DANCING FOR LIFE: AN EXPLORATION OF THE EFFECTIVENESS OF DANCE-MOVEMENT THERAPY AS AN INTERVENTION FOR HIV

by

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SUMMARY

Although there are approximately 40 million people in the world infected with AIDS, 4.7 million of whom live in South Africa, very little research concerning non-medical modes of treatment has been conducted in South Africa. The use of antiretroviral drugs for the treatment of HIV/AIDS recently came under the spotlight when AIDS dissident Robert Giraldo argued that antiretroviral drugs induce rather than treat AIDS. Extensive research concerning medical interventions for AIDS has been conducted, but to date the field of psychoneuroimmunology and it’s principles have been left largely unexplored in the South African context.

Psychoneuroimmunology (PNI) is a field of mind-body medicine that examines the relationship between the mind, the emotions and the body. Mind-body medicine is based on the premise that mental and emotional processes can affect physiological functioning. PNI is the study of the interrelations between the central nervous system and the immune system. It focuses on the influence of cognitive images on the nervous system and consequent interactions with the immune system. It incorporates but is not limited to, biofeedback, the impact of thought and belief on physiology and the effects of stress on physical and emotional functioning.

The current research attempts to draw parallels between the fields of PNI and Dance/Movement therapy (D/MT). Dance Movement therapy (D/MT) is an art and a science that involves the use of nonverbal communication through the medium of movement and dancing. It is partnered with the practices of psychiatry and psychology. D/MT is based on the idea that the body and mind are inseparable. It is a form of psychotherapy, which utilizes psychomotor expression as its major mode of intervention. The basic premise of D/MT is that body movements reflect inner emotional states and changes in movement can lead to changes in the psyche, promoting health.
One of the fundamental principles, and moreover a central purpose, of dance/movement therapy is the unity and balance of mind and body. Furthermore, the use of D/MT as a healing tool is rooted in the idea that the body and mind are inseparable. The premise that the mind and body have an interdependent relationship is not limited to the theory and practice of D/MT. The field of psychoneuroimmunology also maintains that mental and emotional processes of the mind can affect physiological functioning within the body. In addition, research has shown that certain psychological constructs such as stress, social support, self-esteem, and optimism and pessimism can affect the functioning of the immune system.

The constructs discussed and targeted in the field of PNI are just some of the elements that are addressed in the practice of D/MT. Effective psychological intervention can assist the individual to manage and alter stressful conditions. Furthermore, group therapy, which is often employed in the practice of D/MT, provides an effective, efficient and economical system of peer support and hope from other individuals facing the same situation. D/MT is a psychotherapeutic treatment that uses body awareness, expression and acceptance to facilitate physical, emotional, cognitive and spiritual integration to heal disorders of the body and the mind. Other psychological and physical improvements that have been attributed to D/MT include enhanced self-esteem, greater social support, an increased sense of control, and a greater ability to cope with stressful events.

Because the elements of PNI discussed above have been shown to affect the physiological functioning and immunity of individuals, they are important constructs that need to be considered in the treatment of disease. Further, as D/MT has been shown to effectively address these factors, it follows that when treating individuals for a disease from the perspective of PNI, D/MT may be
an appropriate intervention. In the current research, the aforementioned elements of PNI and how they are affected by the application of D/MT are discussed.

Because the present investigation is focused on an area that has yet to be explored in South Africa, very little information concerning the topics in question is available. Consequently, the researcher focused on assembling information in the form of a literature review regarding D/MT and the possibility of using this means of therapy as an intervention for HIV. As such, the research design employed in the current investigation was exploratory in nature.
CHAPTER 1: ORIENTATION, MOTIVATION AND AIMS

1.1 Orientation

Africa in general, South Africa in particular, is experiencing an AIDS epidemic. Sub-Saharan Africa continues to have the highest HIV prevalence in the world (UNAIDS, 2003). This region of Africa is home to 26.6 million people living with HIV/AIDS. However, a different picture emerges in East Africa and parts of Central Africa. Uganda, once seen as the epicentre of the virus, has had enormous success in lowering infection rates from 30% in the 1990’s to 6% (Wallis, 2004). Double-digit HIV prevalence rates have now become rare (UNAIDS, 2003). No other country on the continent has matched this achievement at the national level. The success in lowering HIV infection rates has been largely attributed to a pro-active government campaign that uses an ABC slogan (Busharizi, 2003). A is for abstinence, B is for being faithful and C is for using condoms. In addition for this, the country has a comprehensive antiretroviral drug programme.

Anti-retroviral drugs, and their use in treating individuals with AIDS, were recently called into question and have been the source of much controversy. AIDS dissident Roberto Giraldo, has argued that anti-retrovirals induce, rather than treat AIDS (Cembi, 2003). However, notwithstanding these discordant views, the South African government approved a plan for a national HIV/AIDS treatment program in November 2003. This new agenda will include the distribution of free antiretroviral drugs to those in South Africa infected with HIV and AIDS (UNAIDS, 2003). The program aims to treat 1.2 million people, or about 25% of the country's HIV-positive population, by 2008.
Although extensive research concerning medical interventions for AIDS has been conducted, alternative treatment methods based on the principles of psychoneuroimmunology, have to a large degree, been neglected in South Africa. Furthermore, interventions that highlight and make use of psychoneuroimmunological elements have been left largely unexplored. Dance/Movement Therapy has much to offer in the way of treatment for individuals with HIV. The benefits of such treatment include exercise, a means of communicating and an outlet for emotional expression, and the creation of new and important roles, which may have a positive influence on self-esteem.

While medical intervention is certainly intrinsic to the treatment of people living with HIV, psychosocial factors such as depression, anxiety, stress and social-isolation are inherently involved in immunity and wellness thus cannot be ignored.

1.2 Motivation for the Study

The motivation for this study stems from the need South Africa has for an intervention directed at the psychosocial consequences of being HIV positive and the effects HIV positivity has on the whole being of the infected individual. At this time, 40 million people in the world are infected with the AIDS virus (Swart, 2003). 4.7 million of these individuals live in South Africa. To date, much research has been conducted in the field of psychoneuroimmunology (PNI) concerning the impact of psychosocial factors on the progression of HIV (Cohen & Herbert, 1996; Kiecolt-Glaser, McGuire, Robles & Glaser, 2002; Nel, 1997; Nicholas & Webster, 1996; Vehara, Schiffitto & McDermott, 1999). However, while Dance/Movement Therapy (DM/T) and PNI are similar in that they assume a fundamental interconnection between the body and the psyche, no studies concerning D/MT as a valid intervention have been documented in South Africa. Intervention has almost exclusively focused on medical treatments and hospice-type palliative care. If South Africa is going to make progress in the war against HIV/AIDS, all plausible treatment methods need to be researched and considered.


1.3 Aims of the study

The generic purpose of any study is to generate knowledge (Wampold, 1996). Moreover, research is conducted to develop new theories. The aims of this study include a general aim with regards to the effectiveness of D/MT in treating HIV, and a more specific aim relevant to the South African context in particular.

1.3.1 General aim

In light of the orientation and motivation discussed above, the present study seeks to contribute to the growing body of literature on the usefulness of psychoneuroimmunological interventions for HIV. Moreover, this study endeavours to improve the understanding we have of psychosocial factors and the impact they have on both the individual with HIV and the course of the disease. Given the increasing awareness and acceptance of the link between emotional factors and physiological functioning, there is a need for a more holistic approach towards understanding and treating individuals with HIV. A holistic intervention is of particular importance for the South African context where medical services are not always accessible to those living in non-urban areas. Moreover, Western medicine is not always trusted and accepted by individuals from a traditional African background (Rudnick, 2000).

A further aim is to contribute to the research material for future projects, specifically because the scope of this area is so vast and has so many variables. As mentioned previously, there is also very little South African research available regarding the influence of psychosocial variables on individuals with HIV, thus this study is of a unique nature.
1.3.2 Specific aim

The specific aim of the current study is to determine whether D/MT is an appropriate and effective intervention for HIV. The primary intention of the study is to explore the psychoneuroimmunological factors that have an effect on immunity and to determine whether these elements can be effectively addressed by using D/MT as an intervention. It is not the aim of this study to quantitatively test a specific hypothesis or to document the results from specific individuals. Rather, the aim is to explore and accumulate information on psychoneuroimmunology and Dance/Movement therapy in an attempt to draw parallels between the two fields thereby elucidating the relevant constructs and illustrating how D/MT can be used to implement the principles of PNI.

1.4 Research Methodology

As the area of research is not well developed, an exploratory research design will be used for the study. This type of design is used in situations where a new research topic or field is being investigated (Neuman, 2000). Information regarding the subject will be collected and assembled in such a way that future researchers interested in this subject will be able to use the current study as a framework. Furthermore, a variety of investigations on PNI and HIV, as well as D/MT will be discussed with a view to describe the various research methods that may be employed in such investigations.

1.5 Delineation of Chapters

Chapter 1 introduces the reader to the study at hand. A general orientation, outlining the background of the study, is presented. The motivation for the research is then discussed, followed by the general and specific aims of the study. Chapter 2 presents an in depth discussion of HIV/AIDS. Terms are defined and an historical background to the disease is given. Next, the
immune system and immune functioning are discussed, followed by an examination of HIV infection and progression. The medical treatment of the disease is discussed, as well as the psychological responses to being diagnosed as HIV positive. Finally, cultural beliefs about disease in general and HIV in particular are examined. In Chapter 3, psychoneuroimmunology is first defined followed by its historical background. Evidence of a mind-body connection is given and lastly, the elements of psychoneuroimmunology are elucidated. Chapter 4 outlines in detail Dance/Movement therapy including a definition, historical background and its basic premise of mind-body unity. Motivation for using Dance/Movement therapy as an intervention for HIV is then provided and finally, Dance/Movement therapy and Psychoneuroimmunology are combined. Chapter 5 presents a comprehensive record of the research design and methodology used in various studies in the area of PNI and D/MT, and in the present study. Chapter 6 provides a discussion of the study and includes its limitations. Lastly, recommendations for further research are discussed.
CHAPTER 2: HIV/AIDS

2.1 Introduction

AIDS is a disease that is generally accepted to be caused by the HI virus. It was first recognised in the early 1980’s in a group of young individuals who displayed a similar set of symptoms that had previously only been seen in older patients. It was later found that this new disease directly attacked and almost completely immobilised the infected individual’s immune system. Since 1995 radical developments in the treatment of HIV and AIDS have taken place. For example, the use of antiretroviral drugs has become widespread in treating infected individuals. However, many individuals who are being treated with anti-retroviral drugs do not adhere to their treatment regimens for a variety of reasons. Furthermore, many individuals who are treated for the disease do not have the psychological components of the disease addressed. As a consequence, factors that have been recognised in the field of psychoneuroimmunology (including the impact of stress and emotions on immune functioning), and that may affect an individual’s health or impact on the disease, are not tackled. Moreover, cultural beliefs regarding disease are often not considered when individuals are prescribed medical treatments. Aspects of individuals lives such as community involvement and traditional healing need to be considered by health care practitioners in order for individuals to receive a holistic treatment for a disease that affects them not only physically, but emotionally and socially too.

2.2 Definitions

2.2.1 AIDS

AIDS is generally defined as “a specific group of diseases or conditions that are indicative of severe immunosuppression related to infection with HIV” (Lashley, 2000, p. 2). AIDS is an acronym for Acquired Immune Deficiency Syndrome (Van Dyk, 2001). The disease is caused by the human immunodeficiency virus that enters the body from the outside – thus the term
acquired. Immunity is the ability of an organism to resist infection by parasites and the effects of other harmful agents (Thain & Hickman, 1995). Deficiency refers to the weakening of the body’s immune system to the extent that it can no longer defend itself (Van Dyk, 2001). Finally, the Oxford dictionary defines a syndrome as “a group of concurrent symptoms of disease” (Allen, 1984, p. 763). Therefore, although AIDS is referred to as a disease, it is rather a collection of different conditions that occur in the body due to infection by the HI virus, hence the term syndrome (Van Dyk, 2001).

2.2.2 HIV

AIDS is widely accepted to be caused by the human immunodeficiency virus, otherwise known as HIV (Van Dyk, 2001). HIV is the first human lentivirus to be discovered (Thain & Hickman, 1995). A lentivirus is a retrovirus that induces neurological impairments and chronic pneumonias. Retroviruses have a ribonucleic acid (RNA) genome and the unique ability to transcribe a deoxyribonucleic acid (DNA) copy of the RNA genome following its penetration of the host cell (Nel, 1997). The viral RNA is transcribed by the viral enzyme transcriptase into a DNA copy that becomes incorporated into the host cell’s genomic DNA. This viral DNA may lie dormant within the cell or it may undergo replication, resulting in the transcription of RNA copies and translation to viral proteins. This in turn results in new virus formation and assembly. Viruses bud from the surface of the cell and are thus able to infect other cells and repeat the process.

The HI virus has a spherical shape, measuring 1/10 000 mm in diameter and consists of an inner matrix of protein called the core (Van Dyk, 2001; Zeller & Swanson, 2000). The virus’ genetic material, or viral Ribonucleic acid (RNA), is housed within this core. An outer layer of protein surrounds the core with glycoprotein projections on its surface. Because it is a virus, HIV can reproduce itself only inside a living cell that it has parasited for its own purpose. The virus gains
entry to the host cells by binding to the CD4 receptor (Nel, 1997). What makes the HI virus so
dangerous is that it directly attacks the CD4 and T cells, the defensive cells of the immune
system. T cells stop dividing and eventually die (Thain & Hickman, 1995). Furthermore, when
HIV-infected cells bind to the uninfected CD4 cells, the uninfected T cells lose their immune
capacity and die. This results in immunodeficiency.

2.2.2.1 HIV Subtypes
There are two types of HIV designated as type 1 and type 2 (HIV-1 and HIV-2) (Lashley, 2000).
HIV-1 is further subdivided into three groups. The first is called the major group and is known as
M. The second group is known as O (outliers) while the proposed designation for the third group,
only reported in 1998 by a Cameroonian patient, is N (non M-non O or new). Group M consists
of at least ten major subtypes designated as A to J. They differ from one another in 21% to 31%
of their gene sequences and are useful in tracing epidemiological origins and spread of the virus.
Subgroup B is most common in the United States and Europe, while E is most frequently seen in
Central West Africa. HIV-2 has at least five subtypes but it is HIV-1 that is responsible for most
of the AIDS cases in the world at this time, with the exception of West Africa. Subtype C is the
most prevalent strain of HIV in Southern Africa and other developing regions (Theunissen,
2003).

HIV-2 is more closely related to the simian immunodeficiency virus than it is to HIV-1 (Lashley,
2000). This relationship is so close that cross-species transmission is the most logical explanation
regarding how it is spread. In comparing HIV-1 and HIV-2, most similarities are found in the
core structure and most differences are in the envelope region. HIV-2 is transmitted in the same
way as HIV-1 but seems to be less transmissible sexually and perinatally. Further, progression is
slower in HIV-2 infection than in HIV-1.
2.3 Historical Background

AIDS was first recognised in 1981 when a very rare form of pneumonia and Kaposi’s sarcoma (KS) appeared simultaneously in several patients (Van Dyk, 2001). KS is a rare form of relatively benign cancer that tends to be found in older individuals (Kanabus & Fredriksson, 2003). However, by March 1981 eight cases of a more aggressive form of KS had been identified amongst young gay men in the United States. At approximately the same time, there was an increase in the number of cases of the rare strain of pneumonia, Pneumocystis carinii (Kanabus & Fredriksson, 2003; Van Dyk, 2001).

In the same year, the Centre for Disease Control in the US published a report, which was the beginning of the general public awareness of AIDS. At first, scientists and doctors were perplexed by this new disease, whose cause and modes of transmission could not be identified (Van Dyk, 2003). However, a number of theories were beginning to surface about the possible root of these opportunistic infections and cancers (Kanabus & Fredriksson, 2003). These included infection by cytomegalovirus, a member of the herpes virus group (Cytomegalovirus, 2003), the use of amyl nitrite or butyl nitrate (colloquially known as poppers) and immune overload. Because so little was known about this new disease, there was much concern about contagion and many assumptions were made that were later found to be groundless. For example, it was believed at the time that the disease posed no threat to individuals who were heterosexual – it was alleged to be a disease affecting the homosexual community only.

By 1982 the disease still did not have a name and it was variously referred to as lymphadenopathy (swollen glands), gay compromise syndrome and gay-related immune deficiency (Kanabus & Fredriksson, 2003). Later on that year the disease was being referred to by
its new name, AIDS. An anagram of AIDS, SIDA was created for use in the French and Spanish languages. Researchers believed AIDS to be a suitable name as individuals acquired rather than inherited the disease, because it resulted in a deficiency within the immune system and because it was a syndrome rather than a single disease. Although this new syndrome had a name, very little was known about its transmission and the public continued to grow anxious. By the end of the year, an infant had died of infections related to AIDS after receiving multiple blood transfusions and the first cases of parent to child transmissions were reported. It had become evident that a much wider group of individuals could be affected than previously suspected. Furthermore, it was clear that infections were not limited to the United States. Throughout 1982 there were reports of the disease occurring in a number of different countries, including some in Africa where it was known as the slimming disease (Kanabus & Fredriksson, 2003; Van Dyk 2001). Investigations were initiated to determine more about the occurrence of AIDS in Africa. The result was that 26 patients with AIDS were identified in Rwanda and 38 in Zaire.

In 1983 it was discovered at the institute Pasteur in France, that a virus known as LAV or lymphadenopathy-associated virus and HTLV-III, human T cell lymphotropic virus Type III, caused AIDS (Lashley, 2000). Levy and his research group in California named the virus AIDS-associated retrovirus, while a research group at the National Cancer Institute called it HTLV-III. It was only in 1986 that the International Committee on the Taxonomy of Viruses renamed the virus that caused AIDS, the human immunodeficiency virus (Van Dyk, 2001).

In 1984 Margaret Heckler, the United States Health and Human Services Secretary, announced that Dr. Robert Gallo of the National Cancer Institute had isolated the virus which caused AIDS and that there would soon be a commercially available test for the virus (Kanabus & Fredriksson,
This optimistic announcement included the statement; “We hope to have a vaccine [against AIDS] ready for testing in about two years” (Review, 1985, p. 29).

Progress was made in 1986 in the provision of medical treatment for AIDS when results of clinical tests showed that azidothymidine (AZT) slowed down the effects of the AIDS virus (Kanabus & Fredriksson, 2003). In March 1987, the US Food and Drug Administration (FDA) approved AZT as the first antiretroviral drug to be used as a treatment for AIDS. In 1989 the results of a major drug trial known as ACTGO19, were announced. ACTGO19 was a trial of AZT and the results confirmed that this drug could slow the progression of HIV to AIDS in individuals who were positive. Later that same year a second drug that could be used for the treatment of AIDS, dideoxyinosine (ddI), was made available to individuals with AIDS. A third antiretroviral drug, dideoxycytidine (ddC) was authorized by the FDA for use by patients who had an intolerance to AZT. Later on, ddC was to be used in combination with AZT for adult patients with advanced HIV infection – it was the first successful use of combination drug therapy for the treatment of AIDS. In 1993 the drug 3TC was authorized by the FDA to be used as compassionate therapy in people who had not responded to other AIDS treatments. In September 1995 two clinical trials, the Delta trial and the ACTG175 trial, showed that AZT combined with ddI or ddC were more effective than AZT alone. Viramune (nevirapine), the first in a class of drugs known as non-nucleoside reverse transcriptase inhibitors, was approved by the FDA in 1996. These continued findings regarding new treatments generated excitement and optimism amongst those infected with HIV. Moreover, the health of these individuals improved dramatically when they began taking combination drug treatments.

Despite advances in drug treatment therapies, many individuals have suffered severely as a result of the harsh side affects of these drugs. These side effects include Lipodystrophy (fat distribution abnormalities), nausea, fatigue, insomnia and dermatologic eruptions and have cast doubt on the
long-term safety of combination drug therapy (Dybul, Fauci, Bartlett & Kaplan, 2002; Kanabus & Fredriksson, 2003; Lee, Coleman & Holtzer, 1998). Consequently HIV/AIDS has assumed the proportions of a total human catastrophe that continues to affect both those individuals infected with the virus and those who are not.

2.4 The Immune System

The body’s immune defences can be classified into two categories: specific and non-specific (Vander, Sherman & Luciano, 1998). Non-specific immune defences, or innate immunity, protect against foreign substances without having to recognise their specific identities. This defence system’s first line of resistance is the skin (Marieb, 1995). The second line of defence is called into action if the first line of protection is penetrated. It uses antimicrobial proteins, phagocytes and other cells to protect the body.

The specific defence system is commonly known as the immune system. It depends upon specific recognition by lymphocytes, of the substance to be attacked (Vander, et al., 1998). The specific and non-specific defence systems of the body are discussed separately but they function in tandem.

The immune system is the body’s means of identifying and eliminating any foreign materials that enter (Barlow & Durand, 1999). These foreign materials are called antigens and may be any number of substances, including chemicals, drugs, bacteria, viruses and parasites (Zwolski, 2001). The immune system may also target the body’s own cells if they have become damaged in some way (Barlow & Durand, 1999). Further, donated organs are often identified by the body as being foreign, and thus they are attacked. The immune system protects the body through recognition, memory and activation of a variety of response mechanisms (Zwolski, 2001).
2.4.1 The Biology of the Immune System

The immune system has two main parts: the humoral and the cellular. Processes within the humoral immune system involve interactions between antigens and antibodies (Nel, 1997). Cellular processes involve the interactions between antigens and specialized lymphocytes. Lymphocytes are a type of white blood cell, or leukocyte, that are confined to the blood system (Thain & Hickman, 1995). Small lymphocytes, B cells and T cells, are involved in both humoral and cellular immunity and develop in lymphoid tissue. Lymphocytes are produced in primary lymphoid tissue, that is, in the thymus, embryonic liver and in adult bone marrow. They migrate to the secondary lymphoid tissue, such as the spleen and lymph nodes where antigen-presenting cells and mature T cells and B cells occur. Whether an immature lymphocyte matures into a T cell or B cell depends on where in the body it becomes immunocompetent (Marieb, 1995). (Immunocompetence is the cell’s ability to recognize a specific antigen by binding to it).

T cells develop from immature lymphocytes that migrate from the bone marrow to the thymus, whereas B cells develop immunocompetence in bone marrow. When B cells and T cells become immunocompetent, they display a specific receptor on their surfaces, which enables them to recognize and bind to a specific antigen. The receptors commit the lymphocyte to recognizing and binding to a distinct antigen.

2.4.1.1 The Cellular Immune System

Thymic lymphoid cells (T cells) operate in the cellular branch of the immune system and are programmed for the number of antigens to which they will react (Nel, 1997). When a T cell comes into contact with an antigen it undergoes clonal proliferation and differentiates into committed T cells with various functions. Some cells become activated and are responsible for mediating cellular immunity.
T cells do not produce antibodies, but antibody production by B cells often requires T cell help (Barlow & Durand, 1999; Thain & Hickman, 1995). A specialized subgroup, killer T cells or cytotoxic T cells, directly destroys viral infections, cancerous processes and foreign cells introduced into the body by blood transfusions and organ transplants (Marieb, 1995). Activated cytotoxic T cells patrol the body circulating in and out of the blood, lymph and lymphatic organs searching for body cells displaying antigens to which they have been sensitised.

When this process is complete, memory T cells are created, which increases the number of cells with the ability to react to a specific antigen (Nel, 1997). Other T cells become T4 cells or helper T cells, which enhance immune system response by signaling B cells to produce antibodies (Barlow & Durand, 1999). Furthermore, these helper cells signal cytotoxic T cells to destroy the antigen (Vander et al., 1998). B cells and cytotoxic T cells can generally not function adequately unless they are stimulated by T helper cells.

Like helper cells, suppressor T cells are regulatory cells that curb the production of antibodies by B cells when they are no longer needed (Marieb, 1995). This is done by regulating the local humoral factor responsible for stimulating the B cells’ production of antibodies by releasing lymphokines (Nel, 1997). Suppressor T cells are thought to be vital for slowing down and stopping the immune response after an antigen has been successfully inactivated (Marieb, 1995).

2.4.1.2 The Humoral Immune System

The Humoral immune system is the branch of the immune system, which is mediated by antibodies that are produced by B cells (Vander et al., 1998). B cells or B-lymphocytes are derived from a lymphoid tissue stem cell that has migrated from foetal liver to bone marrow and has not entered the thymus (Thain & Hickman, 1995). Rather, these cells settle in the lymph nodes or in the spleen. Some of the B cells release a specific type of immunoglobulin that act as
antibodies. These antibodies combine with antigens and neutralise them (Barlow & Durand, 1999). After the antigen is neutralised, memory B cells are created and provide immunological memory for future invasions by the same antigen.

2.4.2 The Stages of Immune Functioning

An integrated immune response to antigens involves complex interactions between specialised subgroups of T cells, B cells, macrophages and substances that have been secreted by leukocytes (Ader & Cohen, 1993). Macrophages are phagocytic cells, which form part of the non-specific defence mechanism of the body (Van Dyk, 2001). They are considered to be the body’s first line of defence as they surround antigens directly and destroy them (Barlow & Durand, 1999). T cells and B cells, discussed above, form part of the specific defense mechanism of the body (Van Dyk, 2001).

Stage 1

Phagocytes are constantly patrolling the body including the bloodstream, body tissues and the lymphatic system (Van Dyk, 2001). When phagocytes detect a foreign substance within the body, they immediately try to destroy it. While they are able to obliterate chemical poisons and environmental pollutants, they are unable to defeat organic invaders such as viruses, bacteria, protozoa and fungi. Consequently, when organic substances such as flu viruses invade the body, macrophages are alerted to help repel these antigens. One of the functions of the macrophages is to signal lymphocytes, which consist of B cells and T cells (Barlow & Durand, 1999). Macrophages engulf foreign particles and present fragments of these particles on their own surfaces where they can be recognised by T cells (Marieb, 1995). Furthermore, macrophages secrete soluble proteins that activate T cells, which in turn release chemicals that prompt macrophages to become activated. The antigen alerts the T cells to attack the foreign bodies (Van
Dyk, 2001). Antigens on the surface of the virus fit into the receptors of the T cells, which have been programmed to recognise specific antigens. It is the CD4 cells, or T helper cells that are pre-programmed for this antigen recognition.

Stage 2
Once the CD4 cells have combined with the macrophages they begin to multiply, activate more phagocytes and send signals to the B cells and killer T cells to multiply. Once the B cells have multiplied they divide into two groups: plasma B cells and memory B cells. Plasma B cells manufacture antibodies, which render invading matter harmless by neutralising it.

Stage 3
During an attack on the body, some of the virus may penetrate cells. Killer T cells are mobilised and destroy the infected cells by chemically piercing their membranes so the contents is spilled out. Once the contents are out of the infected cells, antibodies neutralise the viruses by attaching themselves to the virus’s surface.

Stage 4
Once the invading foreign substances have been destroyed, Suppressor T cells curb the immune response. Furthermore, they signal killer T cells to stop attacking and CD4 cells to discontinue their work. Memory T and B cells are created so the next time that specific antigen enters the body, the immune response will be faster (Barlow & Durand, 1999).
2.5 HIV Infection and Progression

Approximately one to three months after an individual is infected with HIV, he or she will develop antibodies to the virus that can be detected by a blood test (Zwolski, 2001). The individual is now said to be HIV-positive, which is not the same as having AIDS. However, there is still no agreement among researchers about the progression from HIV to AIDS (Lashley, 2000).

The period immediately following infection by the HI virus is known as the period of primary HIV infection or acute retroviral syndrome (Zwolski, 2001). Many individuals develop an acute illness similar to flu with the symptoms usually appearing two to six weeks after the initial infection with HIV (Lashley, 2000; Nel, 1997). Symptoms include fever, joint pains, tenderness and pain in the muscles and diarrhoea (Nel, 1997). During this period, the body begins to develop antibodies to HIV. This is referred to as seroconversion. It is estimated that at the peak of this stage, up to 1% of all peripheral CD4 blood cells are infected (Zwolski, 2001). However, as the phase declines and acute symptoms disappear, the number of infected CD4 cells begins to lessen. Nevertheless, by the end of this phase of infection HIV has spread and the virus has firmly established itself in the lymph nodes where replication continues.

Following the initial infection the most usual course for the HIV-infected individual is to enter an asymptomatic phase (Lashley, 2000). The individual’s chances for developing symptoms increase over time as the immune system is compromised. Fluctuations in plasma HIV and CD4 cells can occur for approximately six months until a period of stabilisation, called a set point, is reached. This is defined as a relatively constant level of plasma HIV RNA resulting from a rate of HIV replication approximately equal to the rate of viral destruction. Those individuals with higher set points are at a greater risk for faster disease progression (Zwolski, 2001).
The progression of HIV is characterised by changes in the structure of the lymphatic tissue as well as changes in the rate of loss of CD4 cells. In the very early stages of chronic HIV infection, large numbers of HIV cells are trapped in the lymphatic tissue. This results in hyperplasia of the lymphatic tissue. Hyperplasia is defined as an “increase in the amount of tissue resulting from cell division…” (Thain & Hickman, 1995, p. 318). By the middle stage of HIV infection there is a greater degree of immune impairment and an increased likelihood of symptoms (Zwolski, 2001). Intermittent conditions such as candidiasis of the mouth or herpes zoster infections may develop (Lashley, 2000). Furthermore, there is a progressive destruction of lymphoid tissue, which results in the decreased ability to trap the virus and therefore an increased amount of virus found in the peripheral blood of the infected individual (Zwolski, 2001).

By the late stages of AIDS, numerous opportunistic infections may develop due to the progressive deterioration of the immune system. In addition, the individual infected with the virus may suffer severe or persistent constitutional symptoms. At this stage there is extensive risk for pneumocytis carinii pneumonia (PCP), oesophageal candidiasis, T. gondii encephalitis, Kaposi’s sarcoma, tuberculosis, toxaplasmosis of the brain and lymphoma (Lashley, 2000; Nel, 1997).

The terminal stage in the progression of the disease represents an inability to successfully treat symptoms and comfort becomes the primary goal (Lashley, 2000). Development from the initial infection to AIDS defining illness can be ten to twelve years and some individuals, known as nonprogressors, have been symptom free for twenty years. However, for those individuals with AIDS and taking antiretroviral drugs, there is a greater probability in this stage to developing life-threatening side effects from the drugs (Zwolski, 2001).
2.6 The Medical Treatment of HIV/AIDS

Where it has succeeded, antiretroviral therapy has transformed the nature of HIV from a fatal disease into a chronic but stable condition (Peiperl & Coffey, 2003). Radical advances in the medical treatment of HIV have been made since 1995 (Wightman & Klebert, 2000). These advances are the result of a better understanding of the disease including its pathogenesis, the development of new antiretroviral therapies and the availability of new methods to measure HIV in the blood. There are currently 4 major classes of antiretroviral drugs in general use (Peiperl & Coffrey, 2003). Nucleoside analogue reverse transcriptase inhibitors (NRTIs), nonnucleoside reverse transcriptase inhibitors (NNRTIs), protease inhibitors (PIs), and fusion inhibitors. The advent of potent combination antiretroviral regimens has considerably altered expectations regarding the management of HIV (Cohen & Katz, 1998). HIV-infected individuals are now given the best chance of slowing down or preventing irreversible disease progression when they use antiretroviral therapy correctly (Wightman & Klebert, 2000). However, adherence to the medical regimen has become a dangerous barrier to treatment success and a variety of factors have been identified as possible determinants to non-adherence (Ickovics & Meade, 2002). Consequently, while antiretroviral therapy is of paramount importance in the treatment of HIV/AIDS, other modes of treatment need to be considered.

2.6.1 Description

The primary goal of Antiretroviral therapy (ART) is to suppress HIV replication in order for the body to maintain normal immune function (Wightman & Klebert, 2000). Furthermore, ART aims at improving the quality of life and extending the lives of individuals infected with HIV/AIDS. Highly active antiretroviral therapy (HAART) has been a major breakthrough for the treatment of individuals with HIV and is the current standard of care, offering the most effective means of accomplishing maximal viral suppression (Ickovics & Meade, 2002; Wightman & Klebert, 2000).
2.6.2 Types of Antiretroviral Therapies

HAART is typically the combination of three classes of antiretroviral drugs, which include nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs) (Van Dyk, 2001; Wightman & Klebert, 2000). The classes of drugs refer to the type of replication inhibition that each induces (Wightman & Klebert, 2000). NRTI’s and NNRTIs work by inhibiting viral transcription and integration, while PIs prevent HIV assembly in the host cell (Kirton, 2001).

An initial treatment regimen usually consists of two nucleoside drugs and one protease inhibitor, depending on HIV RNA and CD4 count. Other combinations such as one NNRTI and two NRTIs may provide adequate suppression in the short term. Recent studies have shown efavirenz (an NNRTI) in place of the PI to compare favourably to a PI-containing regimen (Wightman & Klebert, 2000). Initial nucleoside combinations include Azidothymidine (AZT) and Lamivudine (3TC), AZT and Dideoxyinosine (ddI), AZT and Dideoxycytidine (ddC), D4 and 3TC or Stavudine (D4T) and ddI. A PI such as indinavir, nelfinavir or ritonavir may be added to this combination. Regimens consisting of two NRTI’s only are less effective and should be used only if more potent treatment is not possible. Mono-therapy treatments, that is treatment with only one agent such as AZT, is no longer recommended for HIV therapy because it produces only a temporary reduction in viral load and the patient develops a resistance to the drug within a few weeks (Van Dyk, 2001).

Most studies indicate that treatment should begin early and the most potent combination therapies should be used first (Kirton, 2000). Powerful therapy restores immune function and decreases viral replication. An effective drug regimen should be able to reduce viral load by 99% after four
to eight weeks of treatment (Wightman & Klebert, 2000). However, the maximal response to
drug therapy may not be observed for three to four months and it could take up to one year to
achieve undetectable levels. Once the virus is undetectable, HIV activity has been reduced or
even stopped and it is more difficult for the virus to become resistant to therapy. Moreover, it is
harder for the virus to cause illness and for the disease to progress.

Because response to a medical treatment regimen may not be observable for up to one year, and
because of a variety of other factors including negative side effects, individuals may not adhere
strictly to treatment programmes. As a result HAART fails in approximately half of patients for
whom it is prescribed (Ickovics & Meade, 2002). It is therefore important to examine the
determinants of adherence as well as the limitations of ART so as to better understand why non-
medical treatment programs are important in the management of HIV.

2.6.3 Adherence to ART and Limitations of Antiretroviral Therapy
There is huge potential for negative drug interactions and adverse reactions in individuals with
HIV (Lee, Coleman & Holtzer, 1998). Multiple drugs are commonly prescribed for infected
individuals, who have a higher incidence of adverse reactions to commonly used drugs than do
individuals who do not have HIV. Furthermore, drug therapy for individuals with HIV is a life-
long endeavour and adherence to medical regimens has been found to be inversely proportional to
the length of therapy, the number of drugs administered, the overall complexity of the treatment
programme and various other determinants (Kirton, 2001). Adherence is critical to obtain the full
benefits of HAART, including maximal and durable suppression of viral replication, the reduced
destruction of CD4 cells and the promotion of immune reconstitution (Ickovics & Meade, 2002).
However, many individuals fail to adhere strictly to their prescribed treatment programmes and
because low adherence is something that is most amenable to intervention, factors influencing non-adherence need to be considered (Walsh, Horne, Dalton, Burgess & Gazzard, 2001).

2.6.3.1 Adherence

In a study conducted by Walsh, Horne, Dalton, Burgess and Gazzard (2001), it was found that the most common reasons for non-adherence were forgetting, oversleeping and side effects. In a further study cited in Walsh et al. (2001), side effects have been found to be problematic and individuals taking the drugs felt that the drugs were not helping them. In some instances individuals stated that they were embarrassed to be taking the drugs or they were unsure of why they were taking medication. Walker (2002) cites studies, which indicate that antiretroviral medications are not fully used by HIV-positive women because of limited access, patient or provider knowledge, or attitudes about the treatment. These studies involved only women living in rural areas but this researcher believes these findings do not indicate a gender discrepancy and may be common to both men and women.

Although no one method has been shown to be superior in facilitating adherence, there are various strategies that health care providers can employ. Traditional strategies such as encouraging partner participation, pill counting and calling patients on the telephone are often used but have not been shown to be beneficial (Kirton, 2001). Investigators have found that the greatest completion rates of therapy were found in groups that were under supervised therapy with multiple incentives. Furthermore, health care providers can offer suggestions to patients in order to aid adherence. For instance, clients who are too embarrassed to take medication in public should be encouraged to carry medication in less conspicuous pill sorting containers (Kirton, 2001). The patient-provider relationship also plays an important role in improving adherence and it is believed to be a motivating factor for adherence to HAART (Ickovics & Meade, 2002). In a
non-randomised intervention designed for men who did not stick to their medical treatment programs, those who received one-on-one medication adherence counselling and weekly pill organisers demonstrated increased adherence.

Medication adherence is a complex behaviour involving education, motivation, skill and reinforcement, making comprehensive and individualised interventions necessary. However, the feasibility of implementing these complex interventions is questionable, especially in South Africa where primary health care givers do not always sufficiently communicate to patients the importance of adherence (Shabalala, Strebel, Shefer, Simbayi, Wilson, Ratele, Andipatin & Potgieter, 2002).

2.6.3.2 Limitations of Antiretroviral Therapy

ART causes irreversible changes in the patient’s life, and every advantage and disadvantage of medical treatment needs to be considered before health care providers recommend this type of action (Van Dyk, 2001). Many of the limitations of ART are inherently linked to the non-adherence of medical regimens and are as such important factors that need to be examined before individuals embark on a medical treatment program. Because there are a number of limitations to the use of ART, non-medical interventions need to be weighed as both complimentary and alternative forms of treatment.

All HIV-related medications have side effects and clients need to understand that they are common so as to prevent the client from discontinuing medical treatment (Kirton, 2001). The major toxicities associated with azidothymidine (AZT) are neutropenia and anemia (Lee, Coleman & Holtzer, 1998). Neutropenia is a bladder disorder resulting from a low number of a specific type of white blood cell called neutrophils (What, 2003). Significant anemia most
commonly occurs after four to six weeks of therapy (Lee, Coleman & Holtzer, 1998). This may be accompanied by myopathy (a general term referring to any muscular disease), nausea, malaise, fatigue and insomnia (Lee, Coleman & Holtzer, 1998; National Institute of Neurological Disorders and Stroke, 2003). Major clinical toxicities associated with ddI (Dideoxyinosine) therapy include pancreatitis (an inflammation of the pancreas where digestive enzymes become active inside the pancreas and start digesting the pancreas itself) and peripheral neuropathy (Lee, Coleman & Holtzer, 1998; National Institute of Health, 2003). Factors predisposing the development of pancreatitis include a prior history of the condition; advanced HIV disease and low CD4 count. The most common adverse effect reported with ddC (Dideoxycytidine) is a dose-dependent sensorimotor peripheral neuropathy occurring in some patients. Other potential adverse effects include oesophageal ulceration, congestive cardiomyopathy and dermatologic eruptions. The adverse effects reported with ritonavir (a protease inhibitor) appear to be most severe during the first weeks of therapy and include nausea, vomiting, diarrhoea, fatigue and headaches.

Aside from the physical side effects associated with ART, cost of therapy is another barrier to the successful use of medication in the treatment of HIV. Because ART is expensive, it is beyond reach for most individuals who are HIV positive (Van Dyk, 2001). Lack of financial resources to begin or sustain therapy may lead to harmful interruptions in the medical regimen (Peiperl & Coffey, 2003).

In addition to the physiological factors involved in HIV, including the side-effects of ART, the behavioural consequences of the disease are far reaching, affecting not only those with AIDS but also family members and friends (Picus, 1984). As such, assisting individuals who are living associated with a positive diagnosis.
2.7 Psychological Responses to being diagnosed as HIV Positive

Individuals living with HIV experience a range of negative psychological responses to their condition (Adinolfi, 2000). The most common of these include affective disorders, adjustment disorders, anxiety, hypochondriasis and sexual dysfunction. Furthermore, individuals who are infected with HIV may experience increased stress, denial, anger and depression (Nel, 1997). Medication can never completely alleviate the traumatic element of HIV diagnosis and its attack on the individual’s self (Schönnesson, 2002). Consequently, a holistic intervention involves understanding the relationships among biological, psychological, social and spiritual dimensions of the disease, which impact on the well-being of those infected by HIV (Tuck, McCain & Elswick, 2001).

2.7.1 Shock

When individuals are first diagnosed as being HIV positive, many report feeling considerable shock. Some become extremely emotional and react by crying, behaving aggressively or withdrawing completely (Miller, 1987). Individuals in a state of shock typically report feeling confused and not being able to focus on any one thing for a long period of time. Those who withdraw as a response to being told they are positive make it difficult for loved ones and caregivers to help. However, it is important to remember that the HIV positive individual is facing a potentially life-threatening disease and, regardless of her or his reaction to the news, needs as much support as possible.
2.7.2 Stress

Living with HIV is stressful and can cause much distress for those infected with the disease (Adinolfi, 2000). Many changes are associated with HIV, including losses (job, family support and body function), illness, side-effects from the medication, economic hardships and social isolation. These are all stress-inducing factors and may be compounded by the other psychological responses individuals have to HIV. The relationship among stress, immune function and HIV progression is not yet fully understood but much data relating to psychological variables and immune function has been accumulated. Mounting evidence indicates that almost every illness known is influenced by our emotions (Karren, Hafen, Smith & Frandsen, 2002). Our psychological, behavioural and physical processes are all integrated and as such, HIV disease progression can be influenced by therapies that focus on the whole person as well as on social factors impacting on that individual.

2.7.3 Fear and Uncertainty

After the diagnosis, individuals report feeling less shocked over time and report feeling a range of other emotions (Beedham & Wilson-Barnett, 1995). Many describe being afraid for the future – they fear becoming ill, they fear dying, losing their homes and financial security and they fear how others may react to their diagnosis. Fear causes the body to secrete epinephrine, which has powerful effects on the heart, causing blood pressure to soar (Karren, Hafen, Smith & Frandsen, 2002). The body is stimulated to release other hormones that act on various organs and systems, causing the body to be in a constant state of alert.

Fear is directly linked to the uncertainty of an individual’s future (Miller, 1987). Uncertainty is not knowing; it is being confronted with a situation that an individual cannot figure out (Karen, Hafen, Smith & Frandsen, 2002). Numerous individuals who have been diagnosed as being HIV

positive have very little knowledge of the disease and this increases the uncertainty they feel regarding issues such as disease progression and related illnesses. Uncertainty keeps individuals in a state of semi-arousal thereby putting a strain on the body’s adaptive resources and resistance systems (Karen, Hafen, Smith & Frandsen, 2002). This uncertainty can lead to feelings of anxiety, hopelessness, depression and stress (Miller, 1987).

2.7.4 Anxiety and Depression

In view of the uncertainty individuals may feel it is easy to see how this may cause a great deal of anxiety (Miller, 1987). Symptoms of anxiety and depression are common after notification of HIV infection or when complications begin to develop (Catalan, Meadows & Douzenis, 2000). In a study by Beedham and Wilson-Barnett (1995), it was reported that almost all the participants reported some degree of depression. The level of depression fluctuated depending on events and issues surrounding their disease. In another study, by Ciesla and Roberts (2001), the researchers found that HIV-positive individuals are nearly twice as likely to have had a recent episode of major depressive disorder than HIV-negative individuals. However, further analysis of data suggested that HIV infection is not necessarily directly associated with depressive disorders and other correlates of HIV infection, such as social stigma and alienation, may play a more direct role.

Feelings of helplessness and lack of control are correlated with depression in individuals who have HIV (Taylor, Helgeson, Reed & Skokan, 1991). Beliefs about control appear to be adaptive and reduce anxiety and depression. Consequently, for any treatment regime to be effective, factors such as control need to be included. Assisting those living with this disease requires attention to the whole person (Tuck, McCain & Elswick, 2001).
2.8 Cultural Beliefs about HIV/AIDS

We cannot begin to understand or treat AIDS without taking into consideration the sociocultural context and beliefs about the disease. There are various dangerous myths circulating in some communities about HIV infection (Van Dyk, 2001). These myths and beliefs need to be counteracted and challenged before treatment programmes will be effective. Furthermore, popular cultural beliefs about AIDS need to be examined before treatment programmes are designed and implemented so as to ensure the whole person is treated. Little attempt has been made to integrate the diverse cultural belief systems of Africa into such programmes and consequently, many have fallen short of attaining their goals.

2.8.1 Definition of Culture

As a result of the complexity of the term culture, as well as the multiple ways in which the term is applied, there has been an increasing interest in culture and how to define it during the last two decades (Abercrombie, Hill & Turner, 2000). Thain’s definition of culture in the Penguin Dictionary of Psychology is “The system of information that codes the manner in which the people in an organised group, society or nation interact with the social and physical environment” (1985, p. 170). Individuals within the same culture share a set of rules, regulations, mores and methods of interaction (Reber, 1985). Culture is a system of shared beliefs, values and behaviours that are used to cope with an individual’s world (Marcus, 2002). It therefore follows that culture, being so integral in every aspect on an individual’s life, needs to be considered when implementing a treatment programme for individuals with HIV.

2.8.2 Myths and beliefs about HIV/AIDS

There are a variety of dangerous myths concerning HIV circulating amongst various individuals in Africa. For example, it is erroneously believed by some South Africans that AIDS can be
cured, or that AIDS will not be contracted, if they have sex with very fat women who evidently do not have the slimming disease (Van Dyk, 2001). It is also believed by some that having sex with virgins, with girls under the age of twelve years, or with very young boys can cure AIDS.

These myths or beliefs can result in abhorrent criminal behaviour and can cause HIV to spread. Furthermore, because they are based on information that strays far from scientific fact, these beliefs may interfere in treatment regimes for individuals who are HIV positive. Consequently, for treatment to be successful, healthcare professionals need to address any beliefs that may hinder the following of a prescribed treatment. Alternatively, the management of HIV should include therapies that are sensitive to beliefs that cannot, or will not, be changed. That is, many beliefs, far from being primitive superstition, are often customary devices used for bringing into the open stresses and conflicts within the family, thus making it possible to deal with them (Fortes, 1977). If treatment programmes are to be followed in all African cultures, it is important for health care workers to understand and appreciate the traditional African worldview (Van Dyk, 2001).

2.8.3 Traditional African Perceptions of Disease

Despite the differences between Africans from different cultures in terms of geography, language, ethnicity and religion, there is a common socio-religious philosophy shared by all Africans (Van Dyk, 2001). For example, although Zulu people are aware of the difference in culture and language between the different African cultures, they accept that there is an affinity between the various cultures regarding the world-view (Ngubane, 1977). The differences in cultures are small enough that generalisations can be made between them within certain limits (Rudnick, 2000).
It is often believed that illness is caused by disharmony or ill-will between a person and the ancestors, by a god or spirits, by witches and sorcerers or by natural causes (Mbiti, 1969). Health is conceived of as the outcome of a balance in the relationship of man to environment (Fortes, 1977). Disease represents a disturbance in this balance, thus treatment is directed at restoring it.

The traditional African worldview sees illness as directed by an intention and a specific cause (Fortes, 1977; Ngubane, 1977; Van Dyk, 2001). In order to fight that illness, it is necessary to identify, uproot, punish and eliminate the cause, the intention behind the cause and the agent of the cause. This is generally the duty of the traditional healer (Mbiti, 1969). She or he has to discover the cause of the sickness, find out who caused it, diagnose the nature of the disease, apply the correct treatment and supply a means of preventing the misfortune from occurring again. Moreover, the traditional African approach to life is holistic (Kober, 1988). It is a world in which all things are connected and in which human beings are considered to be an entity – not divided into various parts. As such, traditional Africans believe that when one part is ill, the whole body is ill. Thus the work of the traditional African healer is part psychological or spiritual, and part physical (Mbiti, 1969).

Ancestors are generally seen as benevolent. However, these ancestors, who preserve the honour of the community, can punish their people by sending illness if individuals do not listen to their counsel (Kober, 1988; Mbiti, 1969; Van Dyk, 2001). The ancestors are said to be primarily concerned with the welfare of their descendents (Ngubane, 1977). When life is good individuals say “The ancestors are with us” (Ngubane, 2001, p. 51). When misfortunes occur they may say, “The ancestors are facing away from us” (Ngubane, 2001, p. 51). If the ancestors have been improperly buried or were offended before they died, they may take revenge in the form illness (Mbiti, 1969). Ancestors may not directly send the illness, but may allow it to happen by
withdrawing their protection (Ngubane, 1977; Van Dyk, 2001). However, if the Ancestors do cause illness, it is generally not evil and it’s purpose is to draw an individual’s attention to the error of her or his behaviour (Kober, 1988).

There is some evidence that black Christians may believe that AIDS is God’s punishment for immorality and sins (Van Dyk, 2001). For example, the Lugbara from Uganda believe that God brings upon people afflictions in the form of disease (Mbiti, 1969). When trouble or illness persists in a family, people believe that it has been sent by or approved by God. Whereas magic, sorcery and witchcraft are regarded as the main sources of disease, it is not uncommon for individuals to believe that God is responsible.

Many traditional Africans recognise both the immediate cause and the ultimate cause for disease and misfortune (Van Dyk, 2001). An individual with AIDS may recognise and understand that the immediate cause of the illness is a virus. However, she or he will still question why someone, by means of magical manipulation, has sent the virus to make her or him ill. Furthermore, individuals will question why they and not another individual became ill (Mbiti, 1969). Consequently, when treatment regimes are discussed or planned, it is necessary for healthcare professionals to seek counsel from traditional healers who would ordinarily be approached by the sick individual for help (Van Dyk, 2001). So long as people see sickness and misfortunes as religious experiences, the value of the traditional is considerable (Mbiti, 1969). Modern hospitals and doctors may deal with the physical aspects of disease, but there is a spiritual dimension to suffering that is handled by the traditional healer. Although some of the sources cited in this section were written in 1969, before the discovery of HIV and AIDS, inferences regarding this disease have been made by the researcher based on general views of illness.
Witchcraft is often believed to be the causal agent in HIV transmission, AIDS and death, especially among some poor rural people in parts of Africa (Van Dyk, 2001). Illness and misfortune is sometimes seen as an expression of God’s will (Mbiti, 1970). When death strikes, the Lugbara of Uganda say of God “His will is immutable” (Mbiti, 1970, p. 39). The traditional African belief in malevolent witchcraft or God’s will as the cause of AIDS, may help to make sense of the horrors caused by the disease and assists in providing a distance between the individual and the disease as a means of protection. By projecting the responsibility onto external sources, family, victims and society find a means of shielding themselves from a destructive disease (Van Dyk, 2001). Furthermore, it provides an explanation that is more compatible with the traditional African worldview. On the negative side, this outlook may suggest to individuals that they are not in control of their health and illness, and it may prevent them from searching for necessary treatments.

Traditional healers are generally spoken of derisively by western writers (Mbiti, 1970). Moreover, individuals working in the field of HIV treatment have generally learned to ridicule and ignore traditional African beliefs concerning the contraction and spread of HIV/AIDS. These beliefs have been felt to be a hindrance to treatment. Traditional African beliefs should rather be taken into account and integrated into treatment programmes as many individuals consult both hospitals, and traditional healers when they are ill (Mbiti, 1969). Treatment should for instance recognise both the immediate cause of the illness as well as the ultimate cause and work with these beliefs. In doing so, individuals who have traditional and non-Western values and beliefs, may be more inclined to follow a treatment that they believe to have face validity.
2.8.4 The Importance of Community in Traditional Africa

The community plays a very important role in the lives of many traditional Africans (Van Dyk, 2001). The traditional African cannot exist alone - he or she is simply a part of a whole (Mbiti, 1969). The identity of a traditional African is completely embedded in her or his collective existence and the community enjoys priority above the individual (Manganyi, 1973). This collective significance gives rise to values such as group orientation, cooperation and collective responsibility (Van Dyk, 2001).

When treating individuals with a traditional African worldview, this collective existence should not only be heeded by healthcare professionals but should be used as a means facilitating treatment. Healing in a traditional African culture often takes place within a social setting and a sick person is often accompanied by the family, who provide support for the individual (Van Dyk, 2001). When an individual suffers, he or she does not suffer alone but with his or her kinsmen (Mbiti, 1969). Whatever happens to the individual happens to the whole group. The traditional healer often enlists the support of the community in treating an individual (Kober, 1988). Accordingly, healing and treatment should involve living support networks and incorporate the guidance and cooperation of ancestors.

Religious ceremonies are often accompanied by music, singing and dancing (Mbiti, 1970) and these rituals should be encouraged as they enable individuals to express their emotions, overcome anxiety and “integrate into their personal reality what may seem very threatening parts of themselves” (Van Dyk, 2001, p. 124). Furthermore, involving family and the community allows for fears and emotions to be attended to.
Those involved in the treatment of HIV/AIDS need to consider the totality of the individual before implementing treatment programmes. Individuals do not live in a vacuum – beliefs, values and behaviour are all influenced by the society and culture in which individuals live. Myths surrounding diseases such as HIV/AIDS and general perceptions of illness are embedded in individuals’ day-to-day lives. These viewpoints cannot be separated from the individual and her or his illness and should therefore be used as a tool in the treatment of diseases that affect the whole community. Rituals prescribed by traditional healers should not be ridiculed but rather examined and used where they can facilitate healing. Traditional healers have much to offer in the way of assisting treatment programmes because they have authority in their communities (Van Dyk, 2001).

2.9 Conclusion

4.7 million people are currently infected by the HI virus in South Africa. While medical treatment, in the form of anti-retroviral drugs, is in the process of being made freely available to many infected individuals, very few health care practitioners address the psychological and social components of the disease. Psychological responses such as shock, stress, fear, uncertainty, depression and anxiety are often experienced by those who are diagnosed as HIV positive. These factors have been found to affect the immune functioning of both healthy and infected individuals. Furthermore, cultural beliefs and perspectives regarding disease are often ignored when treatment regimens are being prescribed. Because individuals do not exist in a social-vacuum, and because of the social consequences of HIV/AIDS, these factors need to be attended to. Researchers in the field of psychoneuroimmunology have found that many psychological constructs such as control, social support and coping styles affect the functioning of the immune system. Consequently, when individuals are treated for HIV and AIDS, these aspects need to be addressed.
CHAPTER 3: PSYCHONEUROIMMUNOLOGY

3.1 Introduction

A growing body of literature (Ader & Cohen, 1993; Cohen & Herbert, 1996; Fox, Shephard & McCain, 1999; Kaye, Morton, Bowcutt & Maupin, 2000; Zorrilla, McKay, Luborsky & Schmidt, 1996) supports the premise that psychosocial factors have clinically significant relationships with physical health (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). The interrelationships between the central nervous system and the immune system have been found to influence disease processes, and factors such as depression and stress impact on immune function (Cohen & Herbert, 1996). In addition, other elements such as control, social support, coping styles, hardiness and optimism have all been found to have an effect on an individual’s health. Consequently, in addition to the physical aspects of disease, health care practitioners need to consider psychosocial elements that may have an impact on the course of the disease and on disease progression. Psychosocial interventions have been shown to improve the quality of life of individuals with established disease and are thus an important concern in the study of HIV/AIDS.

3.2 Definition

Psychoneuroimmunology (PNI) is a field of mind-body medicine that examines the relationship between the mind, the emotions and the body (Karren, Hafen, Smith & Frandsen, 2002). Mind-body medicine is based on the premise that mental and emotional processes can affect physiological functioning. PNI is the study of the interrelations between the central nervous system and the immune system (Cohen & Herbert, 1996). It focuses on the influence of cognitive images on the nervous system and consequent interactions with the immune system (Anderson, 2002). It incorporates but is not limited to, biofeedback, the impact of thought and belief on physiology and the effects of stress on physical and emotional functioning.
3.3 Historical Background

The concept that emotions have an effect on health is not a new one. Over four thousand years ago, Chinese physicians noted that physical illness often followed episodes of frustration, and Egyptian physicians frequently prescribed an optimistic attitude in order to maintain good health (Karren, Hafen, Smith & Frandsen, 2002). Later, Hippocrates cautioned other physicians that in order to cure a patient, doctors needed knowledge of both the mind and the body.

This holistic attitude towards health was heavily influenced in the seventeenth century as a result of the philosophy of Rene Descartes. He advocated the separation of mind and body (known as Dualism) and believed they were two unconnected substances, which behaved according to their own laws. Dualism refers to any number of philosophical positions, which admit to two separate sets of fundamental principles in the universe (Reber, 1985). In contemporary psychology, the issue is usually divided along the lines of mind and body. A strong dualistic position asserts that understanding the operation of one sphere has no bearing at all on the understanding of the other. However researchers are now recognising the importance of the influence of thoughts, feelings and behaviours on health and disease (Baum, 1999).

Dualism came to dominate medicine and philosophy until only recently. In the early twentieth century, the studies of Walter Cannon, a pioneering doctor provided evidence that glands in the body respond to stress (Panzarino, 2002). These studies paved the way for further research in the field of psychoneuroimmunology.

PNI emerged within the context of broader psychosomatic investigations beginning as early as the 1940’s (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). This research associated
psychological characteristics, behaviours and emotions with the onset and progression of disease. This growing body of knowledge informed the development of the field of PNI.

In 1964, George Solomon coined the term psychoimmunology and published a landmark paper entitled “Emotions, immunity, and disease: A speculative theoretical integration” (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002, p. 16). However, it was not until the 1970’s that immunologists began looking more closely at the possibility that there may be anatomical links between the brain, the nervous system and the immune system (Karren, Hafen, Smith & Frandsen, 2002). A new paradigm involving mind-body medicine began to emerge in 1975 when Ader and Cohen discovered immunosuppression could be achieved by conditioning (Kaye, Morton, Bowcutt & Maupin, 2000). As a result, the new multidisciplinary approach called PNI began to evolve.

Research in the field of PNI represents a substantial and rapidly growing force in psychology (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). The range of psychological constructs examined within the field has increased over time and to date there exists much research concerning elements of PNI such as stress and its impact on physical health and disease.

3.4 Evidence of a Mind-Body Connection

Medicine has taught individuals to see the mind and body as two separate entities (Lnager, 1989). However, the mind-body split is a premature psychological commitment. Environmental influences on health are mediated by an individual’s context. Siegel suggests, “We are discovering that the mind and body are truly connected” (Scott, 1988, p. 15). Perceptions and interpretations of the world and specific events influence the way in which the body responds (Lnager, 1989).
Previously unknown and unsuspected connections between the brain and the immune system provide a basis for numerous observations (Ader & Cohen, 1993). Manipulating neural and endocrine functions alters immune responses, and behavioural processes are capable of influencing immunologic reactivity. Research on PNI has been summarised in this statement “The brain as a whole participates in the modulation of peripheral immunity” (Fox, Shephard & McCain, 1999, p. 89). Structures in the brain such as the hypothalamus, hippocampus, amygdala and other brain-stem structures, underlie behaviours that promote survival. These include emotive reactions to threat and the regulation of visceral activity. As such, it is likely that these structures are involved in promoting survival from the perspective of immunity.

There is a growing body of research, which indicates that the brain and immune system have a complex communication network (Karren, Hafen, Smith & Frandsen, 2002). A number of studies have shown that the brain is linked directly to important parts of the immune system including the spleen, thymus and lymph nodes. Cells within the immune system have receptors that enable them to receive messages from the brain via neurotransmitters, steroids and hormones.

Studies involving conditioning as well as biofeedback, indicate that there is a real connection between the mind and the body. Furthermore, the nervous system has been shown to be anatomically linked to the immune system by direct physical connections. Research outlining conditioned immunity, biofeedback and guided imagery, and the physical connections between the nervous system and the immune system is discussed below.

3.4.1 Conditioning

Conditioning is a generic term for a set of empirical concepts, particularly those that specify the conditions under which associative learning takes place (Reber, 1985). Conditioning is often
separated into two separate types: classical conditioning and operant conditioning. The following studies refer to the former. Classical conditioning, also called Pavlovian or respondent conditioning is a type of learning in which a neutral stimulus is paired with a response until it elicits that response (Barlow & Durand, 1999). The process begins with a stimulus that would elicit a response on almost anyone and requires no learning. This stimulus is the unconditioned stimulus (UCS). The natural response to the UCS is the unconditioned response (UCR). Any object, person or substance that is associated with the UCS acquires the power to elicit the same response. However, because the response was elicited by the conditioned stimulus (CS), it is called the conditioned response (CR).

A landmark study conducted by Ader and his colleagues demonstrated that immune functioning could be classically conditioned. In addition, Russian investigators, who followed Pavlovian conditioning procedures, explored conditioned modulation of host defence mechanisms and antigen-specific immune responses (Ader & Cohen, 1993). Antibodies are specific against only one antigen (substances that can be recognised by an already induced immune response and initiate the production of further specific antibodies) (The biology project, 2000). In this study, multiple pairings of a conditioned stimulus were paired with the unconditioned stimulus, a foreign protein. Subsequent presentation of the conditioned stimulus alone was reported to elicit conditioned increases in defence responses and in antibody production.

In a study by Ikemi and Nakagawa (Ader & Cohen, 1993), subjects received cutaneous stimulation with a methane-blue solution (the conditioned stimulus), which contained a tree extract that unconditionally induced eczema. After a number of these conditioned stimulus-unconditioned stimulus pairings, the methane-blue solution alone elicited a skin reaction in all the
participants. These findings suggest that conditioning may be able to modify immune responses in human subjects.

3.4.2 Biofeedback and Guided Imagery

In the 1960’s, experiments using biofeedback demonstrated that it was possible to gain control over involuntary and automatic functions such as heart rate, blood flow and brain activity (Langer, 1989). Closely related to the practice of biofeedback is the Feldenkrais method, which is a form of bodywork that focuses on biofeedback from everyday movement and on the interaction between body and brain (Glazier & Glazier, 1989).

Scientists have shown that people can consciously control the immune response by what they think (Karren, Hafen, Smith & Frandsen, 2002). G. Richard Smith cited in Karren, Hafen, Smith and Frandsen (2002), conducted an experiment using guided imagery. Visualisation or guided imagery is a process whereby people visualise themselves as healthy, strong individuals and imagine the disease organism as weak and destructible (Glazier & Glazier, 1989). This technique is used in an attempt to direct the immune system to overcome and destroy antigens.

In an investigation by Smith, a woman was injected with the chicken-pox virus on the underside of her arm (Karren, Hafen, Smith & Frandsen, 2002). Because the participant had already had chicken pox, her body recognised the virus and a small bump developed at the injection site. The woman used visualisation techniques to visualise the bump as being smaller and each time the experiment was repeated, the bump was indeed smaller. Blood tests confirmed that there was less of a white blood cell response to each testing indicating lower immunologic activity.
3.4.3 The Nervous System

Studies have demonstrated a real connection between the central nervous system and the immune system that allows the mind to influence susceptibility and resistance to disease (Karren, Hafen, Smith & Frandsen, 2002). The thymus gland (responsible for endocrine function) plays a vital role in the maturation of immune cells and extensive networks of nerve endings have been found in the thymus gland. Moreover, cells in the immune system seem to be specially equipped to respond to chemical signals from the central nervous system. An electrochemical process facilitates communication between the nervous and immune systems (Fox, Shephard & McCain, 1999). This process is initiated through reception of stimuli by the central nervous system (CNS) and signal initiation by neurotransmitters. The CNS initiates an electrical current from the nerve axon, which begins a chemical release. Neurotransmitters enable electrical to chemical conduction across the synaptic cleft (gap). Because of this direct physical connection, the messenger system that modifies the postsynaptic potential (the potential for response) of the neurotransmitter, may play a role in modulating responses to health or disease states that affect immunocompetence.

Neurotransmitters released by the hypothalamus (region of the brain responsible for the control of various functions including hormone release) have been found to have a profound effect on the immune system (Karren, Hafen, Smith & Frandsen, 2002; Thain & Hickman, 1994). A Soviet researcher, Elena Korneva, discovered that she could produce changes in the immune system by selectively damaging different parts of the hypothalamus. By expanding on her research, a French scientist, Gerard Renoux, showed that different sides of the brain exercise different kinds of immunity.
The latest scientific studies clearly indicate a link between the brain and the immune system. Karren, Hafen, Smith & Frandsen (2002) cite a practitioner as saying “The human body can be conceived of as a 5-million-year-old healer, with an internal pharmacoepia of neuropeptides, neuroendocrine secretions and immunological restoratives that maintain and enhance health” (p. 94).

Evidence indicating a real link between the mind and body through such systems as the nervous system and immune system, suggests that the mind, and consequently emotional and psychological factors, have an impact on physical health. Such evidence compels us to examine which psychological elements affect physical well-being. Furthermore, we need to understand how such aspects can be used to facilitate health so that individuals infected with HIV are able to use this knowledge in order to fight the disease.

3.5 Elements of Psychoneuroimmunology

3.5.1 Stress

Data from numerous studies have shown that stress can adversely affect the functioning of the immune system (Kiecolt-Glaser & Glaser, 1992). The existence of a reciprocal relationship may suggest that immune function can be enhanced through psychological interventions. Although stressful events in an individual’s life can alter a wide range of immunological activities, the possibility also exists that interventions designed to combat or even help individuals cope with stress, may have a positive influence on immune functioning. Consequently, when individuals are being treated for diseases such as HIV/AIDS, interventions that focus on stress relief may play a fundamental role in the overall well-being of the individual.
3.5.1.1 Definition of Stress

There exists a multiplicity of conceptualisations of the term stress, and depending on the context in which it is used it can be defined in a variety of ways. For the purposes of this study, stress can be defined as

“a negative emotional state, a psychophysiological experience that is both a product of appraisal of situational and psychological factors and an impetus for coping…. It is the central experiential state in a process linking perception of threatening or harmful events and responses to them” (Baum, Cohen & Hall, 1993, p.275).

In short, stress refers to any natural or experimentally contrived circumstances that pose an actual or perceived threat to the psychobiological integrity of the individual (Ader & Cohen, 1993).

3.5.1.2 Supporting Data: Stress Affects Immune Functioning

Research cited by Fox, Shephard & McCain (1999) supports the premise that psychological stress alters the immune system in such a way that disease progression is exacerbated. Studies by Kiecolt-Glaser, Dura, and Speicher, and by La Via, Munno and Lydiard (Fox, Shephard & McCain, 1999) have demonstrated significant immunosuppression in caregivers of Alzheimer’s patients and in those who care for individuals with chronic psychiatric disorders. Individuals who reported the highest levels of stress also showed the greatest immunosuppression. Functional deficits in T cell and natural killer (NK) cell populations are typical in stressed individuals (Zorrilla, McKay, Luborsky & Schmidt, 1996).

Observing that psychosocial factors appear to moderate the regulation of latent herpesviruses, researchers have speculated that they may also moderate the progression of HIV to AIDS. In a study by Evans, Leserman, Perkins, Stern, Murphy, Zheng, Gettes, Longmate, Silva, van der
Horst, Hall, Folds, Golden and Petitto (1997), it was found that severe life stress is associated with an increased rate of early disease progression. Furthermore, greater levels of severe stress increase the severity of disease progression. Only severe stress was found to have an effect on early disease progression and day-to-day stress did not affect the disease. Clearly, stress and its effects on the immune system is a topic that warrants adequate recognition and concern (Kaye, Morton, Bowcutt & Maupin, 2000).

The aforementioned studies all suggest that stress in an individual’s life has a negative impact on health and may contribute to the early progression of HIV. As such it is necessary for us to examine the how stress influences immune functioning.

3.5.1.3 The Effect of Stress on Immune Functioning

Stress triggers a complex interaction of body systems resulting in immunosuppression and thus rendering the individual more susceptible to disease (Kaye, Morton, Bowcutt & Maupin, 2000). The stress response carries with it a number of reactions that, for our primitive ancestors who faced many physical dangers, were beneficial and indeed imperative for survival (Karren, Hafen, Smith & Frandsen, 2002). However, those same benefits have become drawbacks for the modern individual who faces social stresses of a very different kind. Immune function, specifically NK (natural killer) cell activity, lymphocytes and immunoglobulin A function, which are all necessary for defence against illness, are significantly decreased in an individual who is chronically stressed and whose body has activated the stress response (Kaye, Morton, Bowcutt & Maupin, 2000).

The endocrine system (physiologically interconnected system of glands in the body) is a pivotal player regarding psychological influences on health (Kiecolt-Glaser, McGuire, Robles & Glaser,
Stress provokes the release of pituitary and adrenal hormones, such as catecholamines (including dopamine, epinephrine and norepinephrine) (Goldstein, 2003) and cortisol, which have multiple effects on immune function.

In addition to the endocrine system, there are various other pathways whereby psychological factors are able to influence immune function, such as the sympathetic nervous system-innervation of lymphoid organs like the spleen (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). The endocrine system and the sympathetic nervous system play central roles in the cumulative long-term-effects of physiological responses to stress.

The autonomic branch of the central nervous system includes the sympathetic nervous system (SNS) and the parasympathetic nervous system (PSN) (Barlow & Durand, 1999). The primary function of the autonomic nervous system (ANS) is to regulate the cardiovascular system, and the endocrine system. The endocrine system is comprised of glands, which secrete their own hormones and release them directly into the bloodstream. The adrenal glands (endocrine glands found on top of the kidneys) produce epinephrine, or adrenaline, in response to stress (Barlow & Durand, 1999; Thain & Hickman, 1994). The SNS and PSN often operate in a complementary fashion. The SNS is primarily responsible for mobilising the body during times of stress by rapidly activating organs and glands under its control. One of the functions of the PNS is to balance the SNS by normalising arousal after the individual is confronted with a stressful situation.

One brain connection that is implicated in chronic stress and other psychological disorders involves the thalamus and the endocrine system. The hypothalamus connects to the adjacent pituitary gland, which in turn may stimulate the cortical region of the adrenal gland. The cortical
area on the adrenal gland is also responsible for producing cortisol. This whole system is known as the hypothalamic-pituitary-adrenalcortical axis, or the HYPAC axis.

When an individual becomes stressed, a variety of neurotransmitters begin flowing in the nervous system. Neuromodulating hormones, secreted by glands in the endocrine system, carry chemical messages to various body parts. One of these hormones, Corticotropin releasing factor (CRF), is secreted by the hypothalamus and stimulates the pituitary gland. The pituitary gland in return activates the adrenal gland, which secretes cortisol, a stress hormone. The hypothalamus is located next to the limbic system, which contains the hippocampus. The hippocampus is extremely responsive to cortisol and when stimulated by this hormone during HYPAC axis activity, the hippocampus helps to turn off the stress response.

Increased levels of cortisol in response to chronic stress may destroy neurons in the hippocampus and if hippocampal activity is compromised, excessive cortisol is secreted. Over time, the ability to deactivate the stress response weakens, which leads to further damage of the hippocampus. These findings indicate that chronic stress may have long-term effects on physical functioning, including an individual’s susceptibility to disease (Goldstein, 2003; Kiecolt-Glaser, McGuire, Robles & Glaser, 2002).

An activated HYPAC axis results in synthesis of adrenocorticotropic hormone (ACTH), which is secreted by the pituitary gland (Kaye, Morton, Bowcutt & Maupin, 2000). ACTH in turn stimulates glucocorticoids, which act to counter-regulate the response to foreign antigens by altering the circulating population of white blood cells. This causes a decrease in T-cells. Furthermore, the mononuclear phagocyte system (the body’s second line of defence) as well as macrophage differentiation is affected. Glucocorticoids also inhibit the production of lymphokines (soluble
factors produced by lymphocytes), resulting in a diminished immune system (Thain & Hickman, 1995). Stress-induced corticosteroids inhibit immune function further by causing eosinopenia (Kaye, Morton, Bowcutt & Maupin, 2000). Eosinopenia is a decrease in the number of eosinophils (a type of white blood cell) in the blood (Parker, 2004). Increased levels of cortisol have been implicated in a diminished ability to destroy antigens (Kaye, Morton, Bowcutt & Maupin, 2000).

From the above description it is clear that stress-related changes in sympathetic arousal and activity in other bodily systems such as catecholamine secretion, platelet aggregation and corticosteroid secretion, affect immune system functioning (Baum, Cohen & Hall, 1993). The combination of all the reactions stimulated by the stress response, add up to a real assault on the body (Karren, Hafen, Smith & Frandsen, 2002). Consequently these changes affect health and facilitate disease progression (Baum, Cohen & Hall, 1993). As a result of these effects of stress on the immune system, it is evident that an individual’s ability to cope with stress, and the manner in which individuals cope with stress, plays a crucial role in the overall well-being of the individual.

3.5.2 Coping

Researchers who study stress and its effects on the immune system have indicated that the way in which an individual perceives and copes with stress is associated with illness and health (Karren, Hafen, Smith & Frandsen, 2002). Attitudes, perceptions and beliefs, if positive, can keep individuals well. Individual differences in appraisal, response and resources, contribute to how intense or how long a stressful episode will be (Baum, Cohen & Hall, 1993). The power of a stressful experience, the duration of the event and the vulnerabilities and resources an individual brings to each situation, determines the degree to which stress affects disease processes.
3.5.2.1 Definition of Coping

Coping refers to a range of cognitive and behavioural actions taken to manage the demands of a stressful situation (Baum, Cohen & Hall, 1993). Coping is the effort by individuals to control, reduce or learn to tolerate the threats, which lead to stress (Feldman, 1998). Individuals use different methods to cope with stressful situations, not all of which are conducive to a healthy being.

3.5.2.2 Types of Coping Behaviour and their Effect on Health

There are generally three recognised categories of coping responses. Problem-focused coping is a behavioural response, which involves activities aimed at altering the source of stress or altering one’s relationship to the stressor, thereby reducing the amount of stress an individual experiences (Baum, Cohen & Hall, 1993; Bee, 2000). Emotion-focused coping is centred on managing one’s emotional responses, rather than on what is causing the stressful situation (Baum, Cohen & Hall, 1993). This means of coping may be behavioural or intrapsychic and may include such methods as denial, withdrawal or reinterpretation of the situation. A third type of coping is appraisal-focused and involves thinking, planning and analysing (Bee, 2000). It may include such behaviours as seeking information or attempting to obtain social support.

Most research suggests that no one method is invariably effective, and the efficiency of a coping behaviour is dependent on a particular situation (Feldman, 1998). When an individual perceives that a problem is not amenable to change, such as the diagnosis of HIV, emotion-focused coping generally predominates (Bee, 2000). However, when a problem is recognised as being alterable, problem-focused coping is more likely. Thus, any one of the different types of coping may be
used in a particular situation depending on the circumstances. Moreover, individuals have been found to use the full array of coping strategies at various times and in different situations.

Although no one coping style is consistently better than the other, coping behaviours associated with immunity include repression, denial, escape-avoidance and concealment (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). Repression is an unconscious mechanism that keeps thoughts or memories that may be too threatening to acknowledge from an individual’s awareness (Westen, 1996). The defence mechanism of denial is defined as “the conscious or unconscious repudiation of part or all of the total available meaning of an event to allay fear, anxiety, or other unpleasant affects” (Shale, Shale & Shale, 2003, p. 725). Meyer, Moore and Viljoen (1997) define denial as a “process whereby experiences which are not congruent with the self-concept are simply ignored and excluded from consciousness” (p. 482).

A possible link between repression or denial and cellular immune response has been documented (Cohen & Herbert, 1996). Research by Hackett and Cassem and by Meyerowitz, cited in Barlow and Durand (1999), suggests that during extremely stressful periods when an individual is first diagnosed with a disease, denial may assist the individual in enduring shock more easily. Later on other coping responses may be developed. Furthermore, greater reliance on repressive coping has been associated with lower monocyte (the largest of the leucocytes) counts, higher eosinophil (a type of blood cell) counts and better reactions to medications (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). Denial coping appeared, in one study, to have protective effects in gay men anticipating HIV serostatus notification. However, findings from investigations into the role of denial in AIDS are inconsistent (Cohen & Herbert, 1996). In a study by Ironson, cited in Cohen and Herbert (1996), on disease progression in HIV positive men, those who denied their diagnosis did poorly on markers of disease progression one year after being diagnosed. In
contrast, Reed reported that HIV positive men who refuse to accept their disease and its implications live nine months longer than those who accept it. Kiecolt-Glaser et al. (2002) report a finding that indicates denial seemed to have protective effects in gay men anticipating notification of their HIV status. Denial was associated with reduced intrusive thoughts and lower cortical secretion.

While denial as a coping mechanism has been found to have protective effects on individuals, it is not always the best means of coping with a situation. Most mental health professionals work to eliminate denial because of its negative effects (Barlow & Durand, 1999). For example, denial can cause an individual to ignore symptoms of a disease and consequently not seek treatment. In place of repression or denial, other methods of coping are encouraged.

In a study of 205 individuals with chronic physical disease (Friedland, Renwick & McColl, 1996), Schussler found that those who conceptualised illness as a challenge or otherwise accepted their illness, had high levels of mental well-being and adaptive coping. Furthermore, coping and social support have been found to be closely linked and the type of coping strategies used by individuals determines the effectiveness of social support. Coping and social support are potentially powerful resources that can be used to mediate the stressors associated with HIV/AIDS.

3.5.3 Social Support
The association between personal relationships and immune function is one of the most strongly supported findings in the study of PNI (Kiecolt-Glaser & Glaser, 1992). Substantial evidence implicates positive interpersonal relationships in the maintenance of health (Cohen & Herbert, 1996; Dalgard, Bjørk & Tambs, 1995; Friedland, Renwick & McColl, 1996; Kiecolt-Glaser,
McGuire, Robles & Glaser, 2002; Witmer & Sweeney, 1992). Various studies have shown that belonging to a strong social network is associated with longevity and that perceptions of available support protect individuals from the pathogenic effects of stressful events (Cohen & Herbert, 1996).

3.5.3.1 Definition of Social Support

Social support is the degree to which an individual’s basic social needs are met through interaction with other people (Karren, Hafen, Smith & Frandsen, 2002). It refers to the tangible and intangible resources that others provide. Moreover, it is the individual’s perception that she or he can rely on others for help when a problem or crisis arises. A person’s perception of the adequacy of her or his social contacts and emotional support is more strongly related to physical and emotional health than are objective measures of support (Bee, 2000; Serovich, Kimberly, Mosack & Lewis, 2001). In other words, it is not the actual amount of contact with others that is important, but rather how that contact is interpreted.

Three functions are served by social support (Whitmer & Sweeney, 1992). Firstly, emotional support refers to attachment, reassurance and having someone to rely on. Next, tangible support involves direct aid such as loaning money or providing services. Finally, informational support refers to the provision of information, advice or feedback. Thus, within the context of HIV infection, informational support refers to an individual’s ability to rely on others to give information about various aspects of the disease.

3.5.3.2 Supporting Data: Effect of Social Support on Immune Functioning

Evidence showing the link between social support and immune function can be found in various studies. It has been demonstrated that higher NK cell activity and stronger responses of peripheral
blood leukocytes to mitogen stimulation are associated with higher social support in women whose husband’s are being treated for urologic cancer than those who have less support (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). In another study, 48 haemophiliac patients who were infected with HIV were followed for five years (Cohen & Herbert, 1996). Those who reported less access to emotional support at the time of the baseline measurement, showed a greater decline in T-helper cells over the course of the study than those with stronger support systems. A study conducted by Glaser and colleagues yielded results that showed poorer immune function in medical students who were lonelier than their peers (Kiecolt-Glaser & Glaser, 1992). Medical students who reported greater social support demonstrated a stronger immune response to a hepatitis B vaccine.

Research investigating the association between social support and immune function has focused almost exclusively on positive social support. Very little attention has been paid to the effects of negative social interactions on individuals who are ill (Ingram, Jones, Neidig & Song, 1999). The effects of negative interactions may be particularly salient for individuals who are HIV positive, as a result of the stigma associated with the disease. Family and friends who ordinarily provide social support may experience feelings of vulnerability and fear in response to the infected individual and as a consequence, may have difficulty in providing effective support. Indeed, the consequence of such ambivalence may impact negatively on the individual who is ill.

In summarising the findings of research on the impact of social support on health, it is clear that positive social interactions mediate the effects of stress on an individual’s overall health. Social support enhances health and acts as a buffer against stress by protecting the individual from the harmful effects of stress on immune functioning. Researchers believe that a strong social network
that provides an individual with positive and effective support generates feelings of control, as well as enhances self-esteem. These two elements of PNI will be discussed next.

3.5.4 Control

The results of a profusion of studies cited in Karren, Hafen, Smith & Frandsen (2002), Taylor, Helgeson, Reed and Skokan (1991), Kiecolt-Glaser and Glaser (1992) and Coleman and Iso-Ahola (1993), show the importance of control in mediating stress and, consequently, in influencing health and illness. It seems that a sense of control over one’s life plays a profound role in protecting an individual from illness. Feelings of control affect immune functioning in a number of ways, such as influencing the release of certain hormones and neurotransmitters that play a role in immunity. Consequently, it is imperative for health care practitioners to understand what gives individuals a sense of control in order for those with diseases such as HIV to become more active in fighting their disease.

3.5.4.1 Definition of Control

Control is “a belief that one has at one’s disposal a response that can influence the aversiveness of an event” (Karren, Hafen, Smith & Frandsen, 2002, p. 252). It is the belief that an individual can cushion the impact of a situation by the manner in which she or he views it. Beliefs about personal control have to do with feelings of mastery and confidence (Witmer & Sweeney, 1992). Control is the opposite of powerlessness – it is a perception that an individual will have a definite influence through the exercising of imagination, knowledge, skill and choice.

In 1966 Julian Rotter first made the distinction between an internal and an external locus of control (Bee, 2000; Karren, Hafen, Smith & Frandsen, 2002). Locus of control is a term used to refer to the perceived source of control over an individual’s own behaviour (Reber, 1985). It is
measured along a dimension running from high internal, to high external. Reality is not measured, but rather the individual’s perception of whether control derives from endogenous or from exogenous sources.

Individuals with an external locus of control believe that they are largely in the hands of fate, chance or the actions of others (Bee, 2000). These individuals believe that events are contingent on powers beyond their control (Witmer & Sweeney, 1992). Conversely, those with an internal locus of control believe that events are dependent upon their own actions and as such, yield more effort and persistence in achievement situations. An internal locus of control has consistently been shown to be a buffer against life stress (Coleman & Iso-Ahola, 1993). Furthermore, individuals with an internal locus of control are more likely than those with an external sense of control to collect information about such matters as their disease and to take action to improve their own health (Witmer & Sweeney, 1992).

In light of the above a caveat is needed. The development and application of the locus of control construct has been subject to Western sociocultural ideals that view personal control over situations as always being the best scenario (Marks, 1998). This view sometimes leads to the belief that having an internal locus of control is always the most beneficial, but may in fact be unsuitable for certain individuals. The appropriateness of an individual’s locus of control beliefs depends on cultural and situational variables. For example, individuals in collectivist nations (those nations that view individuals as part of a network of social groups) are taught to value interpersonal harmony and solidarity that results in interdependence (Spector, Cooper, Sanchez & O’Driscoll, 2001). Moreover, emphasis is placed on group achievement and control by others (an external locus of control). Individualism is a tendency for individuals to be motivated primarily by their own goals and preferences. In these nations, much value is placed on independence and
individual achievement, which may lead to feelings of personal control (an internal locus of control).

There is a need for health care professional to understand that differences in locus of control are found not only between cultures, but within them too (Marks, 1998). Knowing and understanding these differences will allow practitioners to work with beliefs about control in a more appropriate and useful manner. When relating to individuals, it is important to understand beliefs about where control lies so as not to negate or trivialise individuals’ cultural or situational circumstances. It is necessary to be sensitive to an individual’s cultural identity (Marks, 1998). To suggest that one means of control is always superior to another is inappropriate. Regardless of whether individuals believe control is exogenous or endogenous, it has been found in a multitude of studies to affect immune functioning. These studies will be discussed in the following section.

3.5.4.2 Supporting Data: Effect of Control on Immune Functioning

Literature on control and illness suggests that in response to stressful events, such as chronic illness, some individuals generate feelings of control (Taylor, Helgeson, Reed & Skokan, 1991). Such feelings of control appear to help individuals adjust to aversive conditions. Research by Pearlin and Schooler (Taylor, Helgeson, Reed & Skokan, 1991), suggests that a belief in personal control may moderate the stress-distress relationship by reducing distress when a strong belief of control is present. Furthermore, findings by Folkman cited in Taylor, Helgeson, Reed and Skokan (1991), suggest that perceptions of control are important during the appraisal process involved in coping. These perceptions may represent spontaneous coping efforts and thus constitute a coping resource. Empirical research confirms that self-generated feelings of control can improve adjustment associated with physical illness. Even in the case of advanced AIDS patients, feelings
of personal control enable individuals to cope better with the disease and to do so with less psychological distress.

A pilot study conducted by George Solomon (Karren, Hafen, Smith & Frandsen, 2002), involving long-term AIDS survivors, found that these individuals had a number of characteristics in common. Many of these characteristics pointed to an increased sense of control over the situation and included assertiveness, the ability to nurture themselves, being actively involved with other individuals who had the disease and the ability to communicate openly about their needs. In addition, those involved in the study who took responsibility for their disease, felt they could influence the outcome of the disease and took control by adjusting their lifestyles.

In another study at the University of Connecticut School of Medicine (Karren, Hafen, Smith & Frandsen, 2002), researchers observed a group of more than two hundred heart-attack survivors for a period of eight years. The researchers noted that the patients who accepted responsibility for their heart-attacks had fewer second attacks that those who blamed other factors, such as their genes. These findings suggest that in accepting responsibility for one’s disease, an individual is able to exert some degree of control over the situation.

The above studies all indicate that a sense of control and taking responsibility for one’s illness or disease can affect health. The reasons why control has such a profound influence over health will be examined in the following section.

3.5.4.3 The Impact of Control on Health

One of the reasons why control has such an extreme influence on health is because it disturbs the biochemical balance in the brain and the body (Karren, Hafen, Smith & Frandsen, 2002). An
internal locus of control has a significant impact on the release of hormones and neurotransmitters in the body. Three of the chemicals influenced by a lack of control are serotonin, dopamine and norepinephrine. 5-Hydroxytryptamine (5HT) or serotonin, regulates mood, behaviour and thought processes (Barlow & Durand, 1999). Dopamine, which is also classified as a catecholamine, functions as an inhibitor (prevents activation of an effector, a cell by which an animal responds to internal or external stimuli, through activation of nerve impulses) and has been implicated in limbic activity and is responsible for a sense of pleasure (Reber, 1985). Finally, low levels of norepinephrine, or noradrenaline, have been implicated in depression (Karren, Hafen, Smith & Frandsen, 2002). All three of these neurotransmitters are essential to activity, appetite, mood, sleep, sex, reinforcement, reward and pleasure.

When an individual feels little control, the levels of serotonin, dopamine and norepinephrine drop and consequently, affect mental functioning. Moreover, when there is no sense of control, corticosteroid levels in the blood soar and lower resistance to disease. Perceived self-inefficacy in exercising control over stress activates the endogenous opioid system, which results in decreased numbers of NK cells (Kaye, Morton, Bowcutt & Maupin, 2000). In addition, uncontrollable stress increases the release of corticosteroids and catecholamines, which inhibit lymphocyte metabolism.

Individuals who feel powerless or out of control, often have compromised immune systems (Karren, Hafen, Smith & Frandsen, 2002). Researchers tested women with early-stage breast cancer and found that those who felt some control over their lives and their diseases, had greater levels of NK cell activity – stronger immune systems, than those who felt little control. It appears as if a sense of control triggers the body’s internal healing abilities. Several studies involving patients undergoing surgery, demonstrate that a sense of control can have a significant effect on
the healing process. In one particular study, it was found that a greater sense of control “proved to be the most powerful predictor of recovery without complication” (Karren, Hafen, Smith & Frandsen, 2002, p. 483).

3.5.4.4 Sources of Control

Because a sense of control is vital in the maintenance of health and in faster recovery from illness, it is important to investigate what individuals may find to be a source of control in their lives. Acquiring information, for example, has been shown to be an important source of control for individuals who are ill (Karren, Hafen Smith & Frandsen, 2002). Individuals who are informed about a situation feel an increased sense of control because the situation becomes more predictable and manageable. In addition, learning new coping skills has also been shown to provide individuals with greater control. Being able to cope with a stressful situation allows individuals to take part in their lives and to manage their circumstances more effectively. Finally, building a strong support system affords individuals with a greater ability to cope with difficult situations in their lives (Karren, Hafen Smith & Frandsen, 2002). The importance of support systems in maintaining health was discussed in a previous section, but social support has also been found to affect immune functioning by influencing an individual’s self-esteem.

3.5.5 Self-Esteem

According to a growing body of evidence, a strong self-esteem is one of the most important elements in overall physical and mental health (Karren, Hafen, Smith & Frandsen, 2002). Data indicates that a healthy sense of self can improve physical functioning. Moreover, it can boost the immune system and aid in healing. Because the way in which an individual feels about him or herself can be controlled, it is an important element of PNI. Consequently, an understanding of how an individual’s self-esteem impacts on her or his health is of immense importance in the
study of HIV/AIDS. Knowledge of elements related to PNI, such as self-esteem, can ultimately be used in designing holistic interventions that will be effective in treating the individual with HIV.

3.5.5.1 Defining Self-Esteem

Self-Esteem is the affective component of self (Feldman, 1998). It includes an individual’s general and specific positive and negative self-evaluations. Although the word esteem carries the connotation of high worth, self-esteem includes the full dimension of positive and negative beliefs about the self (Reber, 1985). Self-esteem is both emotionally oriented and multi-dimensional (Feldman, 1998). An individual may view different aspects of the self more negatively than others. Furthermore, self-esteem varies over time. Depending on the situation, an individual may feel good or bad about him or herself. Although almost all individuals go through periods in which they feel less positive about themselves, some individuals are chronically low in self-esteem. This can have a negative influence on physical functioning and consequently, affect that individual’s health.

3.5.5.2 The Impact of Self-Esteem on Health

Whether individuals do or do not get sick, and how long they remain ill, may depend in part on how they feel about themselves (Karren, Hafen, Smith & Frandsen, 2002). Evidence shows that low self-esteem is often a factor in chronic pain, and several other studies show that recovery from infectious mononucleosis is related to self-esteem. For example, in a survey conducted by the California Department of Mental Health, individuals who reported having a high self-esteem had better mental and physical health (Witmer & Sweeney, 1992). Low self-esteem was also associated with more self-reported physical illnesses and emotional disturbances. Those who felt
they had a higher degree of control over their lives were more likely to feel positive about themselves and reported fewer ailments.

The level of self-esteem individuals have appears to be a crucial factor in how they respond to stress (Karren, Hafen, Smith & Frandsen, 2002). Low self-esteem is a common denominator in stress prone individuals. Self-esteem is such a powerful influence on health, it even impacts on the way individuals respond to life events, both positive and negative. Results of various studies show that a positive self-esteem helps protect health. One reason behind its protective nature may be its effect on immune functioning. J. Stephen Heisel, cited in Karren, Hafen, Smith and Frandsen (2002), conducted a study on college students and found that individuals with the highest self-esteem were also the ones who had the strongest NK cell activity. High self-esteem appears to provide a boost to the immune system and gives individuals a stronger immunity against disease.

Belief in oneself and having a positive self-regard seems to be one of the most powerful weapons individuals have in protecting their health and in living longer. Having a positive perception of oneself and of the world has a startling impact on wellness. Because these are factors which individuals are able to control themselves, they play a significant role in the fight against diseases such as HIV. Thus, it is imperative for elements such as self-esteem and optimism to be included in studies concerning psychoneuroimmunological interventions for chronic disease.

3.5.6 Optimism and Pessimism

Stressful life events and pessimistic attitudes have been associated with poorer immune functioning, poorer control over latent viruses and negative health outcomes (Byrnes, Antoni, Goodkin, Efantis-Potter, Asthana, Simon, Munaji, Ironson & Fletcher, 1998). Moreover,
optimism has been associated with better coping, which appears to mediate immune function (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). Because explanatory styles have been shown to have an effect on health, it is important to consider how individuals make sense of events. This knowledge can then be used in the development of holistic interventions and counselling for individuals diseases such as HIV/AIDS.

3.5.6.1 Definitions

Optimism and pessimism are explanatory styles that individuals use to make sense of events in their lives (Westen, 1996). Optimism is a hopeful view or disposition, a tendency to expect a favourable outcome (Allen, 1984). Optimists generally approach the world in an active, productive way (Karren, Hafen, Smith & Frandsen, 2002). Furthermore, optimists see things in their lives as controllable. Pessimism refers to the tendency to take the worst view or to expect the worst outcome (Allen, 1984). Pessimists have a tendency not to focus on the source of the stress, but rather on their own feelings (Karren, Hafen, Smith & Frandsen, 2002). Although pessimism is almost always overwhelmingly negative, it can also be positive. A style of thinking called defensive pessimism involves preparing oneself for the worst even though one knows success is a more likely outcome. It involves setting unrealistically low expectations in order to prepare individuals for failure. Another form of pessimism is called awfulising or catastrophising (Karren, Hafen, Smith & Frandsen, 2002). This is the tendency to escalate every situation to the worst possible scenario. Such thinking wreaks tremendous havoc on the body as the individual’s attention is focused almost exclusively on the negative event. This causes hormones to surge and activates the sympathetic nervous system.
3.5.6.2 Effects of Optimism and Pessimism on Health

3.5.6.2.1 Optimism

Mounting evidence gives credence to the idea that optimism and positive emotions promote health (Karren, Hafen, Smith & Frandsen, 2002). A positive attitude and a belief in the body’s ability to heal itself can supplement medical treatment, but should never replace it. Optimism has been found to be a prime variable that characterises individuals who cope well with stress and who have less anxiety and fewer physical symptoms (Witmer & Sweeney, 1992). In a study of HIV-infected men, it was found that situational optimism about health outcomes was linked to slower immune decline, later symptom onset and a longer survival time (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002).

3.5.6.2.2 Pessimism

Pessimism leads to indecision, anxiety and depression. Moreover, it affects health and longevity. In various studies (Byrnes et. Al., 1998) it has been found that pessimists have consistently poorer health than optimists do. Stressful life events, pessimistic attitudes and negative expectancies have been associated with poorer immune functioning. Furthermore, a pessimistic attitude has been associated with poorer immune functioning and negative health outcomes in both HIV- and HIV+ individuals. In HIV- individuals, pessimism is associated with weaker blastogenic responses to mitogen challenge, increased reports of infectious illness and increased risk for mortality in cancer patients. In short, pessimistic attitudes have been associated with poorer immune functioning. In individuals who are HIV+, pessimism, fatalism and resignation were associated with decreased survival time over a 50-month study period.

In a study by Seligman and his colleagues, predictions concerning the frequency of illness experienced by students were made (Karren, Hafen, Smith & Frandsen, 2002). The researchers
made these predictions based on whether an individual had a pessimistic or an optimistic explanatory style. It was found that those who were more pessimistic got sick more frequently than those who were optimists.

One of the reasons why a pessimistic attitude has such a dramatic effect on health may be related to control. In a previous section, it was discussed how individuals who have an internal locus of control are able to cope better with stress. It appears that pessimists tend to give up control and assign it to outside factors (Karren, Hafen, Smith & Frandsen, 2002). In other words, pessimists tend to have an external locus of control. Pessimism and negative thinking affect the body in much the same way as stress does. When an individual expects the worst, the body responds as though it were actually in the middle of a tension-filled situation. Stated in another way, pessimism compromises the immune system. According to the results of research, pessimism can result in the depletion of catecholamines, which results in an increase of endorphins in the body (Karren, Hafen, Smith & Frandsen, 2002). When endorphin levels increase, the immune system turns itself down, resulting in a compromised immune system.

The studies discussed above show the correlation between optimism and immune system functioning and that a more upbeat outlook generally has positive effects on overall physical and mental health. Similarly, studies on the effects of pessimism on immune functioning have found that a negative outlook tends to be associated with lower immune system functioning. These findings suggest that an individual’s explanatory style plays an important role in health. Consequently, such evidence compels us to address an individual’s attitude when he or she is being treated for an illness. Furthermore, this evidence advocates that health care practitioners make use of interventions that incorporate efforts to address an individual’s explanatory style when designing and implementing treatments for diseases such as HIV.
3.6 Conclusion

Since ancient times humans have recognised an important link between the mind and the body (Palmblad, 1981). During the last four to five decades, much research concerning the effects of psychosocial elements on physical functioning has been conducted. Psychological constructs such as stress, coping, social support, control, self-esteem and explanatory style, have all been investigated at length in order to determine the effect they have on immune functioning. The effects of stress on immunologic competence have been well documented, as has the mediating effect that social support has on stress. There is now sufficient evidence to conclude that immune modulation by psychosocial stressors can lead to health changes (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002).

Associations found between psychological constructs and immunity must be considered when developing treatment plans for individuals. It is of paramount importance that interventions for diseases such as HIV involve a holistic approach to managing the disease so as to ensure that the entire individual is treated. Furthermore, psychological constructs that have been found to have an association with immune functioning can be used to improve the health of those seeking treatment. HIV+ individuals need to be involved in their own treatment. In so doing, feelings of control are facilitated and consequently self-esteem may be improved. This can be achieved by incorporating elements of psychoneuroimmunology into treatment plans.

Dance movement therapy is a form of psychotherapy that utilises psychomotor expression. It is a holistic mode of treatment that assumes a unity between the mind and body. As such, it holds a fundamental belief that the body and mind are inseparable. Because of this premise of unity, it
may have the potential to be used as a means of implementing the various psychoneuroimmunological principles discussed in this chapter.
CHAPTER 4: DANCE/MOVEMENT THERAPY

4.1 Introduction

Humans have always danced – in ecstasy, for expression, in submission to nature and sometimes as a means of controlling nature (Kreitler & Kreitler, 1972). In virtually all known cultures, dance has existed as a form of communication, ritual and celebration (Mills & Daniluk, 2002). The ancient Greeks believed dance to be healing because it provided an opportunity to safely express emotions (Sparkman, 2002). Movement as a form of expression is widely used in many traditional African communities (Kober, 1988). In contrast Western influence, away from traditional Africans beliefs, has led many individuals to become alienated from themselves (Levy, 1992).

However, in recent years there has been a resurgence of interest in body movement and dance, as well as a growing recognition of the positive impact motor activity has on mind and body. Dance/movement therapy, because of its profound recognition of a unity between mind and body (Culligan, 1984) can be associated with the field of psychoneuroimmunology. Both are based on the principle of holism and such psychological constructs as stress, control, self-esteem, coping, social support and guided imagery. These common constructs allow us to contemplate the possibility of using dance/movement therapy as an intervention for HIV by focusing on psychoneuroimmunological constructs and how they can be addressed by using the medium of dance.

4.2 Definition

Dance movement therapy (D/MT) is an art and a science that involves the use of nonverbal communication through the medium of movement and dancing (Boris, 2002). It is partnered with the practices of psychiatry and psychology. D/MT is based on the idea that the body and mind are
inseparable (Levy, 1992). It is a form of psychotherapy, which utilizes psychomotor expression as its major mode of intervention. The basic premise of D/MT is that body movements reflect inner emotional states, and changes in movement can lead to changes in the psyche, promoting health. “Helping individuals … to regain a sense of wholeness by experiencing the fundamental unity of body, mind, and spirit is the ultimate goal of dance therapy” (Levy, 1992, p. 1). It is this intrinsic connection between the mind and the body that links PNI and D/MT, and as such will be discussed in more detail in later sections.

4.3 Historical Background

The use of body movement and dance as a therapeutic tool is as old as dance itself (Levy, 1988). In many primitive societies, dance provided individuals with a means to express themselves, to communicate feelings and to commune with nature. As Meerloo succinctly states,

“The dance of the medicine man, priest or shaman belongs to the oldest form of medicine and psychotherapy in which the common exaltation and release of tensions was able to change a man’s physical and mental suffering into a new option on health. We may say that at the dawn of civilisation dancing, religion, music and medicine were inseparable (Levy, 1988, pp.1).

Dance was, in the past, important and has continued to play a vital role in the lives of traditional individuals living in the Americas, Asia and Africa (Lewis, 1984). Singing or dancing often accompanies religious ceremonies and rites, and is very popular in African life in general (Mbiti, 1970).

In Western cultures particularly Europe, formal dance developed as a performing art, with an emphasis on technique (Levy, 1984). However, although dance as a ritual continued to play a vital role in traditional cultures, a sharp decline in the popularity of dance in Europe began to
emerge at the end of the twelfth century (Lewis, 1984). Theologians feared its potential power and during the Renaissance, dances were limited to court entertainment.

The trend in stylised court entertainment continued until the beginning of the twentieth century when a new inclination in dance emerged and began to break away from the limitations of formal dance (Levy, 1988). This emerging modern dance movement sought to replace the rigid and impersonal form of traditional, formal dance with more natural, expressive movements. The modern dance movement was a reaction to the social and intellectual climate of the time – a time of liberation. Isadora Duncan, considered by many to be an early pioneer of modern dance (Levy, 1988), broke away from the strict structure of classical ballet and re-introduced a form of dance expression in which there is no story behind the dances (Kober, 1988). She turned to idealisations of the ancient Greek dance in order to combat the “natural decadences of human movements” (Kreitler & Kreitler, 1972, p. 101) and to rediscover their instinctive forms. Duncan regarded dance as the human being’s most basic response to the universe (Kober, 1988).

It was in the 1930’s that dance was formally adapted for therapeutic purposes – it became a means of providing individuals with an alternative form of communication (Mills & Daniluk, 2002). At the same time psychoanalytic thought, including the work of Freud, Jung and Adler, was gaining wider acceptance and the concept of the inner dance was becoming popular with modern dancers (Levy, 1988). The inner dance refers to a focus on individual self-expression and exploration. While psychoanalysts were encouraging the expression of the unconscious through verbalisation, dancers began to use body movement as a means of self-expression. Early modern dancers, including Marian Chace and Mary Whitehouse, were so moved by the interaction of psyche and soma through dance movement, that they began to focus exclusively on the psychotherapeutic aspect of dance.
In the 1940’s, Chace began her work with patients at St Elizabeth’s Hospital in Washington, D.C. in a program called dance for communication (Kober, 1988). Chace believed that every patient had a desire to communicate and she engaged in those parts of the patients’ personality still able to or wanting to be well (Levy, 1988). This was achieved by closely observing and responding to the small idiosyncratic movements and gestures that constituted patients’ emotional expressions. Chace believed that such movement expression could break through verbal defences. Her approach is still used today as the basis for dance therapy with hospitalised patients (Kober, 1988).

Mary Whitehouse was another major dance therapy pioneer whose teachings have greatly influenced contemporary leaders in the field (Levy, 1988). She experienced her own Jungian analysis and studied at the Jung Institute in Zurich (Wyman-McGinty, 1998). Whitehouse began her work in the 1950’s and came to call her work movement-in-depth. This idea was based on Jung’s concept of active imagination. In this process, the intention is to allow oneself to be directed from within and to give form through movement to the images and feelings, which arise from attending to one’s somatic experience. It is a method of freeing one’s associations to allow in all levels of conscious and unconscious experience (Levy, 1988). Whitehouse emphasised the importance of learning to wait for the inner pulse to move rather than attempting to direct or plan the movement. Movement that was directed in this way was described as authentic movement. Authentic movement is necessary if active imagination through the musculature is to take place (Levy, 1988). In her writing, Whitehouse emphasised the importance of the quality of the therapeutic relationship, without which the therapeutic movement process would not unfold.
Trudi Schoop played a major role in the development of modern dance in Europe during the period leading up to and during the Second World War (Kober, 1988). Schoop later emigrated to the United States where she worked with severely regressed psychotic patients in a state institution. She strongly believed in the interaction of mind and body and argued that individuals could be influenced by both elements of their nature.

In 1964 a small number of dance therapists who had been taught by Marion Chace, met in Washington to discuss the possibility of an association of dance therapists (Kober, 1988). In 1966 the American Dance Therapy Association was founded by a group of 73 members. Dance was originally adapted to provide individuals with mental illness with a means of communicating (Mills & Daniluk, 2002). Since then, it is documented by Leste and Rust (1990) as having been used in the treatment of anxiety disorders, by Wise (1984) for treating eating disorders, head injuries by Berrol and Katz (1985), and for survivors of sexual abuse by Bernstein (1995). Furthermore, Westbrook and McKidden (1989) discussed its use in the treatment of Parkinson’s disease, Murray-Lane (1995) and Rose (1995) describe how dance/movement therapy has been used to treat addictions, and Bojner-Horwitz, Theorell and Anderberg (2003) discuss D/MT and the resultant changes in stress related hormones. D/MT is based on a set of basic premises that allow us to create a link with the principles of psychoneuroimmunology.

4.4 D/MT and Mind-Body Unity

A fundamental premise of D/MT is the unity of mind and body (Lewis, 1984). Consequently, D/MT aims at facilitating personal mind, body and emotional integration so as to improve overall functioning of the individual (Kober, 1988; Mills & Daniluk, 2002). D/MT increases the conscious experience of interaction between the body and mind. Because psychoneuroimmunology is similarly based on the principle of mind-body interaction, we are
able to forge a link between the two. That is, based on the principle of mind-body interaction, dance/movement therapy can be used to facilitate the principles of psychoneuroimmunology, and henceforth as an intervention for diseases such as HIV/AIDS.

Individuals’ experiences of their relationships with their bodies are implicated in many of the issues they take to counselling, including physical health problems (Mills & Daniluk, 2002). “Modern man…is out of touch with his body…and with his feelings. He feels split into a body and a spirit at war with each other, and he must search for reunification” (Culligan, 1984, p. 36). D/MT is able to bring about a change in the body’s behaviour and a corresponding change in the individual’s mind (Lewis, 1984). Mind and body are in constant reciprocal interaction – whatever the inner self experiences comes to full realisation in the body, and whatever the body experiences influences the inner self. In other words, individuals experience themselves, others and the world through their bodies (Ellis, 2001).

The first step towards mind-body unity necessitates the recognition by the individual of her or his own body (Kober, 1988). D/MT facilitates the integration of the mind and body and is thus conducive to overall well-being. It allows for a transcendence of the mind-body dichotomy, which in many Western cultures has become the accepted norm in medicine. Movement, being continuous, rhythmic and patterned, requires the unity of mind, body and space (Heber, 1993).

D/MT can play a valuable role in the treatment of illness as it affords individuals an opportunity of expressing themselves and communicating feelings that may otherwise be difficult to convey. Furthermore, because dance is an integral aspect of life for many traditional Africans, it has face validity as an intervention for disease.
4.5 Why Dance/Movement Therapy?

Since the beginning of civilisation, rituals involving movement have allowed individuals to bridge the gap between themselves and their universe (Lewis, 1984). Dance and movement afford a vehicle for the expression and transmission of fear, sadness, anger and joy. Problems common to individuals with HIV include dependency on others for assistance, social isolation, loneliness, loss of self-esteem, death of peers and fear of death (Miller, 1987). However, individuals suffering from this disease often have few outlets for relieving tension. Dance therapy is able to provide such an outlet (Levy, 1988). Furthermore, D/MT is a means of exercise, which has been shown to have beneficial effects on immune functioning (Keller, 2000).

4.5.1 Communication and Expression

By making use of a basic form of communication, D/MT offers individuals a means of relating with the environment or with other people, when they are isolated by their illness (Lewis, 1984). Furthermore, utilising dance as a means to communicate offers an important outlet for those who have difficulty expressing themselves (Ritter & Low, 1996). The dance medium often comes into play when there is a lack of verbal expression – movements in dance become standardised and patterned symbols that represent an individual’s experiences (Hanna, 1987). “Dancing is an education; primarily physical it tends toward exceeding the limitations of the body as they are experienced in everyday use” (Primus, 1994, p. 5). Dance fulfils a vital human need for emotional expression through rhythm and movement (Spindell, 1996). Hanna (1987) expressed this notion clearly when she said “To dance is human, and humanity almost universally expresses itself in dance” (p. 1).

Verbal communication is achieved by use of intellect and is ruled by manmade language (Boris, 2002). However, individuals are often not able to communicate in words what they are feeling.
Furthermore, the inability to express feelings and thoughts may be exacerbated by the nature of the subject of communication. For example, many individuals with HIV/AIDS may find themselves in an environment that is intolerant of their illness and thus feel they are unable to communicate with those around them (Miller, 1987). Non-verbal communication offers individuals an opportunity to communicate somatically that, which cannot be expressed verbally (Wyman-McGinty, 1998). While dance movements alone have the capability to communicate affectively and cognitively, movement also supplements verbal communication (Hanna, 1987). African dance, based upon spoken language, is the source of communication through which it is possible to demonstrate emotion, sentiment, beliefs and other reactions through movement (Green, 1994). African dance is not detached from individuals’ lives, but is a spontaneous emanation of the people – translating everyday experiences into movement.

Dance assists individuals in feeling relaxed, but at the same time it stimulates (Lewis, 1984). This prepares them for expressing themselves. The practice of dance as a means of therapy is based on the knowledge that engaging in the creative process is a healing experience (Milliken, 2002). Moreover, it leads the individual toward new and profoundly different ways of expressing their innermost feelings of rage, frustration, confusion or alienation – feelings often experienced by those who have been diagnosed with HIV (Miller, 1987). The inherent structure of dance as a regulating power has the ability to free the individual to express feelings, build relationships and to change attitudes towards living (Bartenieff, 1988).

Nonverbal behaviour, such as dance, transcends written and spoken words and plays an important role in intercultural counselling and psychotherapy because it operates mostly at the unconscious level (Pallaro, 1997). D/MT is wholly equipped to treat individuals from different cultures
because its premise that body movement is the basic mode of communication is valid across a wide variety of cultures.

4.5.2 Dance and Culture

Movement as a form of expression is widely used by many traditional Africans from early childhood (Kober, 1988; Mbiti, 1970). Dancing is an expression of a physical, psychological and spiritual state of being that enables individuals to give meaning and context to their joys, hopes, frustrations, fears and sorrows (Snipe, 1994). Dance is an integral part of community life in African cultures and it is frequently used in worshipping and celebrations, and fulfils an important function in many rites of passage (Mbiti, 1970). A holistic approach is evident in the traditional African approach to life (Kober, 1988). This unification is also apparent in the relationship between verbal and non-verbal behaviour – dance and music are firmly embedded early in the life of the African child. This sets in motion the integration of word and action in singing and dancing. “… people who truly dance are those who have never bartered the fierce freedom of their souls, never strangled their hunger for rhythmic movement, nor frustrated their joyous physical response to music and song” (Primus, 1994, p. 3). Dance in Africa is not a separate art, but rather a part of the complexity of living.

Dance can be a significant psychosocial device able to penetrate many aspects of human existence (Nicholls, 1994). It has the potential to be used as a tool for integrating the individual into the community. This is especially important in situations where an individual may feel alienated from the community as a whole, and from individual members because of her or his illness. By means of the interaction of dancing in a group, the ordering of human relations and socialisation can occur (Kober, 1988). In view of the fact that movement behaviour is culturally learned, teaching individuals social skills in terms of body movement, may enable these
individuals to reintegrate into the social order. This reintegration into community life may lay the foundation for social support that is so vitally imperative to individuals having to cope with diseases such as HIV. However, in many situations, although this community support is so important, many individuals are cast out of the community they so need. They are not afforded support from their community. In such circumstances, individuals who have HIV and who are in need of social support may have to form their own support groups. Dance/movement therapy, used as a common denominator between all those concerned, may provide them with the opportunity for forming a much needed group connection.

4.5.3 Exercise

As HIV disease progresses, it affects every dimension of quality of life including social functioning, physical functioning and mental health (Nel, 1997). Acute illnesses and symptom management becomes a way of life for individuals with the disease. As these are unpredictable, they may be sources of stress and a challenge to an individual’s sense of coherence. Moreover, the rate of disease progression is directly related to depression experienced by HIV-infected individuals. Exercise has not only been found to be an important intervention for depression and stress (Johnsgård, 1989), it also serves as a means of empowering individuals who have been diagnosed with terminal diseases (Williams, 1990). A person who has HIV and who is given information and allowed to make decisions about a course of treatment feels empowered.

Individuals beginning a new physical activity often need to acquire a tolerance for exercise (Miller, 1987). This too applies to individuals with HIV. Once stamina and health improve, the benefits include improved muscle tone, lowered levels of depression, a distraction from persisting worries, and empowerment. Exercise results in an increase in the body’s core temperature, and the interplay between energisation and relaxation produces an almost meditative state where
awareness is focused almost exclusively on the body (Johnsgård, 1989). In addition, physical activity is a spontaneous response to stress that may be considered to be effective in the management of fatigue often experienced by individuals with HIV (Galatino, 1990). Without activity, stress may manifest itself as chronic pain. There may be times when depression may not yield to medication or social support (Johnsgård, 1989). In such a situation activity can be seen as a means of warding off stress and depression. Exercise can serve as an effective intervention for individuals who are depressed.

Allowing individuals to take part in their own treatment intervention gives them an opportunity to make decisions. An individual who is allowed to make her or his own decisions feels empowered (William, 1990). This empowerment and renewed sense of self-control raises self-worth and self-esteem. Individuals who are given the chance to decide on their own course of treatment and the opportunity to engage in an activity such as D/MT, are able to take back control over their lives. The impact a sense of control has on an individual’s health was discussed in the previous section on PNI.

4.6 Combining D/MT and PNI

4.6.1 Introduction

One of the fundamental principles, and moreover a central purpose, of dance/movement therapy is the unity and balance of mind and body. Furthermore, the use of D/MT as a healing tool is rooted in the idea that the body and mind are inseparable (Levy, 1988). The premise that the mind and body have an interdependent relationship is not limited to the theory and practice of D/MT. The field of psychoneuroimmunology also maintains that mental and emotional processes of the mind can affect physiological functioning within the body (Karren, Hafen, Smith & Frandsen, 2002).

The constructs discussed and targeted in the field of PNI are just some of the elements that are addressed in the practice of D/MT. Dibbell-Hope (2000) suggests that effective psychological intervention can assist the individual to manage and alter stressful conditions. Furthermore, a medium of group therapy such as D/MT provides an effective, efficient and economical system of peer support and hope from other individuals facing the same situation. She further states that D/MT is a psychotherapeutic treatment that uses body awareness, expression and acceptance to facilitate physical, emotional, cognitive and spiritual integration to heal disorders of the body and the mind. Other psychological and physical improvements that have been attributed to D/MT include enhanced self-esteem (Ritter & Low, 1996), greater social support, an increased sense of control (Bojner-Horwitz, Theorell & Anderberg, 2003), and a greater ability to cope with stressful events (Kober, 1988).
Because the elements of PNI discussed above have been shown to affect the physiological functioning and immunity of individuals, they are important constructs that need to be considered in the treatment of disease. Further, as D/MT has been shown to effectively address these factors, it follows that when treating individuals for a disease from the perspective of PNI, D/MT may be an appropriate intervention. In the following section the aforementioned elements of PNI and how they are affected by the application of D/MT, will be discussed.

4.6.2. D/MT as an Intervention for Stress

As discussed in previous sections, psychological stress alters the immune system in such a way that disease may develop or be exacerbated (Fox, Shephard & McCain, 1999). Consequently, stress is an element that needs to be managed effectively so as to improve physical and immunological functioning in individuals who are ill. Exercise, as a result of the positive physiological and psychological benefits it provides, is considered to be an essential part of comprehensive stress management (Sheridan & Radmacher, 1992). Research by Brown and Siegel (Sheridan & Radmacher, 1992) indicates that stressful life events are associated with illness primarily among those with low levels of exercise. These findings suggest that exercise may act as a buffer against the effects of stress. Moreover, studies cited in Sarafino (2002) by Abele and Brehm, Blumenthal and McCubbin, and by Dishman, indicate that people who exercise and who are physically fit often report less anxiety and tension, and that exercise reduces the potential for stress.

According to Chaiklin (Kober, 1988), individuals should be able to experience, on a bodily level, the tensions and emotions that form part of human existence. Having lived and experienced these stresses and emotions completely, the body can then restore itself to a relaxed state, thus forming the basis for adequate handling of future experiences. D/MT, although not just simply another
form of exercise, does have the added benefit of allowing individuals a means of being physically active. D/MT has also been shown to reduce levels of stress in participants. Chang, cited in Dibbell-Hope (2000), using D/MT with individuals who had AIDS, found it to be beneficial in the reduction of stress. In addition, research by Arn, Gronlund and Teszary, discussed in Bojner-Horwitz, Theorell & Anderberg (2003), had similar results. These researchers argue that creative arts therapies, among them D/MT, are effective in promoting an emotional state of well-being.

Some dance therapists stress the physical aspect of dance therapy with individuals who are not physically well (Levy, 1988). They believe that the physical benefits will give rise to parallel benefits on the social and psychological levels. Somatic approaches to D/MT are exemplified by the work of Irwin and Garnet (Levy, 1988). Both describe the use of physical exercise to maintain and improve muscle tone, posture, flexibility, joint mobility, and movement range. Relaxation techniques such as yoga and callisthenics are also used. Moreover, application of these techniques and therapies may also lead to an increased self-esteem by empowering individuals to be in control of their bodies, and ultimately, their therapy.

4.6.3 D/MT Improves Self-Esteem

According to research on PNI, a healthy self-esteem can improve an individual’s overall health, both mental and physical (Karren, Hafen, Smith & Frandsen, 2002). Thus, when treating individuals who are ill, it is necessary to employ activities that enhance self-esteem. Siegel (Kober, 1988) maintains that it is often necessary to dance vigorously with the sole purpose of relieving tensions. Only after such dancing can the building of body-image proceed.

An important function of D/MT is that it enables individuals to develop accurate body images. Body image is defined as the picture of the body formed in the mind (Lewis & Scannell, 1995). It
is shaped by subjective representations of physical appearance and bodily experience, and is closely related to self-esteem. It is believed that movement, whether of an emotional or functional nature, plays an important role in the formation of body image (Kober, 1988). Stanton-Jones, in Sparkman (2002) is quoted as saying “… the way people move is a direct expression of their body image” (p.2).

Proponents of D/MT suggest that creative dance provides an opportunity for expressive release and can elicit the emotional engagement necessary to produce change in body image (Lewis & Scannell, 1995). As there is no correct or incorrect way to move, it is something all individuals are able to do. There is no need for comparison between individuals and the absence of comparison enables individuals to develop pride in what their bodies are capable of doing. Moreover, research has shown that D/MT can improve an individual’s body-image and self-esteem (Ritter & Low, 1996). Bojner-Horwitz, Theorell and Anderberg (2003) suggest that expressing oneself in dance can be interpreted as a way of helping individuals to improve body-image. Research by Heyde and von Langsdorff in Dibbell-Hope (2000) shows that D/MT has been successful in helping in the recovery from diseases such as breast cancer by improving body-image and self-esteem.

Trudi Schoop, a major pioneer of D/MT, stressed the importance of movement in improving self-esteem (Levy, 1988). She believed that an individual’s self-esteem could be improved via more efficient physical functioning. This was achieved by building the body-image through expanding the movement repertoire, developing increased body awareness and experimenting with postural attitudes. In addition to this, Edmund Jacobson (Levy, 1988) emphasised the need to identify and control tension, reduce anxiety and build body image. Thus, while D/MT can improve an
individual’s self-esteem, it too can be used to facilitate the feelings of control individuals have over their lives.

4.6.4 D/MT as a Source of Control

According to the tenets of PNI, individuals with a greater sense of control are at less risk of illness than those who feel they have little or no control over their lives (Karren, Hafen, Smith & Frandsen, 2002). Moreover, one of the psychological characteristics found to be common among long-term AIDS survivors is an increased sense of control over their situations. Following this, any intervention used in the treatment of disease should empower individuals – it should facilitate their sense of control.

D/MT not only encourages but moreover, it facilitates the individual’s active involvement in the therapeutic process (Heber, 1993). Participating individuals can choose whether they wish to take part in the dancing, or remain passive. D/MT seeks to address individuals’ well-being by involving them more in their own lives and treatment (Spindell, 1996). Through dance, individuals can develop an increased sense of control, which in turn can lead to decreased feelings of helplessness (Bojner-Horwitz, Theorell & Anderberg, 2003).

Helplessness, as defined by Schmale in Karren, Hafen, Smith and Frandsen (2002), is a feeling of being deprived, let down, left out and completely powerless. It is an attitude of victimisation. Feelings of helplessness may constitute a pervasive or learned response to stress or threatened loss. According to Seligman’s theory of learned helplessness, helplessness is a learned state produced by exposure to noxious, unpleasant situations in which there are no possibilities of escape or avoidance (Reber, 1985). Furthermore, learned helplessness has been found to be
correlated with depression (Barlow & Durand, 1999). As such, interventions need to address feelings of helplessness in individuals by helping them to assume control of their situations.

Chang’s work with individuals who have AIDS (Dibbell-Hope, 2000) has shown that D/MT is successful in reducing feelings of being out of control. Similarly, dance has been used to facilitate healing from the emotional effects of breast cancer by encouraging active participation in the healing process, thereby restoring feelings of control. Berstein (Mills & Daniluk, 2002) has used D/MT to resolve and work through issues that commonly arise in therapeutic work, including matters relating to personal power.

Rhythmic action has often been used by individuals to gain a sense of power and control (Kober, 1988). Rhythmic action refers to the process whereby the expression of a particular emotion is generated by performing its universally associated action (Levy, 1988). Other individuals involved the process then pick up on this through imitation. For example, in order to generate the expression of anger, the dance therapist will have the patients repeat actions such as kicking and punching. In this way the taboo is lifted from the emotion as the individuals are given the freedom to express it physically. As discussed above, a sense of control is an important element in the treatment of disease. Not only can it help prevent feelings of helplessness from arising, but in doing so it can protect the individual from developing depression as a result of feeling powerless (Kober, 1988). Furthermore, empowerment and a sense of control raise self-worth and self-esteem, both of which are important psychoneuroimmunological constructs. One of the ways in which health care professionals can assist the enhancement of an individual’s self-esteem is by facilitating support for the individuals. This is often achieved by making use of D/MT as group therapy.
4.6.5 D/MT Facilitates Social Support

Individuals do not live in a vacuum – humans are socially embedded and interaction with society begins during infancy (Lewis, 1986). If communication with others - family, neighbours, community or friends - breaks down, stability as a member of the surrounding world cannot be built. Consequently, social support can have a powerful effect on an individual’s psychological and biological functioning (Barlow & Durand, 1999). Moreover, social support is a critical issue to individuals who have AIDS (Sheridan & Radmacher, 1992). Because of the stigma attached to the disease, individuals often feel a sense of isolation. Interventions used in the treatment of disease thus need to consider the effects of social support on well-being and, as far as possible, facilitate the development of support structures for individuals.

Group dance, especially dancing together and interrelating with the group, is an ideal means for discovering and developing social relationships (Lewis, 1986). Group cohesion, a precondition for group psychotherapy, can be built effectively by means of movement shared by all participants (Kober, 1988). Keuttel, in Ritter and Low (1996), found that D/MT helps to increase group cohesion and participation. Rhythmic action can provide frequently isolated and withdrawn individuals with a bridge for communicating with others. Chaiklin, in Kober (1988), describes how this shared rhythmic action serves to establish group cohesion. Those taking part in the dance are relieved of emotional isolation (Ritter & Low, 1996) and can move beyond individual limitations (Kober, 1988). The group provides a safe and supportive atmosphere that fosters communication and sharing (Levy, 1988). Moreover, significant benefits are derived from physical contact with others. Group dance therefore helps to alleviate fears of loneliness and isolation.
Snyder (Ritter & Low, 1996) noted that the psychological effects of rhythmic movement provide a common external link thereby integrating an individual within the group. Some dance therapists share the notion that rhythm or synchrony is an essential ingredient in D/MT that connects therapists to groups, groups to individuals and individuals to themselves. In a study by Mills and Daniluk (2002), participants reflected on their dance therapy as a unique kind of emotional connection with others. This intimacy was created without words, simply by moving together and at times, physically connecting with each other. The participants in the study remarked on how this intimacy and connection added to their growth and healing as they felt supported by others.

During group dance therapy, emotions can be shared directly on a pre-verbal and on a physical level (Kober, 1988). Movement helps to establish empathic understanding and thus enhances harmonious relationships between group members. Kendon, in Kober (1988), found that coordination of bodily movement with other individuals is conducive to the attainment of satisfactory social interactions. In addition, rhythm generates participatory behaviour in the sense of joining in and sharing an experience with others.

PNI has shown that social support is an important aspect of health and well-being (Karren, Hafen, Smith & Frandsen, 2002). Individuals who are sick, especially those who have HIV/AIDS, often feel isolated from others and lack the support structures necessary to cope (Sheridan & Radmacher, 1992). Consequently, interventions aimed at individuals who are ill need to include activities that will facilitate or strengthen group cohesion and social support. The literature discussed above indicates that D/MT in a group situation provides members with a supportive experience.
Guided imagery, as discussed in Chapter 3, is a visualisation process often used in treating individuals for physiological and emotional illnesses. Individuals are taught how to focus their concentration on positive mental imagery (Bakke, Purtzer & Newton, 2002). This process is frequently used in strengthening an individual’s immune system and can be combined with traditional medical treatments (Karren, Hafen, Smith & Frandsen, 2002).

Guided imagery was popularised in the 1970s by Simoneton, Achterberg, Lawlis and Matthews-Simoneton (Bakke, Purtzer & Newton, 2002). Simoneton and colleagues used this technique as a therapy to promote well-being and to enhance immune functioning in individuals with cancer. The imperative of the process is to focus on specifically enhancing the immune system through images and is founded on the belief that images will guide the physiological response. Guided imagery is psychologically oriented with an emphasis on developing images of strength, effectiveness and assertiveness. Variations of the process of guided imagery, such as visualisation and symbolism, are often used in D/MT.

Imagery plays an important part in the thought process (Culligan, 1984). There is a fundamental difference between one’s concepts and one’s images: a concept comes from intellectual knowledge and an image from emotional experience. In using imagery with D/MT, many avenues of an individual’s life can be explored. For instance symbolism, a type of guided imagery, is often used to work through problems (Levy, 1992).

Symbolism describes the process of using imagery, fantasy, recollection, and enactment through a combination of visualisation, verbalisation, and dance action (Levy, 1992). Marion Chace, a pioneer of D/MT, believed that difficulties could be worked through on a purely symbolic level.
and that interpretation or analysis is not always necessary for conflicts to be resolved. Through the power of movement, frightening emotions could be released in various forms such as patients taking the images of animals, flowers and trees as symbols on conflicts.

Visualisation, a process whereby the individual learns to see her or himself as healthy and disease free, has been shown to be a powerful addition to treating disease. Individuals have been able to consciously control their immune response by what they think (Karren, Hafen Smith & Frandsen, 2002). Hall, in Karren, Hafen Smith and Frandsen (2002), has shown that individuals can generate a more active immune system through imagery. Those involved in the experiment imagined their white blood cells to be powerful sharks. This resulted in an increase in immune system activity.

Guided imagery is a therapeutic tool sometimes used in the treatment of disease. It is used in conjunction with traditional medicine as a means of strengthening the immune system (Karren, Hafen, Smith & Frandsen, 2002). A mode of treatment that facilitates the use of guided imagery will play an important role in treating individuals who have lowered immune functioning. Because guided imagery, visualisation and symbolism are involved in the practice of D/MT, D/MT can be used as a means of enhancing the immune system.

4.7 Conclusion

Dance, used as a therapeutic medium has been consistently demonstrated to assist individuals in communicating and expressing themselves. Furthermore, as dance is accepted across cultures, it is a medium that is widely accepted. Dancing, because it is inherently a form of exercise, is an appropriate means of helping individuals to alleviate stress in their lives. In addition, because dance as a therapy empowers individuals and gives them control, it has the ability to improve
self-esteem. Because D/MT can be conducted in a group setting, it also has the ability to facilitate social support.

In sum, a treatment intervention that focuses on stress management and facilitates control and social support may have the added advantage of improving self-esteem. In order to assess the potential of such an intervention, the preceding section aimed to draw parallels between D/MT and PNI.
CHAPTER 5: RESEARCH DESIGN AND METHODOLOGY

5.1 Introduction

Researchers investigating psychoneuroimmunology have utilised different research methods encompassing the spectrum of qualitative and quantitative designs. Studies investigating the physiological aspects of PNI, such as the impact of stressful negative life events on immune functioning have used a variety of quantitative methods, including experimental studies.

Research studies involving Dance/movement therapy frequently utilise qualitative research designs, including humanistic studies. The principle of reflexivity in human investigation is acknowledged in dance therapy research (Payne, 1993). The assumptions and activities of the researcher become part of the inquiry in a process that stresses the belief that research and knowledge is personal, social and cultural in construction.

The present study examines the effectiveness of using Dance/Movement therapy (D/MT) as an intervention for HIV. The parallels between psychoneuroimmunology (PNI) and D/MT are examined and discussed in detail. Little information concerning D/MT as an intervention for HIV is available. As such the researcher, using an exploratory design, focused on assembling information in a literature study regarding D/MT and the possibility of using this means of therapy as an intervention for HIV.

5.2 Qualitative and Quantitative Research Methodology

Research methodology refers to the way in which research is conducted, that is, how data is produced and analysed (Haralambos & Holborn, 1995). There are two orientations to social and psychological research, namely quantitative research and qualitative research (Neuman, 2000). Quantitative research assumes that any phenomenon needs measurement of a statistical nature to
be deemed valid. Qualitative research relies on authentic interpretations and is sensitive to social-historical contexts. Qualitative and quantitative research methodology differs in many ways but at the same time, they compliment one another (Neuman, 2000). Both styles of research have their strengths and weaknesses and each is more suitable to its own area of investigation.

Qualitative research is defined as an interpretive approach to the study of people in their natural surroundings (Highlen & Finley, 1996). The purpose of qualitative research is to gain an appreciation of how individuals’ experiences are shaped by their subjective and socio-cultural perspectives (Wilkinson, Joffe & Yardley, 2004). Qualitative approaches to research claim that the scientific approaches, common to the natural sciences, are inadequate on their own for collecting, analysing and explaining data on human behaviour (Haralambos & Holborn, 1995). The natural sciences deal with matter and as matter has no consciousness, its behaviour can be explained simply as a reaction to external stimuli. Unlike matter, people have consciousness, and see, experience and interpret the world in terms of meaning. Consequently, qualitative data, often seen as being richer, having greater depth and more suitable for presenting a true picture of individual’s attitudes and beliefs (Haralambos & Holborn, 1995), is considered more suitable for investigations into human behaviour and experience.

While many research studies on PNI and D/MT make use of qualitative methods, quantitative designs are often employed in investigations in PNI. Quantitative research is concerned with issues of design, measurement and sampling because its deductive approach emphasises detailed planning prior to data collection and analysis (Neuman, 2000). Many quantitative researchers rely on a positivist approach to social science. Positivism arose from the nineteenth-century school of thought of Augustus Comte. Comte believed that the scientific study of society should be confined to collecting information about phenomena, which can be objectively observed and
classified (Haralambos & Holborn, 1995). He argued that researchers should not be concerned with the internal meanings, motives and emotions of individuals. Since these constructs exist only in an individual’s consciousness they cannot be observed and measured in an objective manner. Positivist researchers prefer to work with precise quantitative data and make use of experiments, surveys and statistics (Neuman, 2000). Rigorous, exact methods and objective research are pursued. Empirical or positivist science is primarily concerned with the accumulation of hard facts (Edwards, 1993). It emphasises the precise measurement of variables and testing of hypotheses that are linked to general, causal explanations (Neuman, 2000).

The current research employed an exploratory design as a means of conducting a literature study. Exploratory research frequently makes use of qualitative data, as qualitative research tends to be more open to using a range of evidence and discovering new issues than quantitative data (Neuman, 2000). Consequently, because the purpose of the study was to collate information pertaining to a new area of research on the parallels between PNI and D/MT, an array of investigations on PNI and D/MT and their respective research designs are explored in order to give the reader an idea of the variety of research methods that may be used. Because the fundamental purpose of the current research is to discover whether D/MT is a suitable intervention for individuals with HIV, qualitative data, with respect to understanding the experience of health and illness, is most suitable for inquiring into subjective meanings and there socio-cultural context (Yardley & Marks, 2004).

5.3 Research Design of the Current Study: Exploratory Research

The research design refers to the plan or blueprint according to which data are collected to investigate the research problem (Huysamen, 1994). As the current area of research is not well developed, an exploratory research design was used for this study. Exploratory research is
research which aims to discover more about a particular problem or phenomenon, rather than to test a specific prediction (Dyer, 1995). It is usually the first stage in a sequence of studies (Neuman, 2000). Reber (1985) defines an exploratory study as “Any preliminary study designed to provide some feeling for or general understanding of the phenomena to be studied” (p. 259).

In the present study, which is new research territory, there is no theory that provides the researcher with guidance on formulating a hypothesis, nor was the purpose of the research to develop and test a hypothesis. Exploratory research rarely yields definitive answers. As the researcher’s goal has been aimed at formulating more precise questions that future research can answer (Neuman, 2000), this specific research design was well suited. Exploratory research can be quite informal, relying on secondary research such as reviewing available literature and data, or on qualitative approaches (Exploratory, 2004). Consequently, a selection of investigations in PNI and D/MT are reviewed.

5.4 Research Methods used in the Study of PNI and D/MT

5.4.1 PNI Research

Inquiries in the field of psychoneuroimmunology have attempted to discover the routes through which psychological factors influence immune function (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002). A number of studies examine how stress changes immune functioning (Kiecolt-Glaser, McGuire, Robles & Glaser, 2002), the importance of supportive personal relationships (Cohen & Herbert, 1996) and the effect of coping style on disease progression (Cole, Kemeny, Taylor, Visscher & Fahey, 1996). Various studies will be discussed in order to demonstrate the variety of research methods were used in the execution of these studies.
In a cohort study by Kessler, Foster, Joseph, Ostrow, Wortman, Phair and Chmiel (1991), the researchers provided epidemiologic data on the issue of reactivity to stress and HIV symptom onset by studying the relationship between naturally occurring stressors and HIV natural history. A cohort study is a design in which the researchers investigate a category of individuals who share a similar life experience in a specified time period (Neuman, 2000). The participants were given a self-administered questionnaire (the Coping and Change Study questionnaire) to assess a range of behavioural, psychological and psychosocial variables (Kessler, Foster, Joseph, Ostrow, Wortman, Phair and Chmiel, 1991). It was found that those individuals who were exposed to serious stressor events experienced rapid onset of symptoms.

In another inquiry by Evans, Leserman, Perkins, Stern, Murphy, Zheng, Gettes, Longmate, Silva, van der Horst, Hall, Folds, Golden and Petitto (1997), the investigators attempted to test the hypothesis that stressful life events accelerate the course of HIV disease. The research formed part of a longitudinal study. Longitudinal research examines features of individuals in a single cohort over the course of time (McBurney, 2001; Neuman, 2000). Descriptive and explanatory researchers make use of longitudinal approaches. Information about stressful life events and difficulties was collected using a semi-structured interview that was a modified version of the Psychiatric Epidemiology Research Interview (Evans, Leserman, Perkins, Stern, Murphy, Zheng, Gettes, Longmate, Silva, van der Horst, Hall, Folds, Golden and Petitto 1997). Results of the study indicated that the more severe the life stress experienced, the greater the risk of early HIV progression.

Zorilla, McKAy, Luborsky and Schmidt (1996) conducted research in an attempt to determine whether and in whom stressors and depressive symptoms facilitate the progression of HIV. They used meta-analytic techniques to review cross-sectional studies on the relations of stressors and
depressive symptoms in HIV disease progression. Meta-analytic techniques or meta-analysis, is a technique used in an integrative review or in a methodological review (Neuman, 2000). The researchers gather the details about a large number of research projects and statistically analyse the information. In the aforementioned study by Zorilla, McKay, Luborsky and Schmidt (1996), the researchers calculated average effect sizes, performed fixed effect and random effect inferential analyses, tested for heterogenous findings and identified potential moderating variables. They found that depressive symptoms were associated with increased reports of HIV related symptoms.

Inquiries focusing on the elements of PNI and their effects on immune functioning in individuals who are HIV positive, include studies on the impact of social support on mental health. Serovich, Kimberly, Mosack and Lewis (2001) examined HIV positive women regarding their perceptions of family and friend social support and the effects on mental health. Regression models were constructed for five mental health outcomes including depressive symptoms, loneliness in the past few days, loneliness in the past year, anxiety and stress. The results of the study suggest that perceived social support, rather than actual social support, was correlated with mental health.

In another study by Ingram, Jones, Fass, Neidig and Song (1999), the researchers focused on the nature and effects of negative social interactions on HIV positive individuals. They conducted a factor analysis to develop the HIV version of the Unsupportive Social Interactions inventory and identified four types of responses that an HIV positive individual may receive from others: insensitivity, disconnecting, forced optimism and blaming. Factor analysis refers to a group of statistical techniques that assists researchers in constructing indexes, testing the unidimensionality of scales, assigning weights to items in an index and statistically reducing a large number of indicators to a smaller set (Neuman, 2000). The fundamental logic of factor analysis is based on
the idea that it is possible to statistically manipulate the empirical relationship among several indicators in order to reveal a common unobserved factor. Participants in the study by Ingram et al. (1999) were asked to complete a package of questionnaires and return them to the researchers. In analysis, unsupportive social interactions were found to be only moderately correlated with social support, suggesting that these constructs are relatively independent. Using hierarchical regression analysis, the authors found that unsupportive social interactions predicted a significant amount of variance in depression.

The studies discussed above suggest that a variety of research methods, including correlational studies and cohort studies, are applicable to investigations regarding the impact of psychoneuroimmunological factors on both immune functioning and mental health of individuals who are HIV positive. Both qualitative and quantitative designs are appropriate to PNI investigations. Neither method can be said to be more suitable than the other. The type of approach utilised is dependent on the subject being investigated. Similarly, research in the field of D/MT uses a variety of methods, however the designs used in expressive arts therapies tend to differ in that they use more qualitative designs, including humanistic studies.

5.4.2 D/MT Research

The field of expressive arts therapy is an area of psychology that generally lacks research (Edwards, 1993). One of the main reasons for this deficiency in research may relate to problems with research methodology. Many arts therapists tend to be unfamiliar with research methodology derived from the physical sciences, as they tend to come from arts backgrounds. Consequently, conducting research may be anxiety provoking for those who have little experience or training in research methodology. Having said this, there are however methodologies appropriate to inquiry in the arts field (Meekums & Payne, 1993).
In traditional research, a hypothesis is stated and a design, which allows it to be tested, follows (Meekums & Payne, 1993). The study has fixed questions, tests and methods that assume no change occurs between the early and advanced stages of the inquiry. This approach is generally not responsive to the situation and may restrain the research. Furthermore, in order to make generalised conclusions from the inquiry, large samples are required (Neuman, 2000). In such research the researcher is divorced from the subjects (Meekums & Payne, 1993). In addition, the effects of the research on the participants and researcher are not always reported.

A further drawback when using traditional research designs relates to the repeatability and replication of the process. The principle of replication says that a hypothesis needs several tests with consistent and repeated support to gain broad acceptance (Neuman, 2000). D/MT therapy with an individual or with a group of individual cannot always be replicated – sessions evolve with the changing mood and experience of the participants and researcher (Meekums & Payne, 1993). Finally, a further reason why D/MT is not generally researched using traditional methods relates to measurability. That is, dependent variables need to be measurable in experimental research designs (Carlsmith, Ellsworth & Aronson, 1976). D/MT cannot be measured – it is not able to fit neatly into a measurement system, as there are a variety of factors influencing both the participants and the researcher (Meekums & Payne, 1993). For example, the moods of the therapist and client, current life events and the receptivity of participants all affect the process.

Because traditional research is often focused on cause and effect, and this is often unobtainable in the context of D/MT, a new paradigm that can address the complexities is required for research in the Arts Therapies, specifically in D/MT (Meekums & Payne, 1993).
A relatively new method of research that has been identified in the field of D/MT is illuminative evaluation (Meekums, 1993). Using this methodology, the precise research question may not be formed at the outset of inquiry, as the course of investigation cannot always be charted in advance. By using illuminative evaluation as a general strategy, the problems that arise during the course of the investigation define which methods will be used (Meekums & Payne, 1993). As such, the perceptions of the researcher, the subjects and all others involved in the process are incorporated so that solutions to the problem can be found as difficulties arise. In order to allow for the system to be responsive in this way, a design that can change during the course of study is required. The purpose then, of illuminative evaluation is not to test hypotheses, but rather to document and understand the intervention.

D/MT requires the unification of mind, body and spirit. As such it can be viewed as a holistic therapeutic approach. Wholeness implies the participation of all parties, which in turn leads to empathy involving responsibility (Meekums & Payne, 1993). The methodology that clearly illustrates this concept is called co-operative inquiry. In using this approach, participants act as co-researchers along with the investigator. All individuals involved in the research contribute to the direction of the study (Meldrum, 1993). Phenomena can then be clearly understood as they are discovered in the context of participation in the whole system – not as isolated dependent and independent variables of experimental research.

5.5 Conclusion

Because the subject of the current research is a new area of inquiry and very little information concerning the research question exists, the research design had to be appropriate for the purpose of the current study. As such, an exploratory research design was employed. This type of design is suitable in situations where the researcher wishes to discover and collate as much information
as possible on a new topic. The purpose is not to test a specific hypothesis, but rather to assemble information and to provide a framework for future research.

The researcher studied and made use of mostly qualitative information as this type of research lends itself well to new areas of study. Furthermore, because the researcher was interested in a holistic approach to the treatment of individuals with HIV/AIDS, qualitative information, which includes an individual’s experience of his or her disease, was deemed most appropriate.

While an exploratory research design was considered most suitable for the purpose of, and consequently employed in, the current study, research in the fields of PNI and D/MT make use of a variety of methodologies. D/MT research is concerned with doing research with and for people as opposed to on them (McClelland, 1993). Consequently, collaborative methods such as cooperative inquiry and illuminative evaluation are often employed. A whole host of methods have been utilised in the inquiry of topics relating to the field of PNI. Methods including longitudinal designs, meta-analytical studies and regression studies have successfully been applied to the field of psychoneuroimmunology. Any future studies focussing on the subject of the current study, should therefore attempt to utilise methods of research that are appropriate to the two fields under inquiry – that is, Dance/movement therapy and psychoneuroimmunology.
CHAPTER 6: DISCUSSION, LIMITATIONS AND RECOMMENDATIONS

6.1 Discussion

The specific goal of the current study was to determine whether Dance/Movement therapy (D/MT) is an appropriate intervention to be used with individuals who are HIV-positive. The researcher discussed in detail AIDS, psychoneuroimmunology (PNI) and D/MT, and attempted to draw parallels between PNI and D/MT. The reason for attempting to expose similarities between these two fields of psychology was to determine whether D/MT could be used to address the various elements of PNI when treating individuals who have HIV.

Because so little information on the current area of research is available, the study is exploratory in nature. By definition, exploratory research is conducted when a new field is being investigated. The goal of such research is to formulate more precise questions that future research can answer (Neuman, 2000). As such, the purpose of the current study was not to determine the outcome of a specific hypothesis, but rather to collate information on a new research topic. Having said this, the researcher did find evidence that parallels do exist between PNI and D/MT, and since HIV/AIDS has been extensively researched from the perspective of PNI, this is a positive outcome.

Advocates of PNI have demonstrated in a considerable number of studies (Ader & Cohen, 1993; Cohen & Herbert, 1996; Fox, Shephard & McCain, 1999; Kaye, Morton, Bowcutt & Maupin, 2000; Zorrilla, McKay, Luborsky & Schmidt, 1996), that various elements of PNI do have an effect on immune functioning. These include stress, coping, social-support, control and self-esteem. Research on D/MT has shown that it can be effective in treating a number of physiological disorders (Berrol & Katz, 1985; Bojner-Horwitz, Theorell & Anderberg, 2003; Leste & Rust, 1990; Westbrook & McKidden, 1989) such as Parkinson’s disease, breast cancer.
and fibromyalgia. Furthermore, D/MT has been shown to be a useful source of social-support, effective in facilitating control and in improving an individual’s self-esteem. Lastly, there is a fundamental link between PNI and D/MT: both fields are based on the basic premise of mind-body unity.

These findings indicate that because PNI and D/MT share many of the same constructs and are based on holism and the unity of mind and body, D/MT could be an appropriate means of implementing the elements of PNI when treating individuals with HIV. However, as discussed above, because of the exploratory nature of the study, there are a number of limitations to these findings and which need to be rectified in future research undertakings.

### 6.2 Limitations of the Study

Despite the fact that efforts were made to ensure the soundness of the present study, there are inevitable shortcomings and limitations, which need to be considered when evaluating the study. Many of these limitations are a result of the study being exploratory in nature.

Very little information regarding psychoneuroimmunology and Dance/Movement therapy in a South African context is available. Most of the information collated in the study is based on findings of research conducted in the United States, the United Kingdom and in various European countries, which makes researching the topic cumbersome and sometimes not entirely accurate for the South African context.

Because the study was exploratory in nature, the aim was to collect and assemble as much information as possible regarding D/MT as an intervention for HIV. As such, no individuals were
involved in the study. Thus, the current study provides only a starting point from which future studies can begin and a framework around which they may be built.

6.3 Recommendations for Further Study

Knowledge accumulates by repeated studies (Wampold, 1996). Flaws in one study are often corrected in another and the consistent accumulation of conclusions tends to rule out competing points of view. This is new territory for the expressive arts therapies and the need for further research is underscored by the fact that there is very little research regarding the topic of the current study. As discussed in the limitations of the study, while this research provides a basis from which to begin, no research involving individuals was conducted. This is perhaps a starting point for individuals who wish to do further research on D/MT as an intervention for HIV.

As there is a great need for future research into this area, it is one that offers the researcher great opportunities. In a time when our country, and the rest of the world has been forced to think about the devastating effect of HIV/AIDS, it is important to explore and discover new, effective ways of treating this disease. Furthermore, it is imperative that researchers realise how much they are able to contribute using the expressive arts therapies.
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