimes (*A chang changin*).....3
- Rarely (*Ngai manglo*).....4
- Never (*Ngailo*).....5

9. How often did you use condoms when you had sex with casual partners? (*I hriat lemloh te nen eng anga zingin nge condom hmanga sex in hman thin?*)

- No cas. partners (*Hriat thanloh kawp neilo*) .....0
- Every time ( *Condom hmang ziah*).....1
- Often (*Hmang zing*) .....2
- Sometimes (*A chang changin*).....3
- Rarely (*Ngai manglo*).....4
- Never (*Ngailo*).....5

10. How often have you used condoms when you have been paid for sex in the last month? (*Thla Liamta Khan hlawh nei a sex I hmanpui nen engtianga zingin nge condom in hman thin?*)

- No paid sex (*Hlawh neiin sex hmanglo*).....0
- Every time(*Hmang ziah*).....1
- Often (*Hmang zing*).....2
- Sometimes (*A chang changin*).....3
- Rarely (*Ngai manglo*).....4
- Never (*Ngailo*).....5

11. How many times did you have anal sex in the last month? (*Thla Liamta Khan vawi engzat nge anal (mawnglamah) sex in hman?*)

- No times (*Vawi khatmah*)..... 0
- One time (*Vawi khat*)..... 1
- Two times (*Vawi hnih*)..... 2
- 3-5 times (*Vawi 3 atanga vawi 5 inkar*)..... 3
- 6-10 times (*Vawi 6 atanga vawi 10 inkar*) ..... 4
- More than 10 times (*Vawi 10 aia tam*)..... 5

**Sexual Behaviour Sub-total** \_\_\_\_\_

**TOTAL SCORE** \_\_\_\_\_

(Total Score = Drug Use Sub-total + Sexual Behaviour Sub-total)

**The revised Sociosexual Orientation Inventory (SOI-R):**

**Sawi tawh ang khan** HIV/ AIDS hi drugs inchiu leh sex hman atanga inkai chhawn te anih ve bawk avangin a hnuaia zawhna te pawh hi hriat sual a awmluh nan thukhuh leh pehhel awm lova siam a ni a. Nangmaha a dik dan berin khawngaih in zawhna te hi I chhang dawn nia. Research na atan chauh a tih a ni a, I mimal chhanna hi CONFIDENTIAL tlat a ni.

1. With how many different partners have you had sex within the past 12 months?  
(*Thla 12 kalta chung khan mi hrang hrang engzat nge sex I hmanpui?*)

0                       1                       2 to 3                       4 to 7                       8 or more  
(*Mi 8 or aia tam*)

2. With how many different partners have you had sexual intercourse on *one and only one* occasion? (*Vawikhat chauh sex hmanpui mi engzat nge I neih?*)

0                       1                       2 to 3                       4 to 7                       8 or more  
(*Mi 8 or aia tam*)

3. With how many different partners have you had sexual intercourse without having an interest in a long-term committed relationship with this person? (*Mi engzat nge innghaihzawn zawm duhna rilru pu loa sex I hmanpui tawh?*)

0                       1                       2 to 3                       4 to 7                       8 or more  
(*Mi 8 or aia tam*)

4. Sex without love is OK. (*Hmangaihna telloa sex hman hi a pawilo*)

1                       2                       3                       4                       5   
Strongly disagree                      Strongly agree  
(*Pawmlo bur*)                      (*Pawm pui lutuk*)

5. I can imagine myself being comfortable and enjoying "casual" sex with different partners. (*Mi hrang hrang nen sex nuamti taka hmang thin turin ka in mitthla thei thin*)

1                       2                       3                       4                       5   
Strongly disagree                      Strongly agree  
(*Pawmlo bur*)                      (*Pawm pui lutuk*)

6. I do *not* want to have sex with a person until I am sure that we will have a long-term, serious relationship. (*Hun rei tak chung kan innghaihzawn chhunzawm dawn anih loh chuan sex hman ka duhlo*)

1                       2                       3                       4                       5   
Strongly disagree                      Strongly agree  
(*Pawmlo bur*)                      (*Pawmpui lutuk*)

7. How often do you have fantasies about having sex with someone you are *not* in a committed romantic relationship with? (*Inngaihzawwnna telloa sex hmanpui turin eng anga zingin nge suangtuahna I neih?*)

- |                                |  |  |   |  |
|--------------------------------|--|--|---|--|
| 1 <input type="checkbox"/>     | 2 <input type="checkbox"/>             | 3 <input type="checkbox"/>                                     | 4 <input type="checkbox"/>                                    | 5 <input type="checkbox"/>                           |
| Never<br>( <i>Nei ngailo</i> ) | Very seldom<br>( <i>Nei lutuk lo</i> ) | About once a<br>month<br>( <i>Thla 1 ah<br/>vawikhat vel</i> ) | About once a<br>week<br>( <i>Karkhatah<br/>vawikhat vel</i> ) | Nearly every day<br>( <i>Nitin deuh<br/>thawin</i> ) |

8. How often do you experience sexual arousal when you are in contact with someone you are *not* in a committed romantic relationship with? (*I ngaihzawng pawh nilo bula I awmin sex hman chakna engtia zingin nge I neih thin?*)

- |                                |  |   |  |  |
|--------------------------------|--|---|--|--|
| 1 <input type="checkbox"/>     | 2 <input type="checkbox"/>             | 3 <input type="checkbox"/>                                      | 4 <input type="checkbox"/>                                     | 5 <input type="checkbox"/>                           |
| Never<br>( <i>Nei ngailo</i> ) | Very seldom<br>( <i>Nei lutuk lo</i> ) | About once a<br>month<br>( <i>Thla 1 ah vawi<br/>khat vel</i> ) | About once a<br>week<br>( <i>Karkhatah vawi<br/>khat vel</i> ) | Nearly every day<br>( <i>Nitin deuh<br/>thawin</i> ) |

9. In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met? (*I nitin nun ah engtia zingin nge I mi hmuh hlim hlawl nen sex hmanpui chakna I neih?*)

- |                            |  |   |   |  |
|----------------------------|--|---|---|--|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/>             | 3 <input type="checkbox"/>                                      | 4 <input type="checkbox"/>                                      | 5 <input type="checkbox"/>                           |
| Never<br>( <i>Ngailo</i> ) | Very seldom<br>( <i>Nei lutuk lo</i> ) | About once a<br>month<br>( <i>Thla 1 ah vawi<br/>khat vel</i> ) | About once a<br>week<br>( <i>Kar khatah<br/>vawi khat vel</i> ) | Nearly every day<br>( <i>Nitin deuh<br/>thawin</i> ) |

**I mimal zalenna ngei hmanga chhang I ni tih entir nan a piah a box ah hian thai/ sign ta che.**

THANK YOU.... Thatei Ralte

He booklet ah hian Mizoram a HIV/AIDS veite tana tangkai tur zirchianna Questionnaire hrang hrang a awm a. Khawngaih takin uluk taka min lo chhan sak ve hram turin ka ngen a che. He thil hi Mizoram University M.Phil research tihna atan chauh a hman tur a nih avangin mimal chhanna hi confidential vek a ni a, tuma hnena pekchhuah theih ani lova, I hmung ziah pawh a ngai lo a ni. I hmuh dan dik tak, nangmaha a dik dan ber in khawngaih in zawhna te hi I chhang dawn nia.

**DEMOGRAPHIC PROFILE**

(KHAWNGAIH TAKIN A HNUAIA MI HI I DAHKHAT/ THAI HMASA DAWN NIA)

- 1.Kum zat:\_\_\_\_\_
- 2.Mipa/ Hmeichhia: \_\_\_\_\_
- 3.Thiamna: (i) Under Matric:\_\_\_\_\_ (ii) Pawl 10: \_\_\_\_\_ (iii) B.A: \_\_\_\_\_  
(iv) M.A:\_\_\_\_\_ (v) A dang te:\_\_\_\_\_
- 4.Hnathawh: (i) \_\_\_\_\_ (ii) Zirlai:\_\_\_\_\_ (vi) Hna thawklo:\_\_\_\_\_
- 5.Seilenna: (i) Nu leh pa karah:\_\_\_\_\_ (ii) Pi leh pute karah: \_\_\_\_\_  
(iii) Nu leh pa inthen:\_\_\_\_\_ (iv) NGO Home:\_\_\_\_\_
- 6.Chhungkaw dinhmun: (i) B.P.L:\_\_\_\_\_ (ii) Mi vantlang:\_\_\_\_\_  
(iii) Mi vantlang chung:\_\_\_\_\_
- 7.Nupui/pasal dinhmun: (i) Nei tawh:\_\_\_\_\_ (ii) La neilo: \_\_\_\_\_  
(iii) Inthen/Awm hrang:\_\_\_\_\_
- 8.HIV engtia rei nge ilo vei/kai tawh: (i) Thla 6 aia reilo:\_\_\_\_\_ (ii) Kum 1 aia  
reilo:\_\_\_\_\_ (iii) Kum 2 aia reilo:\_\_\_\_\_ (iv) Kum 3 aia rei: \_\_\_\_\_
- 9.Chhungkua a cheng ho nge cheng ho lo: (i) Cheng ho: \_\_\_\_\_  
(ii) Chengho lo:\_\_\_\_\_
- 10.In nghahna neih te: (i) Thiante:\_\_\_\_\_ (ii) Chhungte:\_\_\_\_\_ (iii) Pawlho  
thenkhat:\_\_\_\_\_ (iv) Belh tur neilo:\_\_\_\_\_
- 11.HIV kaidan:(i) Drugs:\_\_\_\_\_ (ii) Sex:\_\_\_\_\_ (iii) Nu atangin: \_\_\_\_\_  
(iv) Thisen thianghlimlo dawn atangin: \_\_\_\_\_
- 12.ART damdawi lak leh lakloh: (i) La lalo:\_\_\_\_\_ (ii) La mek:\_\_\_\_\_
- 13.ART tlawh zin dan: (i) Kartin vawi 1: \_\_\_\_\_ (ii) Thla khat ah vawi 2: \_\_\_\_\_  
(iii) Thla khatah vawi 3: \_\_\_\_\_ (iv) Thla khatah vawi 1: \_\_\_\_\_  
(v) Thla inkar thlakin: \_\_\_\_\_ (vi) Tlawh ngailo: \_\_\_\_\_  
(vii) A dang:\_\_\_\_\_



**DEPARTMENT OF PSYCHOLOGY**  
**MIZORAM UNIVERSITY**  
**MIZORAM : AIZAWL**

Tanhril, Aizawl – 796004, Mizoram

**PARTICULARS OF THE CANDIDATE**

Name of the Candidate	: Ms. Lalthazuali
Degree	: Master of Philosophy
Department	: Psychology
Title of Dissertation	: “Role of Depression and Well-being In HIV Transmission Risk Behaviour of People Living With HIV/ AIDS”
Date of Admission	: 28. 7. 2014
Approved of Research Proposal	
1. BOSS	: 14. 4. 2015
2. School Board	: 22. 4. 2015
Registration No. & Date	: MZU/M.Phil./ 224 of 01.05.2015
3. Academic Council	: 4. 6. 2015
Extension (If any)	: Nil

Dr. Zokaitluangi

Head  
Department of Psychology