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Science in Physiotherapy

Fullfillment of the requirements for the degree of Master of
Univrsity of the Witwatersrand, Johannesburg, inpartial
A research report submitted to the faculty of Health Sciences,

Melissa van As

Joseph Memorial Hospital
Visiting the HIV Outpatient Clinic at Helen
Functional, Disability AND Health in Adults
The International Classification of
DECLARATION

I, Melissa Van Arsde, declare that this research report is my own work, it is being submitted for the degree of Master of Science in Physiotherapy in the University of the Western Cape. It has not been submitted before for any degree or examination at this or any other University.

Signature:

17th day of November, 2007
ABSTRACT

The International Classification of Functioning, Disability and Health (ICF), a standardized tool used to classify functioning and disability, was developed to describe how factors (body functions, activities and participation, environmental factors) interact and contribute to a disabling condition. This study aimed to develop a profile of the level of functioning, disability and health of an cohort of 45 South African HIV-positive individuals attending an out-patient clinic at the Helen Joseph Memorial Hospital, Gugulethu, South Africa.

The effects on the health-related quality of life and functional abilities of those with the disease restrictions of persons living with HIV/AIDS is limited and these aspects have priority. Research on the physical impairments, activity limitations and participation and acquired immune deficiency syndrome (AIDS) (Oden, Moxon, Tsen, Nyen and Chizari, and Russell, Nixon, Schriger, Bressini, Chen and Hogan, 2004). The introduction of antiretroviral therapy has led to increased longevity, increased cluster of human immunodeficiency virus (HIV) at the end of 2006 (UNAIDS, 2006). The estimated 18.8% of South Africans between 15-49 years of age were living with
This study identifies the importance of assessing and addressing the functioning and participation restrictions of people living with HIV/AIDS. In addition to clinical markers, it affects the

The results showed that there is a high prevalence of mild to moderate physical


O’Dell, Nixon and Cockrell (2005: O’Dell, Hubert, Lubben and O’Driscoll, 1989; All: Field, care interventions as well as vocational and legislative policies (Workright, Myres, with HIV/AIDS will assist in the formulation of improved rehabilitation protocols. Health

imperatums, activity limitations and participation restrictions experienced by persons living

Institutional Impairments are linked with activity limitations and environmental factors influence level of ability. The results supported the findings of

The study identifies the importance of assessing and addressing the functioning and participation restrictions of people living with HIV/AIDS. In addition to clinical markers, it affects the
Belgian Technical Cooperation, for the award of a local scholarship

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World Health Organisation - WHO
Hypothetical Hepatitis - HB
South African National HIV Survey - SANHS
Pharmacologic Acid - PAA
People Living with HIV/AIDS - PLWHA
Nucleoside Analogous Reverse Transcriptase Inhibitors - NRTIs
Non-Nucleoside Reverse Transcriptase Inhibitor - NNRTIs
International Classification of Functioning, Disability and Health - ICIDH
Human Sciences Research Council - HSRC
Human Immune Deficiency Virus - HIV
Highly Active Anti-Retroviral Therapy - HAART
International Classification of Impairments, Disabilities and Handicaps - ICIDH
Deoxyribonucleic Acid - DNA
Centers for Disease Control and Prevention - CDC
Cluster of Differentiation Four - CD4
Acquired Immune Deficiency Syndrome - AIDS
List of Abbreviations
Interactions, family and friends (Davis, 2006).

Dimensions include physical and mental functioning, social one's environment and personal goals and expectations. Pertaining A dynamic, multidimensional concept which may be influenced by

Quality of life (noun)

process that enhances "activity" and "participation" (Price et al.,

Functional levels of the ICF, a coordinated enabling persons with disabilities to reach and maintain optimal

The WHO (2002) define rehabilitation as a process aimed at

Rehabilitation (noun)

restrictions for any individual (Wrighting et al., 2006).

Physical impairments, activity limitations and participation

prevention, treatment interventions and services which address all

Rehabilitation (noun)

a dynamic, multidimensional process which includes all

Body functions, structures, activities and participation (Davis,

Functioning (noun)

term encompassing the positive aspects of the ICF including

considered normal for a human being” (Nixon and Corn, 2000).

Difficulty (noun)

restriction of task or ability to perform an activity within the range

Activity-experienced

between individuals and the environment (Davis, 2006) or any

Activity-experienced

of impairments interaction

Rehabilitation achieved (Call et al., 2000; Low-Beer et al., 2000).

Activity-experienced

Used to describe persons who are taking have taken anti-

Activity-experienced

the use of anti-rehabilitation treatments (Yap and Peace et al., 2005; Kigbe

Activity-experienced

Used to describe persons who have not had any experience with

Definition
group action in working towards agreed individual-centred goals
between or among disciplines; joint/shared responsibility and

individual patients' needs are met (Davis, 2006).
Across disciplines, blurring of goals - one person ensures that
disciplines (Davis, 2006),
Efforts towards patient goals arise from a number of different
2006).

a particular skill or a branch of learning or instruction (Davis).
Or for a discipline, which is described as framing the produces

Patient perception of health and well-being (Hughes et al., 2004;
social functioning as well as mobility, self-care, participation and
respect to aspects such as physical, emotional, cognitive and
Health-related quality of life describes health state with
broad dimensions of physical and mental health (Cummingham et
working and well-being or lack thereof due to health. It covers
The ability to perform activities of daily living, such as walking and
Health-related quality of life
Participation Restrictions

Table 4.10. Body Impairments Shown to Predict Activity Limitations and Mobility

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Introduction

Chapter 1
Current management of HIV/AIDS focuses largely on the prevention of HIV-related infections and the management of ARVs (Zouga et al., 2003). Patents’ functional abilities and needs may not have been given much attention until recently. Thus, there has been insufficiency research on the infectious, interdisciplinary, long-term management for PLWHA. Research on the challenges faced by PLWHA, using the ICF checklist, may assist in the development of a conceptual rehabilitation framework which should include the definition of rehabilitation in the South African context. (Mwamba, 2006) and is thus useful within the South African context.

The International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001) and the World Health Assembly for International use, has also been addressed by the World Health Assembly for International use. The ICF checklist has been developed for the description of health and health-related states. The ICF checklist has been adopted as a tool to provide an unified, standard language and format across types of disabilities and cultural boundaries. Why has the use of functional and mental health as well as associated environmental and personal limitations and participation restrictions been associated with physical and mental impairments and activity and participation? The International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001) and the World Health Assembly for International use, has also been addressed by the World Health Assembly for International use.
people living with such unpredictable and challenging diseases (Cullen, Garcia, L'Andro et al., 1997).

acquire adequate and appropriate knowledge, intervention skills and opening minds to real

especially those in the field of rehabilitation, to take it upon themselves to ensure that they

South Africa (using the ICPO may be helpful to influence health care professionals.

2005). Developing a profile of the level of function and disability of a cohort of PLWHA

co-modifications and to have a positive impact on the lives of PLWHA (Wormington et al.,

rehabilitation is a field that is well equipped to address the multifaceted HIV/AIDS-related

There is a misconception that rehabilitation providers have little to offer for PLWHA but

designing of rehabilitation protocols and rehabilitation work programs.

to develop a profile of the difficulties experienced by PLWHA in order to assist the

cause physical impairments, activity limitations and participation restrictions. One needs

considerable efforts in the South African context. There is a need to ensure that the framework

suitable for use in the South African context. This study found that the framework

(Schild, 2002). The versatility of the tool across national and cultural boundaries makes it

description of functioning in rehabilitation (Schild, Cleave, Foster, Kassel, Cheshire and

The ICPO is expected to become the accepted framework in the assessment and

available, acknowledged and utilized by PLWHA.

the responsibility of health care professionals to ensure that multidisciplinary services are

would be beneficial in assisting the rehabilitation process (Wormington et al., 2005). It is

through rehabilitation interventions for PLWHA. The use of appropriate assessment tools

Health professionals era in a position to have a significant impact on maximizing function

supportive aspects of health care (Zonga, de Almeida, Carter, Zemek, Wennekes, 2005).

must have services which encompass prevention, treatment, education and

prevent limiting limitations (Wormington et al., 2005). O'Dell et al., 1997). Rehabilitation

functional, social, psychological and vocational well-being, thereby reducing quality of life and

Rehabilitation strategies should aim to improve resilience and optimize a person's

improvement, activity limitations and participation restrictions for any individual.

Wormington et al., 2005).&nbsp;Deeper rehabilitation as a dynamic, multidimensional process

Wormington et al., 2005).
Rehabilitation interventions to improve the lives of HIV-positive people in South Africa. PLWHA. This study may also assist future research exploring appropriate and beneficial approaches to management which enhance prevention, primary care and rehabilitation of holistic assessment of problems and impending disabilities in order to inform the positive outcomes of chronic conditions, such as the impact of medication and other health interventions and participation restrictions. These associations in a South African HIV-positive cohort. Such information empowers the need for awareness and involvement of the community.

The results of this study are of use as they identify main areas of improvement in activity, quality of life, and social functioning of this population and subsequently their total health-related quality PLWHA in South Africa. This is important as HIV/AIDS affects the physical, psychological, and social aspects of life. The study contributes to the body of literature on the level of functioning and disability of key variables that have been evident from the data analysis.

To determine the relationships between the level of functioning, disability, and health and

Objective 2.

(d) Environmental factors
(c) Participation problems
(b) Physical limitations
(a) Activity limitations

Objective 1.

Positive outcomes at the HIV clinic at Helen Joseph Hospital by ascertainment of positive outcomes of the study. To determine the level of functioning, disability, and health of a sample of adult HIV urban cohort of South African HIV-positive outpatients. The objectives of the study include:

Aim of the study

The level of functioning, disability, and health of South African HIV-positive outpatients is

Problem Statement
2.1. HIV within the context of South Africa

The search was limited to articles in English and those published after 1990. Four well-known articles that were published before 1990 were used. Key words used included:

- Aids rehabilitation
- Quality of life
- Rehabilitation
- Health-Related Quality of Life
- Disability
- HI

An electronic search was done using PubMed, Medline, CINAHL, Cucci, and Google Scholar. References from other report were also gathered through a hand-search using journals in the University of the Western Cape, electronic databases and journals and World Wide Web sites. Reference lists were also used to identify potentially relevant studies.

This literature review examines current information regarding HIV as a condition and as a disability.
and thus the spread of HIV (Quinn, 1994). Inadequate services like sanitation and basic recreation, social inequality, and poor infrastructure facilitate the mobility of South Africans. Historical political, socioeconomic, and cultural reasons, including high prevalence of HIV in Sub-Saharan Africa, which includes a complex interplay between high prevalence of HIV in Sub-Saharan Africa, which include a complex interplay between prevalence in South Africa:

Although the studies and projections portray different results, the outcomes show that the prevalence of HIV is very high and far greater amongst females than males. These projections from the national statistics of South Africa (2002) report national HIV/AIDS prevalence at 11.8% in 2005 and estimate that there will be a gradual increase of approximately 11.3% by 2010. According to the report, the highest prevalence of HIV occurs in urban, informal localities (17.6% (HSRC, 2006)).

According to the report, the highest prevalence of HIV occurs in urban, informal localities (17.6% (HSRC, 2006)). Amongst the population, the highest HIV infection rates of 21.1% were observed in Khomas, Namibia, (33.0%) Free State (51.7%) and KwaZulu Natal (32.1%).

The South African Department of Health Study (2006) estimated that in 2006, 29.1% of pregnant South African women were HIV positive. The highest HIV infection rates by years and 8.2% of the males were HIV positive in 2005 (HSRC, 2006). The SAHIS (2005) showed that 23.4% of females and 2.4% of males over the age of 15 were HIV positive and that 17.3% of the males over the age of two years and 8.2% of the males were HIV positive in 2005 (HSRC, 2006).

UNAIDS (2006) reports the prevalence among the age group to be 18.8% (UNAIDS, 2006). The prevalence among those between the ages of 15 and 49 to be 16.2% whilst the prevalence amongst those between the ages of 15 and 49 to be 16.2% whilst the latest statistics with South Africa: The South African National HIV Survey, 2005, reported the prevalence of HIV infection was 9.6%.

There are 38.5 million HIV-infected people in the world and approximately 63% of those infected are women (UNAIDS, 2006). There are varying reports on HIV/AIDS.
Lopes Ruiz, Del Aro; Jimenez, Cauces Fletes and Peresu Lago, 2005. Beash, educational impacts upon those affected by the condition (eg. Peas; Roberts, Banga).

In addition to poverty, HIV/AIDS poses profound social, economic, cultural, and

chronic impoverishment (Teade, 2006).

For PLWHA, medical expenses, loss of schooling and informal expenses can lead to conditional causes exacerbated among the inability of PLWHA to work causes loss of income. 2007, Teade, 2005. Conversely, poverty alleviation is hampered by HIV/AIDS as the information regarding HIV infection and risky sexual behaviors (Department of Health, community levels results in a lack of basic resources, education, marketable skills and income. 2006, Law and Muula, 2004; Thirty, 2002). Poverty at individual, household and institutional level results in inadequate poverty among HIV/AIDS-afflicted populations (Teade, 2006). Poverty in an exacerbating poverty exacerbates HIV and AIDS plays an

relationship to poverty exacerbates HIV and AIDS. The poverty-HIV/AIDS

prevention which results in undue expenditure to health (HSRC, 2005). The poverty-HIV/AIDS

education, medical services and hence less priority placed on nutrition and HIV

Poverty has been highlighted as a driver of HIV infections as its effect access to nutrition,

situations, and exposure to substances (HSRC, 2005).

2007, Important risk determinants include poverty, high density informal housing

attend to HIV/AIDS create barriers to achieve HIV education (Department of Health, change among South Africans (HSRC, 2005). The stigma discrimination and secrecy

restrictions and measures with regards to HIV have resulted in minimal behavioral

Poor knowledge, perceptions and lack of awareness of the contributing factors,

Muula, 2004). The

reported to contribute to a high HIV prevalence (Department of Health, 2007, Law and early sexual debut, low condom use and the subordinate position of women has been

multiple partners and complex sexual networks are common and acceptable and in addition,

have not been prioritized (Law and Muula, 2004). From a cultural perspective, multiple

the protection of HIV (Department of Health, 2007). Africa has generally been slow to

medical care including the provision of ARVs, as well as poor nutritional status has led to
The heightened workloads in addition to poverty may even force women to engage in
women as their primary responsibility, as caregivers are strained in the face of HIV/AIDS.

upon human and social development (Coffme, 2002). HIV/AIDS impacts upon
organizations and children households results in a breakdown of family networks which impacts
orphans and child-headed households (SARS, 2002). The high number of
households are run by 2.8% of 12-18 year olds (SARS, 2002). In addition, child-headed
households are run by 12-18 year old South Africans (2.4%) (SARS, 2002). In addition, child-headed
disadvantaged families (Coffme, 2002). HIV contributes to sizeable proportion of the orphanhood
The social and cultural impacts of HIV/AIDS are influenced by poverty and must not be
rather than to education (Coffme, 2002).

cured by HIV/AIDS result in the majority of household income going to healthcare costs
members or substitute reduced household incomes (Coffme, 2002). The financial strain
debtors. Children may also be removed from school to run households, care for family
consequences of education institutions due to child-headed HIV/AIDS-reared households and
(Carr-Hill, Kabeer, Kestelman and Ouma, 2002). The effects of HIV/AIDS may result in lower
will reduce the effectiveness of schooling and the development of new skilful individuals
HIV/AIDS (Coffme, 2002). Loss of qualified educators due to illnes, death or mobility
comprise the largest occupational group in South Africa and up to 30% are reported to be
HIV/AIDS has serious educational impacts as it affects educators and scholars. Educator
(Coffme and Whitehead, 2001)
poverty minding individuals and communities more vulnerable to the HIV/AIDS epidemic
HIV/AIDS (Coffme, 2002). Reduced productivity and poor economic growth increases
will be 22% less in 2010 than it potentially could be without the impact of
large number of mobile workers (Coffme, 2002). It is estimated that the South African
industries (Coffme, 2002). The main sectors experiencing the economic impacts of HIV and
improve due to the death of skilled workers and fear due to HIV/AIDS. High skill
workers due to personal illness and burnout. Government (Coffme, 2002). High skill
decrease in productivity results in all sectors due to illness and absences of skilled
potentially productive youth of a community (Coffme and Whitehead, 2001). A
Whitehead and Diamond, 2002). HIV/AIDS affects the most productive people and
### Transmitted Infections Strategic Plan for South Africa: 2007-2011

#### Table 2. The Four Priority Areas - The HIV and AIDS and Sexually Transmitted Infections

<table>
<thead>
<tr>
<th>Key Priority Area</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Surveillance and Monitoring, Research and Development</td>
</tr>
<tr>
<td></td>
<td>Effective HIV/AIDS Prevention, Treatment, Care and Support</td>
</tr>
<tr>
<td></td>
<td>Addressing and reducing the burden of HIV/AIDS</td>
</tr>
<tr>
<td></td>
<td>Reduce transmission of HIV</td>
</tr>
<tr>
<td></td>
<td>Reduce vulnerability to infection and the impact of HIV/AIDS</td>
</tr>
<tr>
<td></td>
<td>Addressing needs of women and children</td>
</tr>
<tr>
<td></td>
<td>Enable PLWHA to live healthy and productive lives</td>
</tr>
<tr>
<td></td>
<td>Voluntary counselling and testing</td>
</tr>
</tbody>
</table>

Local clinicians (Dr. G.F. von Hagen, 2002: NNH] and colleagues in the Department of Health, 2007: HSI, 2009: The HIV and AIDS and Sexually Transmitted Infections Strategic Plan for South Africa 2007-2011) have highlighted four priority areas for addressing HIV/AIDS in South Africa. These are presented in Table 2.1.

#### Areas of Priority

1. **Focal Clusters** (Department of Health, 2007: HSI, 2009: The HIV and AIDS and Sexually Transmitted Infections Strategic Plan for South Africa 2007-2011) emphasize community involvement, health education, prevention of mother-to-child transmission and prevention campaigns to the largest extent of HIV/AIDS. The government and non-governmental organizations are called upon to increase outreach programs, health care worker training and education, and to intervene to the effects and impacts of HIV/AIDS on the nation's health and safety.

...
II

Receptor for the virus, results in a global immune deficiency (Serra et al., 2005; Fauque.

Immune functions of the body. Depletion of this subset of cells, which have the CD4

T-lymphocytes are the primary cells involved directly and indirectly in coordinating the

permissability of the host cell by the accessory proteins (Serra et al., 2005; Fauque, 1999).

DNA within host cells. Lysosomal differentiation of the infected cell and increased

by which T-cells are destroyed include active replication and accumulation of the viral

the helper T-lymphocytes (also known as T-cells). The specialized cytoplasmic mechanisms

HIV Infection causes profound immune system decline due to selective inactivation of

S. Pfeffer, 1999).

host cell (or budding) after which reverse transcription occurs (Serra et al., 2005; Barge.

replication. The newly formed, synthetic strands are released from the envelope and accessory proteins so further replication of HIV can occur. After

and viral enzymes (Serra et al., 2005; Fauque, 1999). Spliced mRNA units produce new

molecules, which are exported from the nucleus of the infected cell by accessory proteins.

Virion RNA by cellular RNA polymerase produces new virions. Full-length RNA

in the nucleus of the infected cell. The DNA of the host by the reverse transcriptase within the nucleus (Fauque, 1999). Transcription of the reverse transcriptase within the cytoplasm and the complete proteins is incorporated into

by (Serra et al., 2005). Viral RNA is transcribed to viral DNA (complementary DNA (cDNA) by

membrane of the host cell and the viral core is released in the cytoplasm of the infected cell

receptor, CD4, on the host cell and the viral MD, envelope proteins with the cellular

proteins, which include the viral encoded enzymes (protease, reverse transcriptase

components required for HIV replication are incorporated in the viral envelope. These

two molecules of the viral RNA genome (Serra, Kipper and Klausner, 2005). The core is

HIV is transcribed (cDNA) using RNA from the reverse transcriptase, and the viral RNA

2.2. Replication of HIV and the impact on the immune system
<table>
<thead>
<tr>
<th>WHO Clinical Stage</th>
<th>Clinical Stage</th>
<th>Clinical Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexplained persistant fever</td>
<td>Clinical Stage 3</td>
<td>Clinical Stage 2</td>
</tr>
<tr>
<td>Unexplained chronic diarrhoea for longer than one month</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fungal lung lesions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Septicemic complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumocystic pneumonia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent oral ulcerations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatic failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquired retinitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lymphadenopathy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persistent generalized lymphadenopathy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymptomatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Retroviral Syndrome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymptomatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary HIV Infection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2: The WHO Clinical Disease Staging System

In Table 2.2, Mogren, M., Mayanja, W., Whitenhorn, and Kiemeny, 2002. The staging system is presented for diagnosis and clinical presentation (WHO, 2005). The World Health Organization (WHO) disease staging system is designed to classify HIV-infected individuals into four stages based on the extent of clinical disease. The stages are as follows:

1. **Asymptomatic**: No symptoms or signs of HIV infection.
2. **Acute Retroviral Syndrome**: Symptoms of illness within the first few weeks after infection, including fever, rash, and fatigue.
3. **Primary HIV Infection**: Symptoms similar to those of acute retroviral syndrome but usually less severe.
4. **Clinical Disease**: Symptoms of pneumonia, opportunistic infections, and other serious illness.

2.3. Disease Staging

(From: 2004; Evans and Scadden, 2002).

The disease staging and pathophysiology of HIV-related to various body systems will follow the same pattern, although the severity and duration of the symptoms may vary. The immune system is the first line of defense against HIV infection, and the body's response to infection can be measured by the levels of CD4+ T-cells. The ability of the body to destroy pathogens is reduced. (Smith, 1993). HIV also attacks the immune system, leading to a decreased ability to fight off infections and diseases.
<table>
<thead>
<tr>
<th>Stage</th>
<th>Clinical Signs</th>
<th>CDC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Persistent generalized lymphadenopathy</td>
<td>A1 &lt; 500</td>
</tr>
<tr>
<td></td>
<td>Asymptomatic</td>
<td>1800-499</td>
</tr>
<tr>
<td>B</td>
<td>Fever and oral mucous lesions</td>
<td>200-499</td>
</tr>
<tr>
<td></td>
<td>Easy opportunistic infections</td>
<td>500-699</td>
</tr>
<tr>
<td>C</td>
<td>Herpes zoster</td>
<td>700-799</td>
</tr>
<tr>
<td></td>
<td>Cryptococcal and Mycobacterial infections</td>
<td>800-899</td>
</tr>
<tr>
<td></td>
<td>Disseminated cervical carcinoma</td>
<td>900-999</td>
</tr>
<tr>
<td></td>
<td>Opportunistic infections</td>
<td>1000-1999</td>
</tr>
<tr>
<td></td>
<td>Lymphadenopathy</td>
<td>2000-2999</td>
</tr>
<tr>
<td></td>
<td>Cytomegalovirus</td>
<td>3000-3999</td>
</tr>
<tr>
<td></td>
<td>Enterovirus</td>
<td>4000-4999</td>
</tr>
<tr>
<td></td>
<td>HIV encephalopathy</td>
<td>5000-5999</td>
</tr>
<tr>
<td></td>
<td>Extrapulmonary lymphoid involvement</td>
<td>6000-6999</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td>HIV wasting syndrome</td>
<td>10000-10999</td>
</tr>
</tbody>
</table>

Table 2.3. Centers for Disease Control and Prevention Classification System

Table 2.3 (Vyas et al., 2005; Marsh, 2004; CDC, 1999) describes the CDC classification system for HIV/AIDS. The classification system is similar to the WHO classification but combines clinical and laboratory data. The table lists symptoms and signs associated with each stage of the disease. The CDC code for each stage is also provided.
2.4. Pathophysiology of HIV and the Effect on Major Body Systems

Relaxed immunomodulation and dysregulation.

HIV, on the many systems of the body is vital to appreciate the underlying causes of HIV-

related immunosuppression and opportunistic infections. If the CD4 count is below 200 cells/milliliter, such as malignancies or opportunistic infections or if their CD4 count is below 200 cells/milliliter, 200. Patients will be classified with AIDS if they present with AIDS-defining illnesses. AIDS-defining illnesses include clinical manifestations and diagnostic conditions defined by WHO.

AIDS-defining illnesses are classified as follows:

1. Disease symptoms or signs that are unusual or cause diagnostic concern.
2. Laboratory abnormalities that are unusual or cause diagnostic concern.
3. Physical examination findings that are unusual or cause diagnostic concern.

Common AIDS-defining illnesses include:

- Kaposi's sarcoma
- Malignant lymphomas
- Pneumocystis carinii pneumonia
- Mycobacterium avium complex infection
- Progressive multifocal leukoencephalopathy
- Non-Hodgkin's lymphoma
- Cryptococcal meningitis
- Toxoplasmosis
- Candidiasis
- Lymphoma

The immune system is disrupted by the inability of the immune system to regulate the immune response and the inability of the immune system to mount a coordinated immune response.

The immune system is disrupted by the inability of the immune system to regulate the immune response and the inability of the immune system to mount a coordinated immune response.

The main transmission routes of HIV are well known: sexual transmission, blood/blood products, and mother-to-child transmission. Once the virus enters the body, it has a primary infection which is characterized by fever, lymphadenopathy, and weight loss, and pregnant women and neonates who are at risk for HIV infection.
Physiological functioning of the pulmonary system due to conditions like pneumonia, infections such as acute bronchitis, bacterial pneumonia, and pneumoconiosis can lead to respiratory disorders, including decreased cough, throat irritations, and a decreased sense of taste and smell. Reported disorders were higher respiratory tract infections with lower respiratory tract infections of respiratory disorders in a multicenter HI-positive cohort. The most frequent were Wallace, Hansen, Langan, Clonch, Brown, Rosen et al., 1997, examined the effects of respiratory infections with chronic respiratory disease.

2.4.2. Respiratory and Cardiac Systems

Symptoms and physical and pathological dysfunction (Evens and Scedden, 2000).

Hematological measurements are direct markers which contribute to lungs and influence the respiratory integrity of all systems of the body (Davies and Zauli, 1995), affecting the immune system, respiratory, pulmonary and respiratory function, including hemocytoblasts, monocytes, neutrophils, polymorphonuclear cells, and lymphocytes. Disorders that cause hematological abnormalities such as marrow (Moyle and Shearer, 2005) and associated products affect the cell membrane. The impact of HIV on the hematolymphoid system involves hematopoiesis within the bone marrow.

2.4.1. Hematological and Lymphoid Systems

Reviewed.

The literature on markers of HIV/AIDS is extensive, and the literature on how they are affected was elaborated on the effects of HIV on adults at a systemic level. The body systems found in the literature, including the viral, viral genome products, HIV/AIDS and infections. The following sections of the HIV virus, including products, HIV/AIDS and infections, the causes of most HIV-related manifestations are through the direct and indirect impact.

Reduced proliferation in activities (Moyle and Shearer, 2005), effects on multiple structures and systems and immune system in poor body functioning and infections (as outlined in Disease Staging), as well as intercellular organelles have adverse effects on multiple structures and systems and immune system in poor body functioning and infections (as outlined in Disease Staging, 2000). As the immune system declines, bacterial and viral infections in the chronic nature of the HIV infection and the onset of opportunistic infections (Sing et al., 2005; Evans and Scedden, 2000). Continued destruction of CD4+ lymphocytes, important functions and the body's defense system is rendered inadequate and unable to prevent infections and infections which are mediated by the immune system, both humoral and cell-mediated immune responses, results in dysregulation of immune system...
and altered immunoregulatory responses as a result of HIV infection. Immunocompression also
leads to muscle weakness, fatigue, and abnormalities of the musculoskeletal system. Muscle
weakness is common and often progressive, leading to decreased mobility and increased
dependency on others for daily activities. HIV/AIDS-related muscle weakness is due to
muscle atrophy, which is further exacerbated by nutritional deficiencies and chronic
illnesses.

Musculoskeletal dysfunction (Lewison and O'Connor, 1991) includes decreased
mobility, joint pain, and fatigue, which may limit functional mobility and affect
caregiver and family support. Joint pain and fatigue are common in advanced HIV
infection, and the combination of pain and fatigue can further exacerbate muscle
weakness.

Musculoskeletal dysfunction is common in HIV/AIDS, and muscle weakness is
frequently associated with muscle atrophy, which may be caused by chronic illness,
nutritional deficiencies, and chronic infections.

2.4.3. Musculoskeletal System

Delivery to muscles and nerves poor physical function (Marks, 2004).

Bone marrow in combination with HIV/AIDS-related complications, result in poor

immunocompression. Immunocompression is caused by the decreased immune system's
response to infection and chronic illness. HIV/AIDS-related complications include
depressed pulmonary function, reduced pulmonary diffusion capacity, and
impaired blood flow.

HIV/AIDS-related pulmonary dysfunction is a result of decreased pulmonary diffusion capacity and
impaired blood flow. Decreased pulmonary diffusion capacity is caused by the physical
obstruction of the lung by HIV/AIDS-related complications. Decreased blood flow is
caused by decreased pulmonary diffusion capacity and impaired blood flow.
and sensory deficits, behavioral changes and depression all of which influence a
AIDS and may result in cognitive impairment, loss of concentration and memory, motor
Levenson and O'Connell, 1991), neurological deficits are common in
condition, diabetes, and mental disorders; sensitization which can include mobility (WHA, 2005;
and Shaffer, 2002; O'Dell, Levenson and Flagg, 1999), peripheral neuropathies result in
neuropathies often affect lower extremities which cause pain, dyesthesia and ataxia.
and peripheral neuropathy are common
neuropathies (Levenson and O'Connell, 1991), Toxoplasmosis.
the brain, spinal cord and meninges resulting in cognitive impairment and local
central nervous system causes considerable disability as it affects and impairs affects
Large, Burger, Belson and Porjesz, 1996; Feudt, 1998), Direct HIV involvement of the
issue and are involved in causing HIV dementia (Kilson et al., 1998; Ewing-Bailey et al.,
generation of neurotoxins by infected cells may depolarize the functioning of neural
inhibition of neurotransmitters (neuropathic lecser for spinal and sensory nerves) and the
1998), injection of neurotoxins, including macrophages, microglial cells and astrocytes,
cellular injury and the amyotrophic lecserosis (Kilson et al., 1998; Conant et al.,
Neural lincraining is impaired by the direct and indirect influence of HIV through
2.4.5. Nervous System

Reduction in mobility (Mear, 2004),
loss of lean body mass results in significant weight-loss, loss of strength and results in a
loss of bone mass results in significant weight-loss, loss of strength and results in a
addition to anorexia nervosa and related behavioral changes. In advanced AIDS
Leviso and O'Connell, 1991), muscle mass is lost and used as a source of energy
metabolism, decreased energy supply and lead to decreased physical activity (Smith, 1993).
HIV impairs the gastrointestinal system which negatively affects nutritional status
2.4.4. Gastrointestinal System

renders HIV positive people with musculoskeletal influences more vulnerable to infections
2.5. Highly Active Antiretroviral Therapy

In contrast with antiretroviral therapy, highly active antiretroviral therapy (HAART) provides a complex regime of highly active antiretroviral drugs, enabling current management to control the multisystemic and functional deficits caused by the HIV/AIDS infection. This therapy introduces HAART, which is supported by similar medications as well as HAART on the household and society (HIV, 2006: Mares, 2004; Webber and Notton, 2004; Vihme et al., 2003). The impacts of the HAART on the physical and psychological levels and Huntington’s disease result in significant mental and physical problems. Antiretroviral drugs proved to be effective in reversing the multisystemic effects of the HAART, assisting in the recovery of mental and physical conditions due to the intractable effects of HIV/AIDS-related conditions (Mares, 1991; Bell, 1998)
The treatment of HIV/AIDS requires a high level of adherence and a lifelong responsibility. In order to ensure a high level of adherence, and to prevent the emergence of drug-resistant HIV strains, patients need to take their medications consistently. Several factors affect adherence, including side effects, drug interactions, and patient and provider preferences.

A long-term use of non-nucleoside reverse transcriptase inhibitors (NNRTIs) is recommended for patients on NNRTI-based regimens. The table below shows the recommended NNRTI-based regimens for patients with HIV/AIDS.

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Abbreviated Name</th>
<th>Drug Name</th>
<th>Process Inhibitor</th>
<th>Treatment Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNRTI</td>
<td>ATR</td>
<td>扎西卡韦</td>
<td>拓定龙</td>
<td>双重耐药患者</td>
</tr>
<tr>
<td>NNRTI</td>
<td>EFV</td>
<td>埃替拉韦</td>
<td>埃替拉韦耐药性</td>
<td>多重耐药患者</td>
</tr>
<tr>
<td>NNRTI</td>
<td>NVP</td>
<td>奈韦拉韦</td>
<td>奈韦拉韦耐药性</td>
<td>多重耐药患者</td>
</tr>
<tr>
<td>NNRTI</td>
<td>TMC266</td>
<td>拉米夫定</td>
<td>拉米夫定耐药性</td>
<td>多重耐药患者</td>
</tr>
<tr>
<td>NNRTI</td>
<td>ATV</td>
<td>洛匹拉韦</td>
<td>洛匹拉韦耐药性</td>
<td>多重耐药患者</td>
</tr>
<tr>
<td>NNRTI</td>
<td>ATV</td>
<td>洛匹拉韦</td>
<td>洛匹拉韦耐药性</td>
<td>多重耐药患者</td>
</tr>
<tr>
<td>NNRTI</td>
<td>ATV</td>
<td>洛匹拉韦</td>
<td>洛匹拉韦耐药性</td>
<td>多重耐药患者</td>
</tr>
</tbody>
</table>

2005版《卫生部艾滋病治疗指南》指出，NNRTI联合使用时需注意以下几点：

1. 需要避免多重耐药的出现，特别是对于耐药性较强的药物。
2. 需要根据患者的具体情况，如年龄、体重、肝肾功能等，选择合适的药物。
3. 需要定期监测药物的副作用和治疗效果，及时调整治疗方案。
4. 需要与患者充分沟通，提高患者的治疗依从性。

综上所述，NNRTI在治疗HIV/AIDS中起着至关重要的作用。
Allied medical professionals such as physiotherapists should be aware of side-effects of
HAAART include pain, peripheral neuropathy, and lipodystrophy which reduce mobility, as

<table>
<thead>
<tr>
<th>Health</th>
<th>HAART</th>
<th>Toxicity of the liver and spleen, osteonecrosis, osteopenia, bone conditons &amp; &quot;g.&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreased mobility, decreased strength, pain and need for assistive devices, daily living needs, and sensory disturbances</td>
<td>HAART</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
</tr>
<tr>
<td>Sleep disturbances, loss of energy, and cosmetic concerns</td>
<td>HAART, steatovascular</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
</tr>
<tr>
<td>Depression, low grade fever, discomfort, fatigue, and lack of energy</td>
<td>HAART, steatovascular</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
</tr>
<tr>
<td>Loss of strength, nausea, dermatologic weight changes, and sexual dysfunction</td>
<td>HAART, steatovascular</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
</tr>
<tr>
<td>HAART, NTIDS, T-drugs, and side effects</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
<td></td>
</tr>
<tr>
<td>HAART, steatovascular, with complications of steatovascular disease, steatovascular, and cardiovascular disease</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
<td></td>
</tr>
<tr>
<td>HAART, steatovascular</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
<td></td>
</tr>
<tr>
<td>HAART, steatovascular, with complications of steatovascular disease</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
<td></td>
</tr>
<tr>
<td>Steatovascular, with complications of steatovascular disease</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
<td></td>
</tr>
<tr>
<td>HAART, steatovascular, with complications of steatovascular disease</td>
<td>HAART, osteopenia, osteonecrosis, osteopenia, bone conditions &amp; &quot;g.&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.5. Some side effects of HAART and associated symptoms.

The side effects caused by HAART are multi-systemic. The common side effects and the associated symptoms and implications for health include functional impairments and the effects on the quality of life.

The International Classification of Functioning, Disability and Health

2.6 The International Classification of Functioning, Disability and Health (ICF) was developed by the World Health Organization (WHO) and endorsed by the World Health Assembly. The ICF provides a single, standardized framework for the description of health and health-related aspects of an individual's life, which includes the assessment of function and disability. It is designed to be useful in the assessment of health status and the planning of health and social services.

The ICF is a framework that is used to describe the relationship between health and other aspects of an individual's life. It includes two main components: functioning and disability, and health and environmental factors. Functioning refers to what an individual can do, while disability refers to what an individual cannot do. Environmental factors include the physical, social, and personal environments that influence health and well-being.

The ICF provides a comprehensive framework for understanding health and well-being, and it is widely used in research and practice. It is a valuable tool for health professionals, policymakers, and researchers, as it helps to identify the areas where intervention is needed and to measure the impact of interventions.
Kostanjsek, Ustin and Sklink 2002; WHO ICF Website 2002).


The ICF checklist, published in 2001, was developed as a sequel to the ICDH 2. The checklist, a tool for the assessment of health status and the identification of health problems, was designed to assist clinicians, educators, and public health professionals in identifying health problems. It is based on the International Classification of Functioning, Disability, and Health (ICF), which provides a framework for understanding the complex interactions between health conditions and personal and environmental factors.
physical impairments without resulting capacity limitations or one may have performance
measures and not necessarily follow expected one-to-one relationships. 4. One may have
participation restrictions and environmental factors are fixed, may not be a biophy-
Il must be noted that the relationships between physical impairments, activity limitations,
limitations at body, individual and societal levels (Hwing and Kocherlik, 2003).
associated with activities and participation. The ICF checklist can thus be used to assess
and body structure, in addition, body functions and structures are
psychological or cognitive functions of the body. Problems in body functions occur
studies stress the many pathways of body, whilst body functions and structures are
problems in biological, psychological or cognitive functions of the body, Problems in body functions occur
defined as problems in individual level in explaining activities and participation restrictions are
function of structure as a significant deviation of less activity limitations are defined as
According to the WHO (2002), physical impairments are defined as problems in body
the definitions of physical impairments, activity limitations and participation restrictions.
In order to fully understand the scope of the ICF Checklist as a tool, one must be aware of

2.6.1 Definition of ICF Items

human being.
restriction or lack of ability to perform an activity within the range considered normal for a
(Chiera et al, 2002; Davis, 2009; Nixan and Cox, 2000) describes disability as any
and personal factors are described as disability, functioning
impairments, activity limitations and participation restrictions as described by the ICF
components to the positive aspect of the relationship. Disability is thus a broad term for
are illustrated to show their relation to the health condition as well as to contextual factors
The components of functioning: Body functions and structures, activities and participation,

level 3 - the whole person in the social context

level 2 - the whole person

level 1 - at the level of the body and the body part

Human functioning in the ICF is defined as operating at these levels:
The ICF Checklist is an abbreviated, practical list of ICF codes which measures health-related function with the use of qualifiers that are entered into the ICF coding system. (Arthu et al., 2004).

(Desine et al., 2006; Hwang and Nocjar, 2003.)

The ICF Checklist uses a hierarchical structure with each domain consisting of: health; body functions and pain; and pain components. Each of these domains can be further divided into subdomains: body functions and pain; pain components; and body functions and pain. The ICF Checklist includes physical, psychological, and social aspects of health as well as environmental factors. Each domain is further divided into subdomains, which include the components of human functioning and disability. The components are divided into the ICF Checklist classes, which are based on primary function, body functions and body structures, and disability. (WHO ICF, 2002.)

2.2 Structure of the ICF and the ICF Checklist

The ICF Checklist includes a total of 102 codes, which are organized into four levels: level of disability, level of activity, level of participation, and level of performance. The first level is the level of disability, which includes codes for impairments, activity limitations, and participation restrictions. The second level is the level of activity, which includes codes for activity limitations and participation restrictions. The third level is the level of participation, which includes codes for participation restrictions and societal participation. The fourth level is the level of performance, which includes codes for performance and physical limitations.
Languages at this stage (Jersina et al., 2006).

domains of the ICF are useful for specific conditions and the ICF tool is not available in all consuming (Jersina et al., 2006; Stuck et al., 2000). Researchers have found that all conditions which makes both assessment of the use of the ICF as well as coding very time-consuming (Noboshki, 2003). The most reported weaknesses of the ICF regards its substantial length and (not only health) as a statistical research, clinical and social policy tool (Hwang and Lee, 2007; Hwang and Noboshki, 2008). It can also be used by many sectors and use (Jersina et al., 2006; Stuck et al., 2000). The strengths include the very important in the development of service policies (WHO, 2003).

very important in the development of service policies (WHO, 2003).

Physical functioning involves the purposeful use of body functions in physical, social and emotional contexts (Endersby and Kew, 1995). The ICF Checklist emphasizes the societal level, where external factors such as facilitators or barriers to participation are considered (Hwang and Noboshki, 2003). Factors that are systemic or environmental are still embedded in a person's experience of a quality of life. Considering external factors such as family assistance or mobility aids is called the capacity assessment. External factors are considered at the individual level where a person encounters an environment. A functional assessment of the ICF provides information on participation restrictions and the second level identifies a problem (Rovaniemi, 2000).
The similarity between quality of life assessments and the ICF becomes evident when

<table>
<thead>
<tr>
<th>Personal Factors</th>
<th>Environmental Factors</th>
<th>Activity and Participation Factors</th>
<th>Structure and Environment Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sense of control</td>
<td>Physical environment</td>
<td>Leisure</td>
<td>Sense of acceptance</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>Transport</td>
<td>Information and health</td>
<td>Sleep and rest</td>
</tr>
<tr>
<td>Spirituality</td>
<td>Finance</td>
<td>Opportunities for new</td>
<td>Energy and fatigue</td>
</tr>
<tr>
<td>Competing</td>
<td>Housing</td>
<td>Informal social support</td>
<td>Pain and discomfort</td>
</tr>
<tr>
<td>Image and self-worth</td>
<td>Security</td>
<td>Personal relationships</td>
<td>Communication</td>
</tr>
<tr>
<td>Social connected</td>
<td>Political power and</td>
<td>Social integration</td>
<td>Language ability</td>
</tr>
<tr>
<td>Competency</td>
<td>Self-identified</td>
<td>From formal support</td>
<td>Vision and hearing</td>
</tr>
<tr>
<td>Happiness</td>
<td>Working capacity</td>
<td>Activity of daily living</td>
<td>bowel and bladder</td>
</tr>
<tr>
<td>Physical function</td>
<td>Participation</td>
<td>Mobility and independence</td>
<td>Lower limb function</td>
</tr>
</tbody>
</table>

Table 2.6 ICF Categories and Components of Quality of Life (Davey, 2006). 

Components of quality of life can be classified using the ICF classification at a functional, activity, dependency or health-related quality of life. It was found that all categories of the components of quality of life assessed by Davey and Milner, 2003, call attention to a connection between the ICF components and quality of life (Davey, 2004).

Beeck et al. (2000), O'Dell et al. (1998), Davey (2000), Cunningham et al. (2005), Hughes, Betts, McEwen, Darden,在家, 2004: Lowry et al. (2002) have found that the components of the ICF can be assessed in health-related quality of life. Some of the components of the ICF are also assessed in health-related quality of life such as the Medical Outcomes Survey-HIV, Medical Outcomes Trust (2000). The factors assessed by the ICF have often been compared to those affecting health.
There are many assessment tools that take patient-based measures for HIV/AIDS into account for example, the HIV Health Assessment Questionnaire (CDI et al., 1998), for example, the HIV Health Assessment Questionnaire (CDI et al., 1998). There are many assessment tools that take patient-based measures for HIV/AIDS into account for example, the HIV Health Assessment Questionnaire (CDI et al., 1998).

The Chronic Nature of HIV/AIDS is accommodated by a multitude of disabling conditions.

2.6.3. The Application of the ICF Checklist on People Living with HIV/AIDS

Hwang and Nocke (2003) ICF Checklist on People Living with HIV/AIDS

The ICF Checklist Version 2 incorporates aspects of ICF Checklist Version 2. It allows detailed scrutiny of HIV/AIDS-related matters such as application to AIDS. The ICF Checklist Version 2 allows detailed scrutiny of HIV/AIDS-related matters such as application to AIDS. The ICF Checklist Version 2 allows detailed scrutiny of HIV/AIDS-related matters such as application to AIDS. The ICF Checklist Version 2 allows detailed scrutiny of HIV/AIDS-related matters such as application to AIDS.

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The Chronic Nature of HIV/AIDS is accommodated by a multitude of disabling conditions.
Implementations and activity limitations which result in compromised functional independence

Research has shown that the ICF Checklist and other tools exist in establishing the

and reliability will be able to be established with more frequent use (Jensen et al., 2009).

success of patients, condition characteristics and health-care settings. The tools validated

al. (2004) highlighted a need for the ICF Checklist to be applied in different countries,

in order to ensure the tool is comprehensive when applied to populations. Czeisler et

use of specific core sets of the short version of the ICF as well as the need for adequate

reliability of the construct was understood (Jensen et al., 2006). Studies indicated a need for the

constructing, the questionnaire had to be translated into Xhosa and some codes were not

in the assessment of well-being. The ICF Checklist produced to have limitations as it is time-

(Jensen et al., 2009). The tool's emphasis on environmental factors is especially relevant

Cheddadi is a useful framework to assess functioning in a poorly resourced community

of those currently on ARTs. Despite these limitations, the study demonstrated that the ICF

nave of subjects and it was conducted under such conditions. This was not representative of a larger population

Cheddadi in South Africa. This study was conducted on a small sample of people were ART.

Cheddadi in South Africa. This study was the first to be conducted using the ICF

Township near Cape Town. This study was the first to be conducted using the ICF

suitability of using the checklist to assess the functioning of HIV positive people in a

Jensen et al. (2006) conducted a pilot study using the ICF Checklist to determine the

which is a different area of assessment for PLWHA (Huggins et al., 2004).

Cheddadi includes variables that cover factors affecting health-related quality of life.

environmental factors which may impact significantly upon the lives of PLWHA. The ICF

The ICF Checklist goes one step further by adding the assessment of personal and

encourage the concept of implementation, activity limitations and participation restrictions,

functioning, nutrition/feeding function, health status, quality of life and sexual functioning

et al., 2005). Domains such as health perceptions, pain, physical and social role

cost and service utilization study health-related quality of life measure (CQHHRQ).

Casanova, Lopes-Lautric, Ciares, Moser-MH and Validation Group, 2000) and the HIV

QoLQ and QOL. 2000; Cai, Krapow, Siemeran, Wessely, Mallinger, Demas et al.,

O'Shaughnessy et al., 2005; Call, Krapow, Siemeran, Wessely, Mallinger, Demas et al.,
Physiological impairments, activity limitations, and participation restrictions (components of PHQ) are complex multidimensional interactions which affect many systems including

- functional aspects as well as the environmental and personal factors that may influence
- official markers of a disease and acknowledge the physiological, emotional, social, and
- wellbeing (O'Dell et al., 2000 O'Dell et al., 1996), it is important to look beyond the
- inherent of lost functional capacity and developing complications that affect functioning
- neuromusculoskeletal, neurological, and cardiopulmonary systems and therefore there is a

PHQ is a complex multidimensional interaction which affects many systems including

subsection,

restrictions and environmental factors and will thus be discussed throughout each

quality of life is affected at the level of impairments, activity limitations, participation
restrictions and section 2.7.2 will cover environmental and personal factors. Health-related
function will be discussed. Section 2.7.2 will discuss activity limitations and participation
health and functioning in parts. In section 2.7.1, implications of body structure and
participation restrictions for PLWHA. The literature review will focus on the aspects of

examine the magnitude and contextual processes of impairment, activity limitations, and
restrictions experienced by PLWHA are also described. This section focuses the literature to
between impairments, activity limitations, and participation restrictions as well as external
factors and health-related quality of life for PLWHA are explored. The relationships

in this section impairments, activity limitations, participation restrictions, environmental,

2.7. Functioning, Disability and Health-Related Quality of Life

populations (Zonta et al., 2003).
Rehabilitation.

Showmen physical impairments and functional loss and are important areas for PLWHAs. Central and peripheral neuropathies bring about mental disorders, psychological dysfunctions, and neurological problems are important areas of functional impairment for PLWHAs. (Nunn et al., 2009; Zuniga et al., 2002; Nixon and Cold, 2000; Laing, 1999). An overview of the use of the ICF framework with AIDS by HIV and AIDS patients and inclusive strategies (Selin et al., 2006) have identified psychological, functional, and neurological problems for PLWHAs and may have neurological, functional, and psychological sources attributed to maladaptation, interaction, nutritional deficiencies and psychological factors associated with neurologic abnormality in HIV positive patients (Evans and Sudbrook, 2000) and image changes (Nixon and Cold, 2000; Laing, 1999). Amnesia, is the most common delayed memory, nausea and vomiting, sleep problems, depression, social dysfunction, and body dysfunctions. (Nunn et al., 2009; LeGall, 1999) Issues of importance in PLWHAs include fatigue, pain, nausea, vomiting, and functional impairment. Pain, numbness, and paresthesia are associated with HIV-related cognitive decline and the number of impairments experienced is associated with emotional well-being. As has been found in a number of environmental factors associated with PLWHAs' health-related quality of life, the impact on physical, social, and cognitive functioning is well associated with emotional well-being. (Nunn et al., 2004). The impact of environmental factors associated with PLWHAs' health-related quality of life is associated with physical, social, and cognitive functioning and an interaction between physical, social, and cognitive functioning are well associated with emotional well-being. (Nunn et al., 2004). The impact of environmental factors associated with PLWHAs' health-related quality of life is associated with physical, social, and cognitive functioning and an interaction between physical, social, and cognitive functioning are well associated with emotional well-being.

2.7.1. Implications of Body Structure and Function

Implications of Body Structure and Function

Refer to the most appropriate section within the ICF framework. The studies have reviewed and have been implicated and limitations and participation restriction and other related on environmental factors in level of functioning of PLWHAs (Pugh et al., 2004; Zuniga et al., 2009; Cold et al., 2000; Cold et al., 2000).
conducted a cross-sectional study on 198 subjects which assessed health-related quality of life and psychological morbidity. Green et al. (1999) noted that increased health-related quality of life (HQL) and increased psychological morbidity are associated with decreased physical and mental health. The results of the study indicate that increased health-related quality of life (HQL) and increased psychological morbidity are associated with decreased physical and mental health.

The results indicated that increased health-related quality of life (HQL) and increased psychological morbidity are associated with decreased physical and mental health. The results of the study indicate that increased health-related quality of life (HQL) and increased psychological morbidity are associated with decreased physical and mental health.

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This population-based survey however acknowledged under-representation of females.

Activity limitations and participation restrictions (Household chores and mobility to vigorous activities) and role limitations (Physical, Emotional) were related to decreased mental health-related quality of life. Patients with higher CD4 counts, common activity limitations in the general population as well as overall positive people reported increased roles of physical and mental health-related quality of life. The results of the National Population Health Survey in British Columbia and the mental health-related quality of life and participation restrictions in a cohort of PLWHA by 2004 used a tool based on the ICF framework to assess the level of physical and mental health-related quality of life.

2.7.2 Activity Limitations and Participation Restrictions

Environmental influences (Wyke and Nomon 2004: O'Dell, 1998) and functional elimination into simplification of self-help participation restrictions and correlate with the subjective disease progression. One needs to assess all components of HIV-related impairments may occur in the early stages of the disease and do not always

Levinson (1981) and Minkler and Wallas (2000) note that physical and mental health-related quality of life, health beliefs, and perceived health status are strongly correlated with the satisfaction of the satisfaction of the psychological and emotional needs of PLWHA. It must be discerned as psychological need of the individual that none of these aspects should be assessed in isolation. Clearly, the emphasis on the physical and mental impairments upon living, especially those that affect physical and emotional well-being, and perceived health status, provide a direction for the development of interventions. Ruzza et al. (2005) and Bell provided a perspective of overall perceived health status, which has an impact on functioning and health-related quality of life. Results revealed that the physical symptom score and level of fatigue were the highest predictors of overall perceived health status, with no impact on functioning and social roles. Results revealed that the physical symptom score and level of fatigue were the highest predictors of overall perceived health status, with no impact on functioning and social roles.
The study aimed to examine factors that influence the quality of life among PLWHA. The results, supported by several studies, show that factors such as employment, social support, and access to healthcare significantly impact the quality of life. The study found that unemployed individuals reported lower levels of satisfaction and quality of life compared to employed individuals.

The study also highlights the importance of addressing the needs of PLWHA, particularly in terms of employment and social support. While some studies have shown improvement in the quality of life among these individuals, others have reported a lack of access to necessary resources. The study suggests that more targeted interventions are needed to improve the quality of life among PLWHA.

The findings of this study have implications for policymakers and healthcare providers, who can use the results to develop strategies that address the specific needs of PLWHA. The study also highlights the importance of multidisciplinary interventions that address the various factors that influence the quality of life among these individuals.
issues such as climbing stairs, walking distances greater than one block, instrumental employment, domestic life, and schooling as well as individual anxiety, depression, physical disability, and mobility. The present study also showed that less than 2% of the subjects experienced severe disability in any activity domain. Most of the disabilities occurred in instrumental activities of daily living (including shopping, housework, meal preparation, and personal care). AIDS subjects were less likely to report problems in these areas than non-AIDS subjects. Results were obtained from a cross-sectional observational study by O'Dell et al. (1996) in California on 251 HIV-AIDS subjects. A self-administered questionnaire showed that less decreased muscle strength and unemployment, similar but somewhat contradictory, decreased physical activity and employment. Among the 5 groups, the only group with decreased CD4+ count was reported to suffer from weight loss and neurological involvement. Despite the fact that the mean CD4 count was low at 9 cells per ml and 7.2% had an AIDS-defining illness, 79% were
socioeconomic influences that may lead to the burden of disease should be considered. When assessing functioning and disability, the impact of socioeconomic and employment, housing status and gender. One must consider that the cohort under
associated with socioeconomic and sociodemographic factors such as poverty, age, and gender. Such studies are needed to reduce health-related quality of life, but such programs were strongly
likely to reduce health-related quality of life, reduce depression and those with a combination of hospitalization experience an increased level of depression and functional status at the time of the study. The study
used a small sample of the analyses of several outcomes resulting in limited statistical
comparisons of socioeconomic and sociodemographic variables. Reducing functional health and mental
alities, and available services and policies also influence physical, psychological, and
External factors such as sociodemographic variables, environmental factors, social
2.7.3. Environmental and Personal Factors

Employment, income management, skills and mobility

In order to address symptoms and maximize function with interventions that focus on
show a need for research into functional assessment and disability screening in HIV. In
those not attending a care facility, difficulty in entering facilities at the time of the study, and do not apply to other HIV status. The results of a study by Ellis et al. (2000) were based on self-reports of individuals attending
factors in functional status with improvements in mental health. It should be noted
the administration of pretest-to-posttest intervention trials and (hypothetical) showing number the
2000). Graila et al. (2000) found that decreases in functional activities were associated with
a global health status, perceived pain, and fatigue (Cunningham et al., 2005; Graila et al.,
1999). These variables are often associated with an individual's severity of symptoms,
activities of daily living and affective (rural et al., 2004; Graila et al., 2000; Deil et al.,

Graila et al., 2005; Cunningham et al., 2005; Graila et al., 2000; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Graila et al., 2000; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Deil et al., 2005; Cunningham et al., 2005; Dei...
Informed consent, participation restrictions, and environmental factors can be major challenges in the assessment of physical impairments, activity limitation, and participation. The impact of physical impairments on psychological and social functioning is well-documented. Studies have shown that physical impairments are associated with decreased quality of life, mental health problems, and decreased social functioning. Positive social support has been found to improve the quality of life for individuals with physical impairments. It is important to consider the role of social support in the assessment and management of patients with physical impairments. Cross-sectional studies have also identified important factors such as gender, disability, and economic status as predictors of physical impairments. Factors that may be non-modifiable include socioeconomic status, family, community, and health-care levels. The studies also imply that potential interventions may be non-
Nociestra, 2003; Nixson and Cott, 2000).

This can be attributed to the chronicity of HIV since the introduction of antiretroviral therapies such as HAART (Montagnier et al., 2005; Rush et al., 2004; Hwang et al., 2004). The need for further research into improvements in antiretroviral activity, improvements in patient-related issues, and the need to address the increased mortality and morbidity associated with plus-related mortality and morbidity have stressed the importance of developing more active and more potent antiviral therapies.

HAART gives hope by decreasing mortality and morbidity levels and improving the quality of life of people infected with HIV/AIDS.

This section explores the effects of ARVs focused on mobility at a systemic and functional level and their impact upon exercise and rehabilitation.

2.8. Highly Active Anti-Retroviral Therapy and Function

Asymptomatic and for those on HAART.

However, there appears to be a lack of evidence for PLWHAs who are asymptomatic or those on HAART (Cottin et al., 2004). It is important to develop a profile of the disability associated with HIV/AIDS, and to demonstrate that it is imperative to understand the effect of ARVs on physical and psychological functioning in patients who have been diagnosed with HIV/AIDS. Understanding patient adherence, improving communication between patients and clinicians, and documenting changes in patients' conditions are key to achieving quality care. This can be demonstrated by assessing and optimizing treatment and may result in improved quality of life, the evaluation of health-related quality of life, and the evaluation of adherence to ARVs. (Cottin et al., 2004; Vihene et al., 2004; Khubal and colleagues, 2003; Zuna et al., 2003; Nociestra, 2003; Hwang et al., 2004; Nociestra et al., 2004; Nociestra and colleagues, 2000).

The literature review has thus revealed a high prevalence of impairments, activity limitations, and health of PLWHA and their significant effects on mobility.
perceptions (low-peer et al., 2000).

of functioning especially in areas such as physical and social functioning and health

ARVs have a positive direct impact on health-related quality of life and subsequently the level

advocacy of control groups which is so much the result. The studies indicate that

and role functioning perceptions. Both studies had no indication of pattern

and role functioning perceptions. Both studies had no indication of pattern

potential to improve health-related quality of life, especially with regard to social

control, the use of protease inhibitors as an addition to the ARV regimen has the

According to a cross-sectional study by low-peer et al. (2000) of 179 HIV positive British

decreased mortality as well as higher physical functioning than those not on HAART.

In a prospective cohort study by Cunningham et al. (2000); those on HAART experienced

Libe et al., 2005; Cunningham et al., 2005; Low-peer et al., 2000; Pallara et al., 1996).

system and have been shown to be closely associated with physical and social functioning.

the antiretroviral treatment shows the modality and modifying effects of socioeconomic factors that could possibly have an influence on modality. Studies show that those receiving protease inhibitors were on private medical aid which introduces the

regardless of sex, race, age and sex factors. The article concluded that the use of

combination antiretroviral therapy improves modality and opportunistic infections.

intensive antiretroviral therapies. The cross-sectional observational study shows that

modality and mortality rates of 155 HIV positive individuals and revealed the positive effects of

Similarly, Pallara et al. (1999) studied the use of various HAARTs regimens on

has been reported to negatively affect physical functioning (Harr, 2004; O'Dell, 1993).

studies (Kovol et al., 2005; Zonta et al., 2006; Vite et al., 2006; Call et al., 2000) reported

(1-72) experienced minor transient side-effects from the treatment. Although other

injections had reduced and average body mass increased by 4.6% of the cohort. 36%

weeks of treatment showed a dip in viral load, an increase in CD4 count, opportunistic

Nigeria HIV positive subjects in stage 2 and 3 of HIV infection on initiation of a common

Libe et al. (2005) conducted a prospective observational study on 50 ARV-naive
Regular assessment of mental health, physical health, and symptom distress may be
consequence of the type of ART regimen use and the possible associated side-effects.
Effects and improved physical and mental functioning. Health professionals need to take
study also emphasizes the long-term commitment to HAART. The research is of one month of therapy followed by two months of therapy. (Hamburger et al., 1999). The
receives HAART with no interruption while intermittent receiving continuous HAART
revealed reduced mental health scores over time. Individuals receiving continuous HAART
may be more beneficial than intermittent HAART as the intermittent HAART group
in addition to ARVs decreasing morbidity and aspects of functioning, the type of regimen

Although HAART has been documented to reduce viral loads and increase CD4 counts,
effects of HAART as well as secondary infections result in limitations on exercise.

Research (Power et al., 2006) reveals the importance of considering the limitations on exercise potential due to HIV and its treatment.

Despite the vast array of possible conditions that can affect PLWHA, research has shown
exercises limiting mobility and are risks when it comes to exercise prescription.

Posteroster and misty indicate the importance of the heart, pulmonary, osteopenia and
postoperative period, and long-term effects on the heart, pulmonary, osteopenia, and
2004). HAART, especially when including prophylactic treatments, is associated with increased
that can occur during the process of body weight. Inadequate, Kean, and Katch,
working capacity and VO2 max is the maximum amount of oxygen in milliliters
and HAART are associated with microvascular dysfunction which results in reduced
create consistent concerns which number social functioning (Hamburger et al., 2004). HIV
person's ability to exercise and function at a particular level. It also
HIV. HAART-induced pathologies such as lipodystrophies are also
"Warren et al., 2004." reviewed the literature and found that the manifestations of HIV, the side-

For example, the type of ARV regimen use and the possible associated side-effects.
It has been pointed out by Zona et al. (2003), that most HIV-related referrals to
is minimal evidence of referral for physical rehabilitation (Zona et al., 2003; O’Deil, 1995).

Wealness is a primary contributing component experienced by HIV-positive people, yet there

1991

improved multidimensional rehabilitation framework (Fortwichan et al., 2005; O’Deil et al.,

research on the eomains affected by HIV/AIDS will enable the development of an

improvements, activity limitations and participation restrictions (O’Deil et al., 1991). Further

improvements, goal-oriented, and designed to address body

domains is clearly connected, goal-oriented, and designed to address many of the

services in the HIV context is not proven but may have potential to improve upon many of the

function and prevent deterioration (Fortwichan et al., 2005). The outcomes of rehabilitation, in order to stabilize and optimize

components of practice used in a variety of health domains, in order to stabilize and optimize

by continuously identifying the consequences of disease (Damas, 2006). Rehabilitation is a

This rehabilitation process involves improving an individual’s health status and quality of

and altering the person’s environment. Rehabilitation is defined as "a process of restoring physical, social and psychological aspects.

the rehabilitation team, which is often comprised of various professionals (e.g., physiotherapists, occupational therapists,

roles change at different stages of the disease (Nixon and O’Deil, 2000). There are many

due to the chronicity of HIV, long-term management has become important and heath

from the large group (Hughes et al., 2004; Nixon et al., 2000; O’Deil et al., 1991).

The roles of rehabilitation must be recognized and the needs identified

suitable multidisciplinary healthcare services for PLWHA with a resource-poor country (Nixon)

There exists a challenge not only to provide appropriate and effective frameworks, but also

2.9. Rehabilitation For People Living With HIV/AIDS

et al., 2000).

need for a biopsychosocial approach to rehabilitation of the HIV/AIDS society (Fortwichan

as well as to address the changes on lifestyle and activities caused by HAART. There is a

PLWHA. Rehabilitation must include interventions to oppose these side effects effectively

amongst and individuals must not be disregarded in the assessment and rehabilitation of

2004). HAART-related side effects such as nausea, anxiety, confusion, vision changes,

health professionals as they have a profound effect on daily function (Webb and Nixon,

An understanding of the impacts of HAART upon the patient must not be disregarded by
modality and mortality yet the treatment has also been known to introduce changes in

cardiovascular risks for HIV positive patients on HAART. HAART is reported to decrease

Several of the (2003) investigated the effect of exercise and strength training on

and evaluate outcomes.

an intervention for PLWHA and rehabilitation prescription improve HIV management

on research that PLWHA used exercise and rehabilitation intervention were 21 patients,

studies used small sample sizes, had high drop-out rates and only two of the studies

levels who continued to exercise and achieved adherence follow-up. Importantly

the satisfaction and health-related quality of life was stated that the findings are limited

were noted in anxiety, depression, general health, mood, physical and VOS

significant findings were diagnostically significant change in CD4 count, viral load and VOS

A systematic review by O'Brien et al. (2004) examined the effectiveness and safety of

and social restrictions experienced by PLWHA (Talad 2006; Barnett et al. 2007).

and different influences have different socioeconomic, cultural and environmental

education and health services and have been reported to impact upon the implementation

backgrounds. These different influences access to resources such as nutrition.

cohort consisted primarily of homosexual, while men, people of different gender, sexual

be generalized to a large population as they did not include the effect of ARVs and the

change. The results of the studies (Zonta et al. 2003 and O'Dell 19993; however cannot

et al. 1995) Health care professionals have a central role in assisting these lifestyle

intervention to improve health-related quality of the received health status weight

Lifestyle and physical modifications. There is some data to support exercise as an

of the cohort was referred to physical therapy for physical therapy related education, and
cardiovascular consultation records of 60% HIV positive patients and showed that 60%
moderate aerobic exercise and physical activity, O'Dell (19993) on the other hand revealed
modality was reported. The results showed the need for nutrition, high resistive exercise,
exercise can improve function in HIV-associated cardiac disease, pain and
prognostic indicators (Delledon et al., 1996). Low intensity exercise and progressive resistance
programs have been shown to decrease pain, improve physical function, and reduce fatigue.

Levels, morale and function (Dalledon et al., 1996; Delledon et al., 1997), nutritional, endocrine and psychological interventions and a step towards improving energy
addressing the etiologic factors that cause weight loss, lethargy and fatigue with
in addition to monitoring before and during exercise programs, research addresses
levels in a multicenter, randomized fashion (Nordstrom et al., 2004; Norden and Conlin, 2005). In
stroke and those with severe hypothyroidism. Exercise is beneficial to individuals with HIV and treatment is
 PLWHA. Exercise should be prescribed according to exercise testing for those with
problems, improve strength as well as improve psychological limitations experienced by
exercise may improve work capacity, aerobic fitness and aerobic capacity, decrease lipid
cardiovascular, skeletal and endocrine systems, resulting in limitations in exercise.
comparing HIV and HAART affected the pulmonary.

There is ample evidence which implies that exercise for those with HIV is beneficial for
reversing and supplementation may also decrease side-effects and remit
combination with pharmacological interventions (e.g., hypothyroidism drug), delay
improving muscle endurance and body composition in HIV positive patients. Exercise is
beneficial for the musculoskeletal and muscular systems and can aid in
exercising or aerobic exercise is beneficial for those on HAART may be
a combination of aerobic and anaerobic conditioning for those on HAART may be
appropriate joint stiffness, and cardiovascular conditioning, reduces anxiety, improves
home exercise that is shown to decrease appetite of muscle and
promote in common heart disease with compromised function. (McLean, 2004; Monessson et
mechanical problems, body shape and fat distribution which renders those taking them more
In accordance with recommendations by the publishers, the problem of PLWHAs coping better with their daily lives should be considered and centred on in optimal and effective health care. All forms of interventions that enable optimal and effective health care need to focus on holistic interventions to assess patients and provide effective and holistic changes in an attempt to work holistically to assess patients and provide effective health care interventions need to address the multilevel disabilities and risk factors experienced by PLWHAs and access disabilities (Johnson et al., 1996). Rehabilitation must be conducted between PLWHAs (O’Connell & Leonard, 1997), Rehabilitation must be conducted between PLWHAs (O’Connell & Leonard, 1997).

It is clear that all health professionals have a significant role to play in the management of PLWHAs (O’Connell & Leonard, 1997).

The environment of PLWHAs (O’Connell et al., 1996; Stimson, 1998; O’Dea, et al., 1999) and home programs may be necessary to enhance independence in their daily lives. In addition to multidisciplinary institution-based interventions, home modifications, assistive devices, and rehabilitation programs may be necessary to support independence in daily living. Rehabilitation programs are a need for occupational therapy, physical therapy, and recreational therapy to carry out client-specific interventions to address the needs of physically impaired individuals who require high numbers of physical impairments, activity limitations and participation restrictions (Johnson et al., 1996). The results of these studies suggest that both black and white women are more likely to participate in rehabilitation and the need for assistive devices were paramount areas of difficulty (Fields and Selwyn, 2003). These results are consistent with the results of studies by Johnson et al., 2003) and O’Connell and Leonard (1997). The results of these studies indicate that both black and white women are more likely to participate in rehabilitation and the need for assistive devices were paramount areas of difficulty.

A cohort of and stage HIV positive black women at an urban site in New England: Psychological and neuropsychological manifestations of HIV disease (O’Dea et al., 1996). Therapeutic models such as for neuropsychological manifestations of HIV disease (O’Dea et al., 1996).
2.10 Conclusions

HIV/AIDS is associated with psychological and mental disability at any stage of the condition. The chronicity of HIV/AIDS is associated with physical and mental disability at various stages of the disease, and with varying treatment regimens. Evidence demonstrates that psychological and environmental factors influence functioning at an individual and societal level. Cognitive and environmental factors impact functioning at an individual and societal level and affect the course of HIV/AIDS. The framework review indicates that a variety of tools have been used in the evaluation of various dimensions of disability.

The HIV pandemic in South Africa and worldwide creates a continuing need for attention to the health and wellbeing of those living with HIV/AIDS. The physical, psychological, and social challenges of PLWHA and their effect on health and well-being are complex. The framework review indicates that a variety of tools have been used in the evaluation of various dimensions of disability.
Helen Joseph hospital using consecutive recruitment.

Subjects were selected from the outpatients attending the Themba Lethu HIV Clinic at

3.3 Sample Selection

from the participants and recorded quantitatively using the ICF Checklist guidelines.
from the participants’ medical records. Qualitative data was collected through self-report
the time of the interview whilst the most recent retrospective information was obtained
CD4 counts, dysmennorrea and anxiety were used. Most of the data was collected at
qualitative and quantitative data collection. Qualitative measures such as nomenclature,
function, disability and health. The results of the study were gathered with the use of both
a cohort of PLWHA as well as the influence of contextual and environmental factors on
describes the improvements, activity limitations and participation restrictions found amongst
sample of society (Abrahamsen & Abrahamsen, 2000). The study was descriptive as it
a simple random or descriptive or observational epidemiology that is conducted on a

descriptive study design was used. A cross-sectional approach is the

3.2 Study Design

com mencement of the study on the 5th of May, 2006.

opportunities. The supervision of the Helen Joseph hospital granted permission for
people who are consulted on an opportunistic basis for diagnosis, medication and follow-up
hospital. Ceiling, the clinic has a patient base of approximately 6000 HIV positive
the study was conducted at the Themba Lethu AVP Rolou Clinic at Helen Joseph

3.1 Location of Study

Methodology

Chapter 3
This is a sub-study which was conducted under a larger study entitled "Monitoring HIV.
University of Johannesburg prior to data collection. (Clearance Certificate no. M060311).
Ethical clearance was granted by the Human Research Ethics Committee (Medical) of the

3.5 Ethical Clearance

The study uses the ICF Checklist which requires the collection of data on 125 variables. The study
consists of participants living with HIV/AIDS (Russoel and Gregory, 2003).

The presentation of limitations, study limitations, and participation restrictions in a
or understanding participants would be sufficient. For the research report and to gain an understanding
patients in consultation with a statistician. It was decided that a minimum number of 45
2000-46 patients: O'Dell et al., 1994; 30 patients: O'Dell et al., 1991-37 patients: Powers et al.,
which investigated the manifestation of disability, function and impairments among
A sample of convenience was determined by reviewing similar cross-sectional studies.
The sample size included 45 patients.

3.4 Sample Size

Important study limitations or participation restrictions
Subjects had pre-existing conditions unrelated to HIV that could lead to physical
demands unless accompanied by a caregiver. Also had disabilities unrelated to HIV.
Subjects were unable to answer questions due to severe speech problems or
Subjects were institutionalized/unospitalized.
Subjects did not fill the inclusion criteria.

3.3.2 Exclusion Criteria: Patients were excluded if

(HSRC, 2005)

At the clinic as an outpatient
Between the ages of 18 and 49
HIV positive adults

3.3.1 Inclusion Criteria: Subjects were:
needed to complete the assessment. The participants were compensated for their bus fare if a further appointment was
was completed and the data were analyzed, all questionnaires were destroyed.
Investigator had access to the list linking the names to the numbers. After the study, given a number which was recorded on the ICF questionnaire. And only if the
were recorded on the questionnaires themselves. Instead, each participant was
meaningful at all times during and after data collection and analysis. No names were assured, that anonymity and confidentiality of all information would be
The study took place in a private, research-condusive environment. Participants
language to ensure full understanding of the consent and requirements of the study.
All documentation was available in English and Zulu or explained in full in a suitable
Written consent was obtained before the study commenced.

The clinic.
Stage, an information sheet, full explanation was supplied to the patients attending
the hospital had established rapport before the investigator was introduced. All the
The patients were initially approached by a member of the clinical team with whom
weeks in June 2006.
The hospital and clinic staff to proceed with the study, it was conducted over 3
Helein Joseph Hospital and the coordinators of the HIV clinic with permission from
A letter and a copy of the research proposal were given to the superintendent of
The following steps were taken to ensure ethical integrity:
(Clearance Certificate no. MO50260E)
into Physiotherapy Education and Practice for which ethical clearance has been granted.
Muscle Strength Measurements

The ICF (2001) framework, assessed 2006: person, communication with ICF expert, hermaphroditism or measurement of joint range of movement to rate the candidate in this study.

Crosswalking - The concept involves using the results of objective measures 6.9.

A pilot study was conducted to determine the efficient use of the ICF checklist in tool which was shown to be low but improved with evaluator experience. O                                                                           


social and environmental challenges faced by PLWHAs (Jerins et al., 2006; Hwang

Research has reported the ICF to be a reliable tool in the assessment of health.


consistent use in 66 countries, across genders, age groups, culture, and health

9, 2001; 2000; and endorsed by the Fifty-Fourth World Health Assembly, 2001. Since

The framework of the ICF was developed, published and revised by the WHO.

ICF Checklist, (Usin et al., 2002; WHPR, 2002)

High keeper values (0.71-0.9) for the 10-ICCH Checklist dimensions to be used in the 10-ICCH Checklist, those least focusing on reliability, utility and feasibility showed

The ICF Checklist was produced on the basis of the field tests conducted on the

Validity and Reliability of the ICF:

Participants:

To assess physical impairments, activity levels and participation problems of the

The ICF Checklist Version 2.1 (Appendix I) is the primary tool that was used in this study

3.6 Measurement Tools

Contacted all health departments

Informed the patient and the clinician team and referred appropriately to the hospitals

If it was found that the patient was in need of rehabilitation, the investigator
Assessment of Muscle Tone and Involuntary Movements

An automated digital hand-held dynamometer (Bohannon RW, 1978) was used to measure the modified Ashworth Scale of muscle strength. Muscle tone was assessed using the modified Ashworth Scale and involuntary movements were assessed during the assessment of range of motion and involuntary movements.

Bohannon (1978) used a study involving 125 volunteers, each muscle group was tested twice with a sample of 106 men and 125 women volunteers. Each muscle group was tested twice with a single investigator. Reliability of the test was high (r = .97 to .99). Rosenberg et al. (1982) showed initial inter-rater reliability for flexion and extension of the knee and the elbow joints was high (r = .97 to .99). Intra-rater reliability was also high (r = .88 to .97). For the objective measure of range of motion, in addition to the test-retest reliability for flexion and extension of the knee and the elbow, Rosenberg et al. (1982) examined the reliability and validity of the hand-held dynamometer. The results show a reliable method of measuring muscle strength in persons with neurologic impairments. The instrument is calibrated with standard weight plates ranging from 0 to 100 pounds. The test-retest reliability of hand-held dynamometer during a single session of evaluation was determined with the use of a standard hand-held dynamometer and muscle strength was determined with the use of a standard hand-held dynamometer.
Data Collection:

- Server, systems and policies.
- Products and technology.
- Community, social and civic life.
- Perceptual functions.

Jewish Hospital on agreed appointment dates and times for data collection.

The investigator met with the clinical management team of the HIV clinic at the Helen

3.7 Procedure:

- Procedures, systems and policies.
- Product technology.
- Community, social and civic life.
- Perceptual functions.

Jewish Hospital on agreed appointment dates and times for data collection.

The investigator met with the clinical management team of the HIV clinic at the Helen
neuromuscular and movement related functions. All the measurements and information to be used in crosswalking the information gathered in the domain defining muscle strength and range of movement and to provide objective
- Dymanometry; Manual muscle testing and goniometry were undertaken to
- Orientation, consciousness and higher level cognitive functions
- used in less recall and orientation to cover parts of the mental function section a.
- Questions from the “MINI Mental Test” were used to standardize the
- Observation (WMO ICF Checklist guidelines). In addition,
- The questions from the respondent concerning the assessment and dataset
- Primary respondents: other informants (nurses and doctors at the clinic and family
- All available information was used to complete the checklist, i.e. written records,
- Each participant was assessed physically and was assessed once using the ICF
- Introduction of the assessment.
- A place on a table within the room were participants dignity was maintained
- Assessment of the musculoskeletal system and movement related function took
- The participants were assessed in a private room within the HH clinic. 

Participant Assessment:

Consentement or the data collection.
- Those who agreed to participate were asked to sign a written consent form prior to
- part in the research.
- The patients were given an opportunity to make an informed decision about taking
- Questions or concerns were addressed.
- Covering the outline and requirements of the study was given to each patient and all
- Patient: a transferee assisted with explanations when needed, information packet
- One copy permission was granted, the investigator explained the study in detail to the
- Obtained initial consent from the patient.
- A member of the clinical management team approached each patient (by consensusive
the fixed proximal joint segment. The moveable arm lies parallel to the longitudinal axis of
measured. The stationary arm of the goniometer is held parallel to the longitudinal axis of
the axis of the goniometer is placed over the axes of movement of the joint to be
To assess range of joint motion, the universal goniometer is placed lateral to the joint and

Procedure for Goniometry (Clarkson and Gilleece, 1999)

be used in the description of the function, disability and health of the participant.
- Additional probing within Parts 1, 2 and 3 provided additional information which may
- electrically supply access to shops and charity and possession of television and radio.
- housing, number of rooms, number of individuals living in the house, water and
assessed quarterly during the interview. Information gathered included the type of
- Part 4: Personal information and health status. Information, Personal details were
- within the participants environment.
- Part 3: Environmental factors. Questions were used to relate the barriers and facilatons
- specially and performance qualities.
- Part 2: Activity limitations and participation restriction - covered the use of
- problems were used.
- Part 1: Impairments of Body Structures, functions defining the severity of the
- A. Demographic information.

Sysematic completion of the Children Form was carried out including:

The WHO ICF Checklist Guidelines were followed for completion of the checklist.

Procedure for Assessment with the ICF Checklist

shoulder, elbow, wrist, hip, knee and ankle joints.

Kinesiometry and Manual Muscle Strength data of flexion and extension at the
Joint range and muscle strength was developed by goniometry.

Assessments were done by the same researcher. An overview of each participant's
<table>
<thead>
<tr>
<th>Internal Rotation</th>
<th>Hip Flexion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip flexion over the edge, arms at side for</td>
<td></td>
</tr>
<tr>
<td>Short sitting, thighs supported on the table.</td>
<td></td>
</tr>
<tr>
<td>Digital dorsal surface of the metacarpals</td>
<td>Wrist Extension</td>
</tr>
<tr>
<td>Short sitting with forearm supported.</td>
<td></td>
</tr>
<tr>
<td>Small with the wrist in the neutral position</td>
<td>Finger Flexion</td>
</tr>
<tr>
<td>Digital dorsal surface on the table, forearm slightly</td>
<td></td>
</tr>
<tr>
<td>Short sitting with forearm supported on the table.</td>
<td></td>
</tr>
<tr>
<td>Elbow Extension</td>
<td></td>
</tr>
<tr>
<td>Flexed and hanging vertically over the side of the bed.</td>
<td></td>
</tr>
<tr>
<td>Forearm at 90° abduction and Forearm in plane, arm at 90° abduction and forearm in front of the body.</td>
<td></td>
</tr>
<tr>
<td>Forearm at 90° abduction and Forearm in front of the body.</td>
<td></td>
</tr>
<tr>
<td>Shoulder Extension</td>
<td></td>
</tr>
<tr>
<td>Forearm at 90° and elbow protracted</td>
<td></td>
</tr>
<tr>
<td>Shoulder Flexion</td>
<td></td>
</tr>
<tr>
<td>Shoulder abduction</td>
<td></td>
</tr>
<tr>
<td>Gravity Assist position</td>
<td></td>
</tr>
</tbody>
</table>

### Manual Muscle Testing and Dynamometry

#### Measurement Points

- **Conservative Measurement**: Gentle muscle grading scale values have been described as all the participant could move in a conservative manner. Only the starting position for grade 0 and the grade 2 of the scale was measured.

- **Dynamometry**: Measurements are applied in a gravity resistant position. The muscle is placed in full range and the assessor instructs the participants to move the muscle. The muscle is placed in full range and the assessor instructs the participants to move the muscle to the full range of motion. The muscle is then positioned in the position to be assessed.

#### Footnote

3.8 Data Analyses

(Appendices 4.3 and 4.4)

For the HIV positive study participants were supplied to the HIV negative individuals positions as described in Table 3.2. The information sheet and informed consent form used a convenience sample. Consent was obtained and information was included in the same

A comparison between the groups These participants were approached from a negative group to ascertain if a statistically difference between the muscle strength and

measurement of muscle strength and range of joint motion were also taken in a matched group (n=12) of age-matched and gender-matched HIV negative individuals from a similar

Medical Research Council Grading System - Medical Research Council grades (Car and Shepherd).

<table>
<thead>
<tr>
<th>Digital Dome assessment</th>
<th>Short Sitting or Supine</th>
<th>Area Posteriorisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Plantar assessment</td>
<td>Think straightly</td>
<td>Knee Extension</td>
</tr>
<tr>
<td>Tibia above the ankle</td>
<td>Plane</td>
<td></td>
</tr>
<tr>
<td>Dorsum of foot above the ankle</td>
<td>Plane</td>
<td></td>
</tr>
<tr>
<td>Position just above the ankle</td>
<td>Plane</td>
<td></td>
</tr>
<tr>
<td>Above the ankle</td>
<td>Plane</td>
<td></td>
</tr>
</tbody>
</table>

Grade 0 (Zero)
- No palpable or visible contractile activity of the muscles
- The muscles exhibit palpable or visible contractile activity
- Complete loss range in a gravity-eliminated position
- Complete loss range but tolerates no resistance other than gravity
- Holds and position against strong to moderate resistance
- Holds end position of movement against maximal resistance

Grade 1 (Trace)
- Complete loss range in a gravity-eliminated position
- Complete loss range but tolerates no resistance other than gravity
- Holds and position against strong to moderate resistance
- Holds end position of movement against maximal resistance

Grade 2 (Poor)
- Complete loss range in a gravity-eliminated position
- Complete loss range but tolerates no resistance other than gravity
- Holds and position against strong to moderate resistance
- Holds end position of movement against maximal resistance

Grade 3 (Fair)
- Complete loss range in a gravity-eliminated position
- Complete loss range but tolerates no resistance other than gravity
- Holds and position against strong to moderate resistance
- Holds end position of movement against maximal resistance

Grade 4 (Good)
- Complete loss range in a gravity-eliminated position
- Complete loss range but tolerates no resistance other than gravity
- Holds and position against strong to moderate resistance
- Holds end position of movement against maximal resistance

Grade 5 (Normal)
- Complete loss range in a gravity-eliminated position
- Complete loss range but tolerates no resistance other than gravity
- Holds and position against strong to moderate resistance
- Holds end position of movement against maximal resistance

2022
computer using EP-infno statistical package. Limitations (including excluding for demographic variables). The data was entered into a regression software used to determine if body measurements, physical activity and participation in the group. In addition to univariate and bivariate analysis, multiple logistic regression group. In addition to univariate and bivariate analysis, multiple logistic regression software used to determine the differences in muscle strength between the study group and the H1V group. Within the domains and categories of the ICF, the Mann-Whitney test was used to determine any relationships between certain categorical variables within the data set, e.g.
Table 4.1: Demographics of Study Cohort (n=45)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>33.6%</td>
<td>Male</td>
</tr>
<tr>
<td>Year of Birth</td>
<td>64.6%</td>
<td>Female</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid Employment</td>
<td>35.6%</td>
<td></td>
</tr>
<tr>
<td>Currently married</td>
<td>26.7%</td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>57.8%</td>
<td></td>
</tr>
<tr>
<td>Married Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>Combining</td>
<td>6.7%</td>
<td></td>
</tr>
</tbody>
</table>

Age (Years) Range: 17 - 49

The results of the univariate analyses assist in determining the level of ability of the sample.

4.1.1 Univariate Analyses

Follow in chapter five.

In Chapter Four, the results of the study will be presented. A discussion of the results will follow.
and are represented in the tables as such. Further analyses within the domains revealed
functional problems. Those with no problems in the domain were placed into group/10 with
moderate and severe impairments were recorded in group/20 to represent a group with
feasible for a control of patients as opposed to the individual case. Those with mild,
collection then the data was recorded into dichotomous variables to make data analysis
individuals of cases (Culea et al., 2002) in this study, the questionnaires were used during the
table an ICF code without a qualifier does not have an inherent meaning when used for
Table 4.2 to 4.5 reflect the information gathered from the ICF Checklist: The WHO States

casefile.
participants had CD4 counts below 200 cells/ml and 16 had CD4 counts above 200
(n=1240), the cohort had CD4 counts above 500 cells/ml of those taking ARVS (n=133), 17
above 200ml and the remaining 44.4% (n=20) had CD4 counts below 200. Only 6.7%
658 with a mean value of 156 (SD = ± 15.1), Fifty-six percent (n=55) had CD4 counts
most of the cohort was receiving ARVS (73.3%, n=93), CD4 counts (cells/ml) ranged from 5-
were 27 (n=27) reported over 10 years of formal education.
16 years with a mean value of 10 years (SD = ± 2.7). The majority of the cohort 69%
mean age of the cohort was 34.4 years. The range for years of formal education was 1 -
most of the patients were between the ages of 25 and 59 (77.8%, n=35) and the

<table>
<thead>
<tr>
<th>CD4 count (cells/ml)</th>
<th>&gt;200</th>
<th>0-200</th>
</tr>
</thead>
<tbody>
<tr>
<td>On ARVS</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Years of Formal Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>4 4 (2)</td>
<td></td>
</tr>
<tr>
<td>5-10</td>
<td>3 3 3 (15)</td>
<td></td>
</tr>
<tr>
<td>&gt;10</td>
<td>2 2 2 (11)</td>
<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>6 0 0 (17)</td>
<td></td>
</tr>
<tr>
<td>Unemployed (other reason)</td>
<td>5 5 5 (13)</td>
<td></td>
</tr>
<tr>
<td>Unemployed (financial reason)</td>
<td>3 5 5 (13)</td>
<td></td>
</tr>
</tbody>
</table>
Sensory Functions and Pain:

- Emotional problems were experienced by 44.4% (n=20). Emotional impairments often related to disease disclosure and coming to terms with the diagnosis.
- Many participants reported that sleep problems were experienced by 35.6% (n=16). Many participants reported that they were not well informed on reasons without being able to fall asleep again.
- Energy and drive were where 31.1% (n=14) experienced impairments. Further subjective problems revealed that many of the participants feel they have insufficient energy to sustain a full day of activities without regular rest.
- The most problematic categories of mental function included:
- Delirious and drowsy (n=31), 28 described their impairments as mild and moderate.

Table 4.2: Impairments of Body Functions (n=45)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Persons Experiencing</th>
<th>No Impairments (0)</th>
<th>Persons Experiencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice and speech functions</td>
<td>69.8 (60)</td>
<td>0 (0)</td>
<td>100 (45)</td>
</tr>
<tr>
<td>Sensory functions and pain</td>
<td>68.9 (31)</td>
<td>26.7 (12)</td>
<td>33 (33)</td>
</tr>
<tr>
<td>Immuno-regulatory and respiratory systems</td>
<td>44.4 (20)</td>
<td>31.1 (14)</td>
<td>69.6 (25)</td>
</tr>
<tr>
<td>Functions of the digestive system</td>
<td>71.1 (60)</td>
<td>6.9.5 (31)</td>
<td>89.9 (25)</td>
</tr>
<tr>
<td>Behavioral and adaptive systems</td>
<td>73.3 (31)</td>
<td>31.1 (14)</td>
<td>69.6 (25)</td>
</tr>
<tr>
<td>Functions of the cardiovascular system</td>
<td>69.8 (31)</td>
<td>26.7 (12)</td>
<td>33 (33)</td>
</tr>
<tr>
<td>Immuno-regulatory and respiratory systems</td>
<td>69.8 (31)</td>
<td>26.7 (12)</td>
<td>33 (33)</td>
</tr>
</tbody>
</table>

The most common areas of impairments of body function included mental functions.
Functions of the digestive, metabolic and endocrine systems:

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>5.7</td>
<td>3.1</td>
<td>3.8</td>
<td>5.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>HP</td>
<td>5.7</td>
<td>3.1</td>
<td>3.8</td>
<td>5.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>HP</td>
<td>5.7</td>
<td>3.1</td>
<td>3.8</td>
<td>5.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Table 4.3. Haematological Results of the Cohort

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Mean Value</th>
<th>Range of Value</th>
<th>Variability (n=45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

and Platelet levels.

Table 4.3 summarises the available haematological results of the cohort including the lymphocytes and leucocyte levels (Evans and Scaalanna, 2000).

Post-TP or current T2DM, presence of breath and opportunistic chest infections.

Respiratory problems were reported by 22.2% (n=10) and most indicated mild to moderate impairments. Respiratory problems were largely attributed to TB (acute TB).

Impairments of blood pressure (usually hypertension) were experienced by 33.3% (n=10) of the cohort. The prevalence of hypertension in the cohort and 16.8% in the females: 15% of the cohort in the cohort and 16.8% in the females. 15% of the cohort in the cohort and 16.8% in the females. 15% of the cohort in the cohort and 16.8% in the females. 15% of the cohort in the cohort and 16.8% in the females.

One hundred percent of the cohort experienced impairments in this domain:

Systems:

- Pain (57.8%; n=52)
- Seeding (33.3%; n=15)

Pain in sensory function and pain included.

The categories showing the highest levels of impairments within the moderate problems.
Results for Manual Muscle Testing

of motion within the normal limits (Clarkson and Olszewski, 1989).
All participants of the HIV positive study group and the HIV- group exhibited active range
Results for Joint Range

HIV negative individuals (Table 4.5).
shown in (Table 4.4) and (Table 4.5) revealed normal muscle strengths of grade four and five in
strength at all patients (n=45) recorded normal muscle strength of grade four and five in
movement, Dynamic, and Static muscle strength. The normal muscle strength revealed mild dermal in
infections in infections in Joint mobility with all patients falling within the normal ranges of

The cohort was muscle power and weakness. The cohort was muscle power and weakness. The cohort was muscle power and

modality and modality and modality and modality and modality and modality and modality and modality and modality and modality and modality and

Neuromuscular functions and movement-related functions:

Skin problems reported was the rash caused at the initiation of HAART.
31.1% (n=14) experienced mild and moderate impairments of the skin. The most common

Functions of the skin and related structures:

like vaginal candidiasis.
28.9% (n=13) reported of sexual dysfunction included reduced libido and genital infections.
reproductive functions with sexual problems appearing in the category of sexual function.

Thirty-one percent (n=14) experienced problems in the domain of genitourinary and

Gerontology and Reproductive functions:

moisture. Hair loss, constipation and diarrhea were commonly reported problems of defecation,
problems in the domain with complaints of

Forty-four percent (n=20) experienced problems in the category of digestive problems in the domain of genitourinary and

Superficial and Reproductive functions:

reproductive functions with sexual problems appearing in the category of sexual function.
Table 4.4: Manual muscle testing results of the study group (n=45) and the HIV -Group matched for gender and age.

Table 4.5: Abnormalities in the study group and the HIV - Group matched for gender and age.

<table>
<thead>
<tr>
<th>Movement</th>
<th>Study Participants (n=45)</th>
<th>HIV - Group (n=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ankle dorsflexion</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Ankle plantarflexion</td>
<td>33</td>
<td>11</td>
</tr>
<tr>
<td>Knee flexion</td>
<td>31</td>
<td>11</td>
</tr>
<tr>
<td>Knee extension</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>Hip flexion</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>Hip extension</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>Waist flexion</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Waist extension</td>
<td>32</td>
<td>12</td>
</tr>
<tr>
<td>Elbow flexion</td>
<td>34</td>
<td>11</td>
</tr>
<tr>
<td>Elbow extension</td>
<td>34</td>
<td>11</td>
</tr>
<tr>
<td>Shoulder flexion</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>Shoulder extension</td>
<td>33</td>
<td>13</td>
</tr>
</tbody>
</table>

*All participants in the HIV - Group (n=12) had either grade four or five muscle strength as shown in Table 4.4.*
The highest prevalence of impairments of body structure included the nervous system.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Persons (n=45)</th>
<th>Persons (n=45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice and speech functions</td>
<td>100 (45)</td>
<td></td>
</tr>
<tr>
<td>Skin &amp; related structures</td>
<td>99.9 (45)</td>
<td></td>
</tr>
<tr>
<td>Structures related to movement</td>
<td>79.5 (39)</td>
<td></td>
</tr>
<tr>
<td>and Reproductive systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structures related to Genitourinary</td>
<td>87.7 (39)</td>
<td></td>
</tr>
<tr>
<td>Metabolism &amp; endocrine systems</td>
<td>88.2 (39)</td>
<td></td>
</tr>
<tr>
<td>Structures related to the digestive,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunological &amp; respiratory systems</td>
<td>76.5 (39)</td>
<td></td>
</tr>
<tr>
<td>Structures of the Cardiovascular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The eye, ear and related structures</td>
<td>80.0 (46)</td>
<td></td>
</tr>
<tr>
<td>Structures of the Nervous System</td>
<td>57.8 (46)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.5: Impairments of Body Structure (n=45)

Unveilingly, some impairments of body structure may have been missed due to the

measurements and microscopic measures were not available for the evaluation of body

imaging scans, computed tomography scans, ultrasound scans, electromyography

doctors' consultations, X-rays and haematology and blood tests. Magnetic resonance

visual observation and medical records. Medical records provided information on

Table 4.6: Summarizes the impairments of body structure of the study cohort. It must be

4.1.3 Impairments of Body Structure

The muscle strength in the group of HIV negative individuals

syndromere and manual muscle testing results indicated that the study group had poorer

than those of the HIV-negative group (p=0.01 for all muscle group tested). The

matched and later strength measurements of the study group were significantly lower

HIV group compared to the two groups were appropriately age-matched and gender-

Statistical testing comparing the demographic measurements of the study group and the
Table 4.7. Activity Limitations & Participation Restrictions (n=49)

<table>
<thead>
<tr>
<th>Performance Quotient</th>
<th>Participation Limitations and Problems with Activity</th>
<th>Domains</th>
</tr>
</thead>
<tbody>
<tr>
<td>55.3 (25)</td>
<td>4.4 (2)</td>
<td>Leadership</td>
</tr>
<tr>
<td>65.7 (3)</td>
<td>0 (0)</td>
<td>Directed Life</td>
</tr>
<tr>
<td>2.2 (1)</td>
<td>2.2 (1)</td>
<td>Self Care</td>
</tr>
<tr>
<td>42.0 (18)</td>
<td>2.2 (1)</td>
<td>Mobility</td>
</tr>
<tr>
<td>31.8 (12)</td>
<td>2.2 (1)</td>
<td>Demands</td>
</tr>
<tr>
<td>10.6 (4)</td>
<td>8.9 (4)</td>
<td>General Tasks and Knowledge</td>
</tr>
<tr>
<td>% (0)</td>
<td>% (0)</td>
<td>Learning and Applying</td>
</tr>
</tbody>
</table>

Table 4.7 summarizes the activity limitations and participation restrictions experienced by participants. The table shows that problems related to movement (24.4% n=11) and skin & related structures (31.4%) were commonly reported. Problems of movement-related structures were reported mostly in the categories of participation limitations and problems with activity. Problems related to mobility and dependency issues were commonly reported. Problems related to the nervous system, TL and recurrent chest infections were commonly reported. Neurological problems were reported in the domain of the central nervous system. Results revealed that 17.8% (n=6) had problems with the spinal cord and peripheral nerves. Common complaints were of headaches and peripheral structural abnormalities of the brain and 31.1% (n=11) had problems with the spinal cord and peripheral nerves. Common complaints were of headaches and peripheral structural abnormalities of the brain and 31.1% (n=11) had problems with the spinal cord and peripheral nerves.
Perception Restrictions

The components included mild difficulty in undertaking multiple tasks without assistance:

1. Thirty-nine percent (n=17) of the cohort experienced problems in this domain, and all of them reported difficulties in daily living and self-care (13.3%, n=6).

General Tasks and Demands:

2. Forty percent (n=16) of the cohort reported mobility problems, especially in the categories of lifting and carrying (33.3%, n=15) and using transport (13.3%, n=6).

Mobility

3. Fifty-six percent (n=25) of the cohort experienced problems in the domain of interpersonal interactions.

Interpersonal Interactions & Relationships

- Sufficient employment where 46.7% (n=21) reported difficulties.
- Remunerative employment where 56.6% (n=25) had problems and economic self-reliance.
- Education facilities.

- Recreational facilities with higher education or experienced difficulties accessing and 38.8% (n=12) had difficulties with higher education. A majority of the participants reported difficulties with school education.

- Areas of education where 33.3% (n=6) experienced problems with school education.
- Categories where limitations were common include:

Health Areas

- Major life areas
- Recreational, mobility, and general tasks & demands.

Unassisted level (capable without) includes major life stresses, interpersonal interactions & activity limitations. Of the components of activity limitations, the most common domains of difficulty are an area of concern.

<table>
<thead>
<tr>
<th>Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life</td>
</tr>
<tr>
<td>Community</td>
</tr>
<tr>
<td>Social and</td>
</tr>
<tr>
<td>Major life areas</td>
</tr>
<tr>
<td>Life</td>
</tr>
<tr>
<td>Over</td>
</tr>
<tr>
<td>(6.7)</td>
</tr>
<tr>
<td>(3)</td>
</tr>
<tr>
<td>57.8 (6)</td>
</tr>
<tr>
<td>Table 4.6. Environmental Factors (n=45)</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>barriars and those with mild to complete lack of education.</td>
</tr>
<tr>
<td>The severity of the level of education and barriars in function were asssessed and</td>
</tr>
<tr>
<td>Table 4.6: A summary of the environmental factors affecting the study cohort.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.1.5. Environmental and Personal Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustaining themselves and their immediate family.</td>
</tr>
<tr>
<td>where 20% (n=9) of the participants described problems with regards to financially</td>
</tr>
<tr>
<td>Results for economic self sufficiency also remained high at a participatory level.</td>
</tr>
<tr>
<td>Employment at a participatory level.</td>
</tr>
<tr>
<td>Eighteen percent (n=8) comprised of restrictions in the category of remunerative.</td>
</tr>
<tr>
<td>Eighteen percent (n=8) comprised of restrictions in the category of remunerative.</td>
</tr>
<tr>
<td>Major life areas also remained problematic even with assistance as 26.7% (n=12) of the</td>
</tr>
<tr>
<td>assistance were 8.9% (n=4) of the cohort reported difficulties.</td>
</tr>
<tr>
<td>Domains of learning and applying knowledge remained problematic even with</td>
</tr>
<tr>
<td>Learning and applying knowledge:</td>
</tr>
<tr>
<td>&quot;There were low levels of participation restrictions (with assistance) for the cohort.&quot;</td>
</tr>
</tbody>
</table>
facilitators of function. Within the domain of attitudes, all of the cohort reported positive attitudes to being strong

Attitudes

facilitators of function. Relationships with health and health-related professionals proved to be strong
facilitators of function. Ninety-six percent (n=96) of the cohort reported that support and relationships are

Support and Relationships

The strongest facilitators of function included support and relationships, and attitudes.

Environmental Facilitators

function.

Regarding negative attitudes or HIV-positive people which was reported to hamper

We found that the cohort felt the majority of society's

Societal norm, practices and ideologies were found by 95.9% (n=13) of the cohort

Societal attitudes were found by 90% (n=11) of the cohort felt the attitudes of society

By sixty percent (n=60) of the cohort reported that negative attitudes are barriers to

Attitudes

Legal and housing services (both 31.1%, n=14)

Legal and employment (55.3%, n=24)

Regarding strong barriers to function included

Seventy-three percent (n=52) experienced problems in this domain. The categories

Services, Systems and Policies

The most prominent barriers to function included services, systems and policies and

Environmental Barriers
Table 4.9. Associations between Variables of Physical Impairments and Mobility

Table 4.9 shows the significant associations between mobility and categories of physical impairments. Mobility was defined as the ability to engage in activities of daily living, including mobility in the environment. The table shows that mobility limitations were associated with specific categories of physical impairments, with the highest association observed for impairments of the lower extremities.

Limitations
4.2. Associations between Physical Impairments and Activity

and thus, all the participants except three had television and radio within their houses.

Personal Factors

energy

and drive functions

without power

neurosensorial, skeletal and movement-related functions

pain

sensory functions and pain

(whiskers, etc.)

p-value

variable

-0.5

-0.1

0.1

0.01

0.001

null

Mobility

Table 4.9 shows the significant results obtained from cross-tabulating variables of

and participation restrictions as well as the influence of environmental factors.

determine the associations between components of physical impairments and activity limitations.

evaluate the level of disability and key variables (objective 2). Cross tabulations were conducted in order to
determine the relationships between the level of disability and key variables (objective 2).

Table 4.9 shows the significant associations between mobility and categories of physical impairments. Mobility was defined as the ability to engage in activities of daily living, including mobility in the environment. The table shows that mobility limitations were associated with specific categories of physical impairments, with the highest association observed for impairments of the lower extremities.
Table 4.10. Body Impairments shown to predict activity limitations and participation restrictions

A regression analysis was conducted and the domains of body impairments which predicted activity limitations were identified using age, sex, marital status, CD+ count and whether or not the participant was in treatment. The regression models incorporated adjusting for multiple logistic regressions were used to determine whether body impairments predict activity limitations and participation restrictions.

4.2 Regression analyses

modality problems, and drive functions (a category of mental functions) were significantly associated with power, a category of neuromusculoskeletal and movement related functions and energy. Problems in the categories of pain, a category of sensory functions and pain, further cross tabulations of categories of physical impairments and modality revealed that neuromusculoskeletal and movement related functions were shown to be associated with impairments. Problems in the domains of sensory functions and pain, and limitations in modality were shown to be significantly associated with numerous physical.
Conclusion

Attitudes.
As well as a decreased CD4 count (< 0.03), age and gender were significant predictors of allergies. The results indicated that both sensitivity and pain after adjusting for variables such as age, sex, marital status, CD4 count and whether or not the participants were taking ARVs, there was evidence that both sensitivity and pain

Interpersonal interactions and relationships.
Likely to have mobility issues and six times more likely to have a limited capacity for

Neuromusculoskeletal and Movement-Related Functions.
Neuromusculoskeletal and Movement-Related Functions:

Functions of the Digestive, Metabolic and Endocrine Systems.
Functions of the Digestive, Metabolic and Endocrine Systems:

Sensory Functions and Pain.
Pain perception results.
Movement-related functions are the greatest predictors of activity limitations and

Logistic regression indicated that important variables for pain, functions of
metabolically and endocrine systems. A discussion of these key findings will follow in Chapter
neuromusculoskeletal and movement-related functions and functions of the digestive,
participation restrictions. Important domains included sensory function and pain,
showed the domains of physical impairment with predicted activity limitations and
pain, neuromusculoskeletal problems and energy and drive problems, logistic regressions
model was the only domain found to be associated with physical impairments such as

of activity limitations.

Interpersonal interactions, mobility and general tasks and demands presented high levels
restrictions were generally low among the cohort while the domains major the areas,
weakness was another important physical problem reported by the cohort. Participation
the domains of the cardiovascular, neuromusculoskeletal and immunological systems.
disability. The mean physical problems included those related to motor functions, pain and
correlation as well as the association between the domains and the predictors of function and
impairments, activity limitations and participation restrictions experienced by the study
unvariable, bivariant and regression analyses showed the presence of the physical
5.1 Impairments of Body Function

Participants' socio-demographic and environmental factors and includes impairments of the study, discuss the profile of the sample with regards to demographic data, activity limitations, and impairments and compare them to those recorded in previous studies. This chapter will provide an overview of the impairments obtained from the assessment of HIV-positive

Chapter 5

Discussion
neuropathies, especially in the lower limbs.

Seventy-one percent (n=32) of the cohort under examination experienced impairments of sensory function and pain. In particular, these impairments in sensation (33.3%; n=12) and many

amputations.

ICF Checklist in this study also showed that sensory issues and pain are common

express that sensory and pain issues are prevalent among PLWHA.

Researchers have used many HIV-appropriate health-related quality of life measures to

Sensory Functions.

Rehabilitation framework for PLWHA.

Psychosocial domain, and neuropsychiatric interventions, is imperative within the

and Hughes et al. (2004) indicate that rehabilitation of the

10.0001; 2004: Call et al. 2004). Use of the

Medical Outcomes Survey-HIV and Medical Outcomes Survey-Short Form-36 (RMS)

have adverse effects on a person's

decline in quality of life and ability to function at an activity and social level.

The research thus indicates that a lack of energy and initiative, emotional impairments and

a negative effect on health-related quality of life.

described by Clear and (1993), Kott et al. (2004), and Web and Nelson (2004) described

emotional moras. High levels of sleep disturbances and PLWHA has also been

disruptions were often related to insomnia, light sleep and inability to sleep due to

Thirty-six percent (n=16) of the cohort described impairments related to sleep. The sleep

and depression, was higher in an HIV positive experimental group (32.4%; n=42).

and depression, was higher in an HIV positive experimental group with regard to anxiety

HIV/AIDS. Hughes et al. (2004) also found that emotional function with regards to anxiety

with the diagnosis, disclosing to loved ones and dealing with the stigma associated with

Many of the participants struggled with the emotional impairments to pain, coming to terms

This study revealed that 44.4% (n=20) of the participants had emotional impairments.
studies and health-related quality of life. Hughes et al. (2004) and Welp and Noyon (2005) and Web and Noyon (2009) found that the results of this study are in agreement with studies relating pain to limitations in functional

be due to the self-reported nature of the tool as well as the small sample size. The

the arthritis of others. The wide confidence intervals found in the regression analysis may

participants. This would also include the perceived influence of environmental factors like

participants indicated that pain is not only important in the domain of activities (p=0.02). These

Association between pain (on a category of sensory function and pain) and mobility

functions and pain are strong predictors of mobility (p<0.05). A further significant

functions of body function to activity limitations and participation restrictions

The significant association of the domain sensory function and pain, general mobility

and 4 of the WHO Clinical Disease Staging System.

problems as opposed to severe problems. Yet the sample represented those in Stage 3

similarly, the South African study carried out by Hughes et al. (2004) reported that 69.1% of the sample experienced pain and discomfort. Only 6% of the sample reported some

the study by Rush et al. (2004), due to the use of a small sample size.

the British Columbia cohort across all CD4 count ranges, were taken into account. The

the difference in pain prevalence as well as the prevalence of ARVs. The association between pain and CD4 count exists. The difference in pain prevalence

low CD4 counts were more inclined to report moderate to severe pain. The results of

especially pain where greater than half of the sample experienced pain and those with

(=50%) of a cohort of HIV-positive British Columbians reported poor sensory impairments,

These results can be compared to those found by Rush et al. (2004) where 71.9%
found that an increase in CD4 count is associated with a better health-related outcome.

Such changes are predicted of functional MRI (2005) and PET (2005) and Kohn et al. (2004).

Waves (2004). Evans and Seccaden (2002) have implied that clinical
result is weakening of the immune system and the onset of opportunistic infections
effects of HIV-1 on T-lymphocytes. HIV-specific cytokines cause T-lymphocytes and as a
1200 g/day). Reductions in CD4 count are reported to be due to the direct and indirect
of one of the participants in this study had CD4 count below the normal range (600-

inactivity and thus negatively affecting physical performance (Wydum and Nordon, 2004),
and therapeutic agents. Haemoglobin deficiency induces oxygen delivery to muscles, causing
(2005) estimated anemia in 25% of individuals with a history of opportunistic infections
addition to haemoglobinemia, Evans and Seccaden (2000) and Hoyle et al. in their
individuals for females and two males experienced problems with muscle power in
individuals with normal range were found in none of the females and eight of the males and of these
haemoglobin levels were found in normal range occurring in CD4 count and haemoglobin. Low
absolute lymphocyte counts from normal range occurred in CD4 count and haemoglobin. Low
Table 4.2: Haematological improvements were experienced by 94.6% (n=6) where the
systems were experienced by all of the participants of this study as shown in
Impairments associated with the cardiovasculat, haematological, immunological and

functions of the Cardiovascular, Haematological, Immunological and Respiratory

Hughes et al., 2004; Cresswell et al., 2000).

specifically relieve PLWHAs from pain in order to allow them to improved function
pain, either by pharmacological or non-pharmacological means, may have the potential to
activity, participation and contextual levels. Rehabilitation services directed at controlling
Research indicates that pain is a persistent problem for PLWHAs and if it has reached

physical and role limitations.

et al. (2000) and Cresswell et al. (1994) also found pain to be a significant predictor of
functional ability and thus have a profound bearing on health-related quality of life. Cresswell
related pain, especially pain associated with peripheral neuropathy, to be related to
function of the body and can thus affect capacity for simple activities of daily living and
cardiac, immunological and respiratory problems and such abnormalities hamper the
All participants in this study experienced improvements in the area of haemato logical,

In conclusion, this study, which included 118 patients, demonstrated abnormalities of the hepatitis B virus, hepatitis C virus, HIV-1, and HAART-associated abnormalities. The increase in blood pressure amongst the cohort may be in the province of Cushing's syndrome, which is more pronounced in females and 2% in males. The results of blood pressure improvement in blood pressure (hypertension) were experienced by 41% (n=12) of the females and 18% (n=3) of the males in the cohort. The results of blood pressure improvement in blood pressure (hypertension) were reported by 52.2% (n=10) of the cohort, whereas respiratory

exercises significantly reduced the function of the lungs and hence the activity and
common site for opportunistic infections as well as HIV-related reduction in diffusion
Hendel, Gescher, and Pederson (2002), which indicates that the pulmonary system is a
intervention. These results can be compared to research by Daga, Callen, Miller, and
problems were reported by 52.2% (n=10) of the cohort, whereas respiratory

components of the environment negatively and thus impair functioning.

factors, as well as a year of disconnection, may cause people to perceive the attitudes of
social self-regulation (Nieoule, Vermaelen, Seki, Warkany, and Kerma, 2004). These
research has also shown that disabili ties related to self-acceptance. The increase in CD4+ count and
et al. (2005), the main causes for AIDS-related disability is decrease in CD4+ count and
found to be a predictor of perceived barriers in the domain of attitudes. According to Steele
CD4+ count and disability. No such associations were found in the current study, possibly
could be the small sample size and the self-report nature of the ICF, but CD4 count was
(2005) and O'Dell et al. (1999) who demonstrated associations between a decrease in
psychological, and work-related function. These findings were also found by Zoom and et al.
quality of life. Zuidema et al. (2003) found CD4 count to be a strong predictor of physical,
Knowledge of neuromusculoskeletal problems can also assist when developing exercise.

daily activities and participation must not be disregarded in assessment and treatment.
although they were reported to be minor, mild, and moderate, their impact on capacity for
Il is evident that HIV introduces a high prevalence of multiple body impairments, and

capacity and well-being.

impaired muscle strength, and the limitations it places on daily activities, function.
(2003) emphasized the association between neuromusculoskeletal function, especially
mobile and interact with others on a social basis. Both O'Dea et al. (1998) and Zona et al.
neuropathy, and endurance. Will have a reduced capacity to learn, be sufficiently
muscle weakness and endurance, will have a reduced capacity to learn, be sufficiently
impaired in a person with poor neuromuscular function. Usually
activities such as learning and applying knowledge, mobility and interpersonal interactions

Regression analysis revealed neuromuscular dysfunction to be a strong predictor of

Physical activity among PLWHA (Men, 2004).

-HIV-related myopathies and muscle atrophy cause deconditioning and thus decreased
psychomotor slowness and fatigue. The findings are substantiated by the information that
weakness is to be largely related to muscle wasting, disabling neuromuscular involvement.
muscle strength is reduced in 72-82% (3/120) of a cohort examined and described the
Zona et al. (2006). Similar to this study, Zona et al. (2003) found
aspects and their association with the functioning of PLWHA have been well-documented.
study of neuromusculoskeletal elder- and gender-related HIV negative population (p=0.01), Neuromusculoskeletal
age- and gender-related HIV negative population (p<0.01), Neuromusculoskeletal
measurement demonstrated that the HIV positive cohort was weaker than the
confirmed the high prevalence of mild muscle weakness. Statistical analyses of the
results from the ICE Checklist, dynamometry and handheld muscle testing
of the cohort under investigation, 26.7% (n=17) experienced problems relating to the

Neuromusculoskeletal and Movement-Related Functions

and eliminating complications when implementing interventions.

assess the patient in drawing a more accurate picture of the patient's present condition
understanding clinical measures and their implications will

improved for health reasons. Understanding clinical measures and their implications will
participation in complex roles such as employment at 33% (n=15) of the cohort were
unavailability of sufficient objective measures. Impairments of body structure were minimal, limits were placed on assessment of structural impairments due to the

HI and AIDS.

Objective measures are needed to adequately assess structural abnormalities related to

function of the impairments of body structure which may indicate the presence of limitations

body function. It is however evident that the rises of impairments in body function generally

result from disorders related to movement and still & related structures as found in impairments of

including the musculoskeletal system, the cardiorespiratory, immunological and respiratory systems.

The impairments of body functions are strongly related to the problems of body structure.

5.2. Impairments of Body Structure

over time

consideration of using a longitudinal study to explore the varied effects of HIV and HAART

performing to time since diagnosis or initiation of medication with the possible

studies with or without the use of the ICT Checklist may consider obtaining information

longitudinal studies give strength to disability assessments. A recommendation for future

et al. (2005) gathered information on time since HIV/AIDS diagnosis and adopted their

advocacy goals according to disability assessment goals. Similarly, Dunia et al. (2005) and Ruiz Perez

disease course occurring in distinct stages. Similarly, Zonta et al. (2005) and Ruiz Perez

occurs in a continuum of overlapping critical and functional manifestations as opposed to a

time since infection and medical history. It was also highlighted that HIV prevalence

and residence. Delf et al. (1995) used a longitudinal study and determined that HIV

which may effect the prevalence of impairments. This information was not

without information regarding the time since infection or diagnosis of duration of ARF

without activity and participation limitations and environmental barriers was carried out.

It must be noted that the assessment of impairments of body function is well as body

2006; Delf et al., 2004; Sevoda et al., 2003).

exercise combinations can benefit PLWHA on a physical and psychological level (Mears,

Programs for patients as research shows that aerobic and progressive resistance
The study by Pal et al. (2006) points out that P/LWHs have lower work-related functioning and
lack household, educational, and medico-social services. A discussion by Vithala et al. (2002) and
manual differences in sustenance levels and their immediate families. With regard to
physical disabilities, there are evident problems as an activity level (46.7%; n=21) and
sufficiency were evident problems at an activity level (46.7%; n=21) and

Funding was found to be problematic as remuneration, employment, and economic self-

The education was less accessible for this age group during their youth.

years (13.3%; n=6). This may be due to the age or gender of this cohort or
greatest report of problems in higher education occurred in the older age group of 35 to 45
association between age and problems with school or higher education although the
education (in years) than education (in years). UNESCO, 2004). There was no
education may be related to national education concerns as the cohort had a higher average
education and financing education, either during youth or at present. Physical and access to

Health education was a considerable problem for the cohort as 13.3% (n=6) and 23.8% (n=13)

Major Life Areas:

- Relationships and major life areas.
- Applying knowledge, general level, and demands, mobilize, interpret personal interactions.
- The most common domains of activity limitations are an unassessed level included learning

5.2. Activity Limitations and Participation Restrictions

In mind, and this may have guided the evaluation to an exact

consultations. The structural assessment was carried out with the functional impairments
of the assessment due to the absence of severe obvious impairments found at follow-up
cases within this cohort. Minimal structural impairments had been carried out at the time
cohort's consultations - X-rays, hematological and pulmonology - and that it was possible to assess
using verbal communication, visual observation, medical records (including
Lung function and health-related quality of life, to be an important problem among PLWHA.

These findings are supported by similar studies which report mobility, as part of physical

within the normal environment, activities such as mobility, which are prerequisites to participation in simple and complex roles in the daily life, metabolic and endocrine systems and neuromusculoskeletal functions to be important in body functions such as sensory dysfunction (p<0.05), pain (p<0.01), and energy & drive (p=0.006), and muscle power (p<0.001). Further analysis showed sensory functions and pain, function of

interimments in body functions such as sensory dysfunction (p<0.05), pain (p=0.006), and

results of the study revealed that mobility is a prime activity affected by many body

Mobility

implies that the functions of severe and mobility be intact (Zonta et al., 2000).

and work-related activities require physical and social functioning, which

impairments and major life areas in this study, however it is important to acknowledge that

2005; Cavin et al., 2004). There were no significant correlations found between body

vocational training (Khan, 2007), community, nutrition, and education, as well as environmental factors in education and

peripheral neuropathies and diabetes, as well as environmental factors in education and

are influenced by HIV-related factors of body impairments, especially muscle power,

areas like neuroimmune, psychological, economic, self-efficacy, and aspects and education

were found to be correlated to work in the disability and reduced functional ability. Research implementing health challenges in patients with

(2002) found a larger number of injection-related job restrictions (43%; n=62)

Zonta et al., 2002) found a large number of injection-related job restrictions (43%; n=62)

and 44% of those were due to weakness which prevents jobs suitably. Zonta et al.

were due to difficulties may arise due to challenges associated with

in this study, employment and economic self-sufficiency was not correlated to years of formal

problems in work related functioning to be significantly related to fewer years of education.

overall health-related quality of life than the non-injected population. It was also found that

the decrease as well as socioeconomic influences.

education which may indicate that difficulties may arise due to challenges associated with
with the Functional Assessment of HIV/AIDS in Women, Men, and Teens (FAHAWMT) in relation to quality of life. The FAHAWMT is a 9-item measure of quality of life that assesses physical and mental health, social support, personal relationship, coping strategies, and life satisfaction. This measure has been validated in numerous studies and is widely used in research on HIV/AIDS.

Many studies have also examined the relationship between physical and emotional functioning and quality of life. For example, a study by Houghes et al. (2004) found that physical functioning was significantly associated with emotional well-being and overall quality of life. Similarly, a study by Webb and Norton (2004) found that physical functioning was also associated with improved mental health and reduced symptomatology.

In conclusion, the FAHAWMT and other similar measures are valuable tools for assessing the impact of HIV/AIDS on quality of life. By quantifying different dimensions of quality of life, these measures can help guide interventions aimed at improving the well-being of individuals affected by HIV/AIDS. Furthermore, by tracking changes in quality of life over time, these measures can provide valuable insights into the effectiveness of interventions and the impact of new treatments on the quality of life of individuals with HIV/AIDS.
increasing number of implications. The low levels of participation restrictions with
increased risk of nonparticipation in important daily roles is associated with
the social and economic factors. The compound influence of HIV, poverty, and
employment and economic self-sufficiency remained problematic for 17.8% (n=6) and 20%
remained a problem despite some assistance. was major for the greater. Furthermore,
Participation restrictions were low among adults. The most striking domain is which

Participation Restrictions

compliance (Fisher et al., 2004).

must take mental factors into account when assessing with role-functioning and task
restrictions which can include ability to carry out multiple tasks. The Participation worker
restrictions may also find the need to have good overall functioning and related
functions. Some research has found that mental functioning is related to social role
ability. Although difficulty with multi-tasking has been a problem for the cohort was not associated with mental
ability in carrying out multiple energy-demanding tasks (Hines, 2004; Searle et al.)
will assist in carrying out multiple, energy-demanding tasks. For example, exercise
ability to have potential to improve mobility and endurance which
and energy deficits. Research has also proposed that improvements for example, exercise
difficulty in carrying out multiple or complex tasks may be related to associated mobility

Social Functioning

real and management of body impairments has the potential to improve physical and thus
impairments and activity limitations are significantly associated with social role restrictions
and those from studies by Fisher et al. (2004) and Crystal et al. (2000). show that
large percentage of the cohort experienced difficulties in this domain and in particular,

General Tasks and Demands

Social Functioning.
The diagnosis of HIV is a stressful event which may evoke negative psychological and behavioral changes such as depression and anxiety (Aly and El, 2006; Oley et al., 2004). Logistic regression revealed that the perception of negative attitudes is predicted by occupational and monetary concerns, as well as assistance. These factors suggest a need for non-psychological interventions associated with social and economic issues and highlighted the need for non-psychological interventions.

Environmental factors can impact upon important activity limitations and participation as implied in the section on major life areas (5.3) which indicates that these factors effect on the socio-economic status and health. Among this cohort, employment and labor services provided once again to be a problem in HIV care (Fowles and Coe, 2004). Conditions can create health disparities and novel social policies have a critical role to play in addressing these issues. Research has indicated that social and health disparities contribute significantly to health disparities, metabolic and endocrine problems which hinder the ability to cause disparities. Metabolic and endocrine problems which hinder access to care and supply sanitation, nutrition and medical resources and diabetes and policies (-everett, 2004) which may indicate that those with problems of the endocrine systems were shown to be predictors of barriers with regard to services. Endocrine problems and policies negatively attribute dysfunctions of the digestive, metabolic and endocrine systems. The most common barriers to function include problems with services, systems and variety of barriers and limitations to function.

5.4 Environmental and Contextual Factors

Intervention protocols for PLWHA should include socioeconomic and environmental factors. Research has shown that assessment of PLWHA should include socioeconomic and environmental factors. Along with physical and psychosocial rehabilitation, should be considered when designing structures and settings. The potential benefits of efficient vocational and financial services, assistance (in the unpaid labor market) may be attributed to sound social and familial support.
Gender

5.5 Participant Profile

Quality of Life of PWHA

Thus by addressing such influential factors, we may hope to enhance the health-related acquisition of social support as well as the other psychological and environmental factors, physical and mental health, and well-being-related quality of life were highlighted by the professional, especially the attitudes from family, friends, personal care providers and health-care providers.

Positive attributes were strong predictors of function for the activities and limitations of roles. Positive attitudes were strong predictors of function for the received support from their surrounding environment, they may cope better with daily life's activities at a high level, which indicates that if PWHA experience positive attitudes and those living with HIV/AIDS, Rush et al. (2004) and Kolb et al. (2005) reported positive attitudes and support are well as good relationships with those who assist with the functioning of problems experienced and the may be due to the facilitory influence of positive attitudes modifiable, elective, domestic, and community, social and civic life, there were minimal facilitory in the categories of participation, especially general tasks and demands.

Strong facilitory of function included support and relationships and perceived positive understanding networks within the community in order to refer patients appropriately.

Interested in measuring regularity (O'Keeffe et al., 2004) when these problems, a clinician must live pain be related to depression which, in addition to stigma, may lead to the perception to be negative and thus impair optimal function. Research also shows that improvements by sensory dysfunction and pain (p=0.04). This result suggests that those with pain and
ARVs

Addressing problems faced by PLWHAs in order to maximize their health-related quality of life through appropriate interventions and referrals. Such as gender, age, occupation and education into consideration when assessing and moving to urban areas for financial and employment reasons. Children must leave school to work. These rural people who are fortunate to be educated may accessible to the urban areas (Department of Education, 2005). Nelson Mandela became educated in urban and more developed areas. Calculations where education is more accessible to urban areas due to the population. Possibly having education. The higher the level of education, the more years of formal education for the cohort was ten years. This was important how concerning the South African education statistics show that the average number of years of formal education for the cohort was ten years. The success in years of schooling among adults is 6.1 years (UNESCO, 2004). The subjects were 12 years of schooling among adults is 6.1 years (UNESCO, 2004). The success in years of schooling among adults is 6.1 years (UNESCO, 2004). The subjects were

Years of Formal Education

The average number of years of formal education for the cohort was ten years. This was an average of the cohort showed that 19 participants (42.4%) were employed or studying.

Occupation

Occupation are associated with high mortality and morbidity (Palmer et al., 1999). The cohort were taking ARVs and are thus living longer. This research shows that ARVs in the 35-39 year age range. This may be attributed to the lack of high proportion of years onwards. However, this cohort is different as the highest numbers of PLWHA were from 20 years with a steady rise between 25 and 55 years of age. Then decreases from 35 years onwards. The pattern is similar to national statistics where in absolute terms the highest prevalence of HIV in South Africa occurs in those between 20 and 35 years of age (SANHS, 2005). The age range of the cohort (21-49 years) is comparable to that.
also indicate the need for holistic assessment and management of level of activity in order to improve mobility, activity limitations and participation restrictions in a South African cohort. They further suggest that these measures are important for improving quality of life and well-being of HIV/AIDS patients.

The results of this study are of value as they identify important areas of physical activity and quality of life for intervention and policy development.

5.6. Limitations of the study

The study has limitations that need to be considered. First, the sample size of 200 participants is relatively small. Second, the data collection methods used, such as self-report questionnaires, may not capture all aspects of physical activity accurately. Third, the study does not include information on other factors that may influence physical activity, such as socioeconomic status or cultural background. Fourth, the study was conducted in a specific setting and may not be generalizable to other populations. Finally, the study did not measure adherence to physical activity guidelines, which is important for determining the effectiveness of the intervention.

Nonetheless, the study provides valuable insights into the physical activity levels of people living with HIV/AIDS in South Africa. The findings highlight the need for targeted interventions to improve physical activity levels and quality of life for this population.
In scanning the categories of the ICF-Chediders (Zemla et al., 2003; Suller, Stein & Steiner, 1999), O'Dell et al. (1999) strengthen the functional independence measure and barrier index and the ParmaHL Scale to assess the sensitivity of the outcome measures of the ICF-Chediders. To be strengthened by using other validated outcome measures of function such as the categories of the HIV/AIDS population.

To gain a deeper understanding into the function and disabilities of these ranges, a larger sample would be useful to assess the functional situation, in addition to an AHR of no or not according to CD4 count.

A South African population, according to CD4 ranges, further research should be conducted with regards to whether CD4 count is a good predictor of ARV/HAART use. Information regarding the HIV/AIDS diagnosis and information of the HIV population obtained in this study; however, future studies may strengthen the results.

Recommendations for Further Research

APV treatment
- Lack of information regarding the time since infection or diagnosis and duration of microscopical measures.
- Complete immunology, USG, X-rays, magnetic resonance images, and laboratory examination.

The study size: Although the researcher took guidance from similar studies, a smaller sample size could be considered in the future. However, the limitations of the study are:

1. Smaller sample size: Although the researcher took guidance from similar studies, a
5.8 Conclusion

Conducted in a rural and a well-resourced area.

To be truly representative of a South African population, research should be

This study looked at an urban population of different socio-economic circumstances.

...
The results revealed that aspects of the environment have both facilitatory and impairing functions at a body, activity and social level. Supports research that indicates that contextual and environmental factors influence motor functions, social participation, and emotional and behavioral well-being, and highlights the importance of activity within a participatory level, which may influence the environmental factors more than individual problems. Major life areas like remunerative employment and economic self-sufficiency, mobility, and sociodemographic variables have an important influence on activity limitations and participation restrictions. Regression analysis showed that impairments in body functions are strongly associated with activity limitations, interpersonal interactions, and relationships, and major life areas. The statistical analyses showed that impairments of body functions, emotional problems, and environmental factors are significantly related to the cardiocascular, neuromusculoskeletal, and psychological systems as well. Recommendations for future research are outlined in this study, as are a checklist for assessment tool.

Chapter 6

Recommendations
Within social, labor, education, water and sanitation, and development sectors, strengthening the interdisciplinary referral system within the medical field as well as adequate understanding and assessment of the full health experience will help to deal with socioeconomic status and attention to the associated environmental and contextual factors such as employment in working with PWHA, rehabilitation professionals should aim to deal with participation restrictions should be focused at an individual level and functional rehabilitation. In addition, assessment of activity limitations and participation restrictions should take consideration of areas such as mobility, interpersonal interactions, and manual dexterity. In addition, assessment of health-related quality of life is recommended that in the assessment of PWHA, rehabilitation workers should include the assessment of mental functions, sensory functions such as pain and sight, and emotional functions as well as neuromusculoskeletal functions such as muscle strength.

Recommendaations from the study:

Recommendation of PLWHA by UNAIDS and management of PLWHA by UNAIDS. However, continuous prevention, treatment, and care promoted as an umbrella approach to the continuum of prevention, treatment, and care can promote an informed response to the health challenges in order to inform the appropriate management which enhances the results of the study are of use as they identify critical areas of physical impairments, generalize physical and functional impairments and enhance health-related quality of life.
Health professionals must assess patients from an impairment, activity, participation and contextual point of view in order to move from a medical and rehabilitation model to a biopsychosocial model of care.
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compactly covers the spectrum of health problems encountered by health


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Short List of Body Functions

4 Void Function
5 Function of the Gastrointestinal Tract
6 Function of the Urinary System
7 Function of the Respiratory System
8 Function of the Cardiovascular System
9 Function of the Hematopoietic System
10 Function of the Endocrine System
11 Function of the Nervous System
12 Function of the Skin and Related Structures
13 Remaining Functions

Part I: Impairments of Body Functions

» Function of the Eye
» Function of the Ear
» Function of the Tongue
» Function of the Nose
» Function of the Mouth

Impairments of Speech Functions

Speech Impairments

- Speech Impairments 1 and 2
- Impairments of Spoken Language
- Impairments of Voice
- Impairments of Articulation
- Impairments of Swallowing

Speech Impairments 3 and 4

- Impairments of Reading
- Impairments of Writing
- Impairments of Conversation
- Impairments of Communication

Speech Impairments 5 and 6

- Impairments of Listening
- Impairments of Understanding

Speech Impairments 7 and 8

- Impairments of Language Comprehension
- Impairments of Language Expression
<table>
<thead>
<tr>
<th>ANY OTHER BODY STRUCTURES</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<td>2</td>
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<td>7</td>
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<tr>
<td>8</td>
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</tr>
</tbody>
</table>

**Short List of Body Structures**

1. Nervous System
2. Skeletal System
3. Muscular System
4. Reinforcing Systems
5. Biochemical and Endocrine Systems
6. The Digestive System
7. Respiratory Systems
8. Cardiovascular and Vascular Systems
9. The Nervous System
10. The Endocrine System
11. The Respiratory System

**Table:**

<table>
<thead>
<tr>
<th>Location</th>
<th>Change of the Function of the Structure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 No change in function</td>
<td>0 No change in function</td>
<td>8 Not resolved</td>
</tr>
<tr>
<td>1 Total loss of function</td>
<td>1 Total loss of function</td>
<td>9 Not applicable</td>
</tr>
<tr>
<td>2 Partial loss of function</td>
<td>2 Partial loss of function</td>
<td>9 Not applicable</td>
</tr>
<tr>
<td>3 Decreased function</td>
<td>3 Decreased function</td>
<td>9 Not applicable</td>
</tr>
<tr>
<td>4 Detrimental changes in structure</td>
<td>4 Detrimental changes in structure</td>
<td>9 Not applicable</td>
</tr>
<tr>
<td>5 Detrimental changes in structure</td>
<td>5 Detrimental changes in structure</td>
<td>9 Not applicable</td>
</tr>
<tr>
<td>6 Detrimental changes in structure</td>
<td>6 Detrimental changes in structure</td>
<td>9 Not applicable</td>
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<tr>
<td>7 Detrimental changes in structure</td>
<td>7 Detrimental changes in structure</td>
<td>9 Not applicable</td>
</tr>
<tr>
<td>8 Not resolved</td>
<td>8 Not resolved</td>
<td>9 Not applicable</td>
</tr>
</tbody>
</table>

Interpretation of the table: The body structures are grouped into categories based on the nature and extent of the changes they experience. Each category includes structures affected by the changes, the type of changes (e.g., loss of function, partial loss of function), and comments indicating whether the changes are detrimental or not.
<table>
<thead>
<tr>
<th>Performance</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 No difficulty</td>
<td>9 No applicability</td>
</tr>
<tr>
<td>1 Mild difficulty</td>
<td>8 Significant difficulty</td>
</tr>
<tr>
<td>2 Moderate difficulty</td>
<td>7 Extremely significant difficulty</td>
</tr>
<tr>
<td>3 Severe difficulty</td>
<td>6 Extreme difficulty</td>
</tr>
<tr>
<td>4 Complete difficulty</td>
<td>5 Intact difficulty</td>
</tr>
<tr>
<td>5 Loss of auditory function</td>
<td>4 No audiogram</td>
</tr>
</tbody>
</table>

**Short List of ABC domains**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Qualifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>Category</td>
</tr>
</tbody>
</table>

**Notes**: We appended 2% feedback to each item on the activity and calculation of the indicator.

**Feedback & Limitations & Participation Restriction**

According to the definition of participatory action research, participation is understood as the situation in which the action participants are active in the execution of a task or action. Participation is understood in the situation of action on issues and actions.
### Short List of ACEs Domains

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Civic Life</strong></td>
<td></td>
</tr>
<tr>
<td>Community Social and Economic Development</td>
<td></td>
</tr>
<tr>
<td><strong>Major Life Areas</strong></td>
<td></td>
</tr>
<tr>
<td>Family Economic Security</td>
<td></td>
</tr>
<tr>
<td><strong>Interpersonal Relationships</strong></td>
<td></td>
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<tr>
<td>Interpersonal Interactions</td>
<td></td>
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<tr>
<td><strong>Domestic Life</strong></td>
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<tr>
<td>Parenting and Child Rearing</td>
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<tr>
<td><strong>Catastrophic Events</strong></td>
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<tr>
<td>Disaster (natural or man-made)</td>
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</tbody>
</table>

### ACE Centers

<table>
<thead>
<tr>
<th>Center</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>5th Place</strong></td>
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<tr>
<td><strong>Southwest</strong></td>
<td></td>
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<tr>
<td><strong>Central</strong></td>
<td></td>
</tr>
<tr>
<td><strong>East</strong></td>
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</table>

### Performance Indicators

- Capacity Indicator

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Note: The table above is a partial representation of the document content. The full document is not visible in the provided image.
<table>
<thead>
<tr>
<th>ANY OTHER ENVIRONMENTAL FACTORS</th>
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<tbody>
<tr>
<td>1. Physical features of the region and climate</td>
</tr>
<tr>
<td>2. Soil type and drainage conditions</td>
</tr>
<tr>
<td>3. Geographical location</td>
</tr>
<tr>
<td>4. Human activities (agriculture, industry, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICES AND POLICIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Access to health care</td>
</tr>
<tr>
<td>2. Education opportunities</td>
</tr>
<tr>
<td>3. Employment conditions</td>
</tr>
<tr>
<td>4. Access to clean water and sanitation</td>
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</tbody>
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<thead>
<tr>
<th>IMPORTANCE</th>
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</thead>
<tbody>
<tr>
<td>1. Value of the environment</td>
</tr>
<tr>
<td>2. Economic impact</td>
</tr>
<tr>
<td>3. Cultural significance</td>
</tr>
<tr>
<td>4. Recreation and tourism opportunities</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>EFFECTS OF ENVIRONMENTAL AND HUMAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pollution and ecosystem damage</td>
</tr>
<tr>
<td>2. Climate change and weather patterns</td>
</tr>
<tr>
<td>3. Economic and social disruption</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRODUCT AND TECHNOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clean technologies</td>
</tr>
<tr>
<td>2. Renewable energy sources</td>
</tr>
<tr>
<td>3. Sustainable agriculture</td>
</tr>
</tbody>
</table>

**PART 3: ENVIRONMENTAL FACTORS**
condemnation

(2) How does this compare with someone just like yourself? Without your health?

In your opinion, does your health make more or less of a difference to your quality of life?

(2) Is your general health similar to that of someone just like you?

(2) If you were to take on a challenge of a higher level of difficulty, would you benefit from having a healthier body? What do you actually feel in your present state of health, how much of a problem do you actually have in your present state of health?

(2) The effects of improvement on your quality of life?

(2) How do you compare with someone just like yourself without your health?

(2) How difficult do you have waking long?

(2) How do you experience your health problems or the absence of health?

(2) How do you feel your health problems or the absence of health?

(2) How do you experience your health problems or the absence of health?

(2) How do you feel your health problems or the absence of health?

(2) How do you experience your health problems or the absence of health?

(2) How do you feel your health problems or the absence of health?

(2) How do you experience your health problems or the absence of health?

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(2) How do you experience your health problems or the absence of health?
A. After Life Arises

(1) In your present surroundings, how much of a problem do you generally have getting

(2) How does the company with someone just like yourself only without your health

(3) In your present state of health, how much difficulty do you have making new friends,

B. Interpersonal Interactions

(1) In your present surroundings, how much of a problem do you actually have making

(2) In your present surroundings, how much a problem do you develop your health problem or the accident?

(3) In your present surroundings, how much of a problem do you generally have getting

C. Domestic Life

(1) In your present surroundings, how much of a problem do you actually have cleaning the house?

(2) How does the company with someone just like yourself only without your health

(3) In your present surroundings, how much of a problem do you generally have getting
The cheek is within reach. Please reach out for assistance.

If you need to use a container, please use the space on the end of each.

The container is within reach. Please use the space on the end of each.

All information can be accessed in the checklist. Please reach out for assistance.

4. All information from written records, primary source, or other information and direct observation can be accessed in the checklist. Please reach out for assistance.

Curriculum

I. This version (2.0) is for use by a child's health or social care professionals.

II. This version is to be used for records (for example, in a child's health or social care professional.)

Guidelines for the Use of ICF Checklist Version 2.1A

Appendix 3


1. When you were last in your present situation, did you experience any problems with your health?

2. How often do you experience any problems with your health?

3. How do you feel about your health?

4. How much of a problem do you currently have participating in community activities, leisure activities, or other local events, without assistance?
Dear [Patient's Name],

I appreciate the opportunity to speak to you about the study before I make my decision. I have reviewed the medical records, and while I understand the consent form, I still have some questions. Please let me know if I should take the study seriously and have access to this information.

I have a number of concerns about the study. I understand the study has been approved by the institutional review board (IRB). However, I am concerned about the potential for bias in the study.

I was told that the study is meant to assess the participants' knowledge and understanding of [specific topic]. I would like to know more about the methodology used in the study and how the data will be analyzed.

I am concerned about the confidentiality of the information provided to the study participants. I understand that the study will be conducted in [specific location]. However, I would like to know more about the steps being taken to ensure the confidentiality of the information.

I am also concerned about the potential for conflict of interest [specific issue]. I understand that the study is being conducted by [specific organization]. However, I would like to know more about the potential for bias in the study.

I am concerned about the potential for harm to the participants. I understand that the study will be conducted in [specific location]. However, I would like to know more about the steps being taken to ensure the safety of the participants.

I was told that the study is meant to assess the participants' knowledge and understanding of [specific topic]. I would like to know more about the methodology used in the study and how the data will be analyzed.

I am concerned about the confidentiality of the information provided to the study participants. I understand that the study will be conducted in [specific location]. However, I would like to know more about the steps being taken to ensure the confidentiality of the information.

I was told that the study is meant to assess the participants' knowledge and understanding of [specific topic]. I would like to know more about the methodology used in the study and how the data will be analyzed.

I am concerned about the potential for bias in the study. I understand that the study will be conducted in [specific location]. However, I would like to know more about the steps being taken to ensure the confidentiality of the information.

I was told that the study is meant to assess the participants' knowledge and understanding of [specific topic]. I would like to know more about the methodology used in the study and how the data will be analyzed.

I am concerned about the confidentiality of the information provided to the study participants. I understand that the study will be conducted in [specific location]. However, I would like to know more about the steps being taken to ensure the confidentiality of the information.

If you have any questions or concerns, please let me know. I am here to help you make an informed decision.

Sincerely,

[Your Name]
If you have any questions, please contact me at the Wisconsin Physical Therapy Department (608) 262-7177. Thank you for your time.

You will be given bus fare or taxi money (paid) should the time taken by the interview inconvenience you.

Health Check: If you have a history of any of the following conditions or if you are involved in ongoing treatment, please do not participate in this study:
- HIV/AIDS
- Hepatitis B and C
- Current use of immunosuppressive medication
- Other ongoing medical conditions

The study involves being interviewed about your health and completing a questionnaire about your health status and function. You will be asked to complete a physical examination before the drug is administered.

You must be between 18 and 49 years old and HIV positive, you are invited to take part in this study if you are between 18 and 49 years of age and HIV positive. You are invited to participate in this study if you are between 18 and 49 years of age and HIV positive.

Hi, My name is Melissa. I'm a physical therapist at the University of Wisconsin-Madison. I'm conducting a research study and would like to have your help.

Dear Patient,

[4.2 - Letter to patient]

NO

Signature:

YES
Thank you for your time.

Yes, you may stop the interview at any time for any reason and you will not be asked in any way. You will still get the same treatment and services.

May I stop the interview at any time?

Keep your answers confidential and will be destroyed after the study is completed.

WILL MY INFORMATION BE CONFIDENTIAL?

The study will take place in a place that is private. Personal details will be kept private at all times during and after the interview. The names of the interviewers will be recorded on the CRF questionnaire. Only the researchers will be given a number which will be recorded on the CRF questionnaire. You will not receive a number which will be recorded on the CRF questionnaire. You will not receive any reward for participating in the study.

Yes, if we find that you are in need of medical therapy and you are not already receiving it, we will refer you to the appropriate care.

Are there benefits to participating?

The interview will take approximately 1 hour. The interview will be conducted by the Social Worker. During the interview, we will ask you to provide answers to questions about your experiences, physical and emotional state, and your current medical status. We will ask you to provide this information to help other people with HIV/AIDS.

What do I expect from those who decide to participate in the study?

To help you make a well-informed decision about taking part in the study, I have prepared a few questions and answers to assist you.

Appendix A2: Information sheet supplied to patients

Dear Patient,

[Body of text]
I have been informed separately about my involvement in the study and agree to participate in the study.

I have been interviewed individually.

Interviewed individually.

The study is conducted on a voluntary basis. I was told that I will not receive any direct payment for my participation. I was informed that the study may benefit from the input of the researchers. The details of the study have been explained to me. I am aware of what is required of me to write on in a journal (no names included).

Permission for information gathered to be used to complete a research report that may be written up in a journal (no names included).

I give my permission to be interviewed by a researcher and for my medical records to be consulted by a research team. I understand that my information will be kept confidential and that the interview at any time and for any purpose will be recorded in a protocol. I understand that I may stop the interview at any time.

Appendix 4.1 - Informed Consent Form - Study Participants

Informed Consent Form - Study Participants