ROLE OF HARDINESS, PERCEIVED SOCIAL SUPPORT, COPING STYLE ON QUALITY OF LIFE IN HIV-INFECTED ADULTS

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award of the degree of

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IN
PSYCHOLOGY

By
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Under the guidance of

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DECLARATION

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ABBREVIATIONS

HIV	: Human Immunodeficiency Syndrome
AIDS	: Acquired Immuno Deficiency Syndrome
WHO	: World Health Organization
WHOQOL	: World Health Organization Quality of Life
MSPSS	: Multidimensional Scale of Perceived Social Support
QoL	: Quality of Life

ABSTRACT

The Human Immunodeficiency Virus (HIV) compromises the body's immune system, specifically targeting helper T cells. It spreads through bodily fluids like semen and blood, primarily through sexual intercourse, contaminated needles, and from mother to child during childbirth. HIV progresses to Acquired Immunodeficiency Syndrome (AIDS), where the immune system weakens significantly. Without treatment, HIV can lead to AIDS, affecting individuals differently based on factors like age, other infections, genetic factors, and drug resistance. Anti-Retroviral Treatment (ART) is crucial in managing HIV, improving both the length and quality of life while reducing transmission. Living with HIV presents various challenges for infected adults. Beyond the physical implications, individuals may face stigma, discrimination, and psychological burdens. Quality of life (QoL) for HIV patients encompasses physical and emotional well-being, social support, and life roles. Factors such as physical health, ART, psychological well-being, social support, coping strategies, and spiritual well-being significantly influence QoL. Psychological hardiness, characterized by commitment, control, and challenge, may buffer the negative effects of stress on health. Perceived social support from family, friends, and significant others plays a vital role in coping with HIV, while coping strategies help manage stress and demands effectively. Despite these factors, literature detailing their influence on HIV patients' QoL remains scarce. Therefore, this study aims to investigate the impact of hardiness, perceived social support, and coping style on the QOL of HIV-infected adults. Also, it seeks to explore how sociodemographic & infection related factors contribute to QoL among HIV patients.

The current research utilized a correlational and predictive cross-sectional research design. The sample of the study comprised of 441 HIV-infected adults, aged 20-60 residing in Kerala. Samples were drawn from registered NGOs across different districts in Kerala catering to people living with HIV. Prior to data collection, rapport was established with participants, and informed consent was obtained, ensuring voluntary participation and the right to withdraw without consent. The study employed four psychometric tools, including Personal data sheet, quality of life - WHOQOL-HIV BREF (WHO, 2002), Singh psychological hardiness scale (Singh, 2007), the multidimensional scale of perceived social support (MSPSS), Brief COPE (Carver, 1997) questionnaires are used for data collection. Data analysis involved various statistical techniques, including descriptive statistics, non-parametric tests, correlation analysis, analysis of variance, and multiple linear regression. Normality of data distribution was assessed using the Kolmogorov-Smirnov test.

The research findings reveal significant differences in hardiness, perceived social support, coping styles, and quality of life (QoL) among HIV-infected adults across various sociodemographic and infection-related factors. Dimensions of hardiness have a positive relationship with physical, psychological, level of independence, and spiritual QoL. Hardiness does not predict social relationship or environmental quality of life among HIV-infected adults. Perceived social support, from family, friends and significant others, positively correlates with all domains of QoL. However, perceived social support does not predict physical or spiritual quality of life among HIV-infected adults. Various coping styles, including self-distraction, active coping, denial, substance use, emotional support, and others, positively correlate with different domains of QoL. Each coping style may have a negative correlation with spirituality quality of life. Different coping styles predict different

domains of QoL, with some overlapping predictions across domains. Sociodemographic and infection-related factors negatively predict psychological, level of independence, social relationship, and environmental QoL. They positively predict spirituality QoL among HIV-infected adults.

Given the positive correlation between perceived social support and various domains of quality of life (QoL), interventions aimed at enhancing social support networks among HIV-infected adults could significantly improve their overall well-being. Training programs could be designed to teach adaptive coping mechanisms while simultaneously addressing maladaptive strategies such as substance use. These emphasize the importance of adopting a holistic approach to enhancing resilience and hardiness among HIV-infected adults, one that addresses various facets of their lives beyond just personal strength. Given the overlapping predictions across different domains of QoL by coping styles and other factors, individualized care plans should be developed for HIV-infected adults.

Key words: Hardiness, Perceived social support, Coping Style, Quality of Life, HIV, HIV-Infected Adults

Chapter 1

INTRODUCTION AND REVIEW OF LITERATURE

Introduction

Review of literature

Relevance of study

Statement of the problem

Research questions

Definition of key terms

Objectives

Hypotheses

Immunity is a state of physical capability that resists the body from infection, diseases and other unwanted biological conditions. Several diseases alter the immune functioning of the individual and have been linked to psychological stress (Reiche et al., 2004; Dorian & Garfinkel 1987; Antoni, 2003). Alterations in immune function worsen the symptoms of both physical and mental diseases (Morey et al., 2015). It is connected to a number of diseases, including autoimmune infections, cancer, allergies, and infections (Shelley, 2012). Human Immunodeficiency Virus (HIV) attacks an individual's immune system, a particularly CD4 cell, which is our body's natural defense against diseases (World Health Organization [WHO], 2019). CD4 cells help our body to fight against different kinds of diseases and infections. The efficiency of the immune system depends primarily on these CD4 cells. The progress of HIV in the body depends on the age and general health of the individual. HIV is a sexually transmitted virus infection and it mainly proliferates through unprotected sex, people who have sex with same gender, sex workers and their customers, infected blood transfusions, sharing needle, mother to child during pregnancy, childbirth or breastfeeding (National AIDS Control Organization [NACO],2017). These risk factors put an individual at greater risk of HIV infection. It will not spread through air, water, or insect bites and will not spread through day- to- day contact like kissing, hugging and sharing personal objects. The virus enters the human body and it develops into flu within two or four weeks in certain people. Fever, headache, discomfort in muscles and joints, enlarged lymph nodes, painful mouth sores, weight loss, diarrhea etc are the other symptoms and indications of HIV infection. The symptoms of HIV infection vary as it depends upon the stage of infection. In most cases, within 28 days of infection, people develop antibodies. During this period, there are no signs

and symptoms of HIV. This is called window period. However, an individual with HIV infection may transmit HIV to others (WHO, 2023). Many of them are unaware of HIV infection until the later stages of infection. In the asymptomatic stage of infection, some individuals may not exhibit any symptoms. During these circumstances, they may not notice the minor symptoms of infection. This stage might last for many years. Some people develop symptoms of infection much sooner and the infection crosses more easily to the next stage of infection. In the next stage of infection (symptomatic), the virus continues to multiply and starts to destroy the immune system of the infected individual. If the people infected with HIV are not taking proper treatment for their condition, it reduces their immune capacity. Antiretroviral therapy (ART) stands as the primary treatment for HIV infection, extensively employed to lower mortality rates among HIV patients while enhancing life expectancy (WHO, 2019). Following the initiation of highly active antiretroviral medication, individuals living with HIV should vigilantly assess their health-related quality of life, as studies indicate a notable enhancement in QoL among patients post-treatment commencement (Jia et al., 2004).

If HIV is not treated properly within 8 to 10 years, it turns into Acquired Immune Deficiency Syndrome (AIDS). AIDS is considered a chronic infection and life threatening disease because the last stage of HIV infection causes irrevocable damage to the patient. During this stage, the count of CD4 cells falls below 200 in an AIDS patient. When AIDS occurs, the immune system destroys and makes the person more likely to get other infections. They are called opportunistic infections, and might lead to cancer (WHO, 2019). HIV can be identified through rapid diagnostic tests that can provide results on the same day. It facilitates immediate treatment and care for the infected. However, a confirmatory test is required for a

complete diagnosis of HIV, conducted by a nationally qualified clinic. A person diagnosed with HIV should be retested and must start the treatment immediately.

An epidemiological study reveals that at the end of 2022, it's estimated that there were approximately 39. 0 million individuals living with HIV, with the majority, totaling 25. 6 million, situated in the WHO African Region. In the same year, HIV-related causes claimed the lives of 630,000 individuals, while 1. 3 million people acquired HIV. According to projections, around 0. 7% [with a range of 0. 6%–0. 8%] of the global adult population, spanning ages 15 to 49, are dealing with HIV infection, with significant variations in the severity of its manifestation observed across nations and regions (WHO, 2023). It is estimated that 24. 01 lakh people are infected with HIV in India. In 2021, 69000 people will be newly diagnosed with HIV infection in India. Kerala is a state with low HIV infection prevalence. HIV prevalence among adults is 0. 22 in India and 0. 06 in Kerala (KASACS, 2023). Kerala is a state with a comparatively low rate of HIV infection. Keralites migrate to other states and countries for employment and education, and people from other states migrate to Kerala at an increasing rate, increasing our risk of HIV spread. However, as survival rates increased, additional issues came into focus, including worries about the quality of life possible for people living with HIV.

HIV is considered as a chronic condition (Kathella, 2021). It can be mild or severe, and it can affect your physical, emotional, and social well-being. Chronic infections can arise due to a range of influences, including genetic predispositions, individual behaviors and exposure to environmental elements. They can also be the result of other health conditions, such as injuries or infections. Chronic infections can have a significant impact on our life. They can limit the individual’s ability to

work, or participate in activities. They can also increase the risk of other health problems, such as disability and premature death. Management of chronic infection requires an understanding of their self. It will help them to cope with their chronic situation. Some chronically ill people struggle to resume regular social interactions after diagnosis. They might encounter sympathy or rejection from others. They might completely isolate themselves from other people or rush into social situations before they are ready. The patient's changing condition may cause acquaintances, friends, and family members to experience difficulties adjusting. Many individuals have unfavorable preconceptions about particular populations of chronically ill patients, such as those who have cancer or AIDS (Fife & Wright, 2000). Treatment for chronic infections cannot be standardized for all cases. The best approach will vary depending on the specific condition. However, most chronic infections require ongoing medical care and management. This may include medication, lifestyle changes, and regular check-ups with your doctor. Living with a chronic infection can be challenging. However, there are many available resources that will help the patient with coping and living a full and active life.

Although many individuals with chronic infections experience distress, most do not seek professional or informal therapy for their symptoms, opting instead to rely on their own resources and support from others to address issues and alleviate psychological distress. Being informed that you have HIV is a significant source of stress. The stresses in one’s life are related to the health of the individual. Different people attribute different meanings to their life events. Those people identified with HIV are considered as highly stressed. Stress always reduces the activity of immune response. It makes an individual more vulnerable to infection. Long-term negative emotions can alter the equilibrium of a person's regular physiological mechanisms

and lower their immune function (Li et al., 2020). People living with HIV develop more antibodies in less stressful living conditions. Various psychological factors may act as buffers against the harmful consequences of stressful situations (Dantzer et al., 2018). There are lots of variables that may help to decrease the stress level of people living with HIV. The effects of HIV on the lives of persons living with HIV/AIDS can develop psychologically as a variety of feelings, including despair, stress, and a variety of anxiety difficulties (Qin et al., 2018; Ruffell, 2017). HIV-related psychological stressors could directly affect the immune system. Stress may weaken the immune system in part because it makes unpleasant feelings like despair and anxiety more prevalent. These immunological effects were found in one study to be more pronounced in older individuals and those who had just been hospitalized, suggesting that those who are already at risk are particularly vulnerable (Miller et al., 1999).

The advanced stage of HIV infection, reflected in a variety of discriminatory behaviors, such as discrimination, stigma, social rejection and isolation within the family, community, health-care system, and job, may collectively contribute to these psychological effects (Ashaba et al., 2017; Brittain et al., 2017). Other aspects of the psychological effects of HIV on infected people include feelings of humiliation, remorse, and self-blame. Depression, worry, and anxiety are said to be brought on by job loss, decreased income, and increased healthcare costs among them. These difficult psychological effects may also be the factors that aggravate the quality of life (QoL) and poor health of HIV-infected adults Therefore, more initiatives to deal with the emotional consequences, in addition to other effects of HIV illness are required and considered crucial for HIV infected adults. Making sense of the world is one method that they might use to deal psychologically with having the virus. It is

a strategy that may assist individuals who are dealing with challenging situations in finding purpose and overcoming the unfavorable effects of such situations. In addition to psychological strain, majority of them suffer from a variety of physical symptoms, including fatigue, weakness, and pain, which negatively affect medication and QoL of HIV infected adults. HIV infection is a pandemic that is spreading around the world and is seen as a public health issue. Treatment advancements increased HIV-infected people's chances of survival, though not necessarily with a high quality of life. In other words, the quality of life pertains to how individuals perceive their circumstances, encompassing their goals, aspirations, standards, concerns, and the cultural and value systems within their environment. It is crucial to evaluate quality of life in order to comprehend how people living with HIV will survive (WHO, 2019). The survival of individuals with HIV has increased due to the latest developments in clinical testing and treatments, and the quality of life (QoL) of these patients has drawn significant attention from researchers and healthcare professionals (Clayson et al., 2006). Many HIV/AIDS patients find it difficult to manage their everyday duties. They engage with moderate intensity or with low energy to maintain an active social life (Breitbart et al., 1998). Poor QoL (Zinkernagel et al., 1999) has been linked to fatigue or low energy in people with HIV/AIDS. The risk of serious adverse life events and chronic medical disorders increases with HIV infection.

In this context, the discovery of HIV infection in adults necessitates a different perspective on life to adapt and successfully handle the difficulties brought on by the diagnosis, aiming toward creating coping mechanisms to deal with living with HIV. With these techniques, people can experience less pain, conflict, and weakness, which in turn gives them more confidence, hope, and stress-free life. HIV

infection can result in issues with self-worth, coping, social isolation, and poor psychological health and wellness. Most individual with HIV often suffer symptoms of other infections, which negatively influences their well-being and quality of life. Challenges persist and become a regular part of daily life for the person with any chronic condition. The awareness of the quality of life (QoL) related to individuals living with HIV/AIDS arises from its significant impact on both the individual and society as a whole. Beyond clinical parameters and treatment results, QoL research is conducted. It explores people's subjective feelings, perceptions, and general state of wellbeing. Studies show that people with improved quality of life (QoL) are more likely to follow their treatment regimen, which improves health outcomes and lowers the risk of developing viral resistance (Rai et al., 2010; da Silva et al., 2013; Burgoyne & Renwick, 2004). Investigating aspects including stigma, prejudice, mental health, and social support is made possible by studying QoL. To create a responsive and supportive healthcare ecosystem, it is imperative to have a thorough grasp of the quality of life of HIV infected adults. There are several reasons for studying the quality of life of a person with chronic infection. The quality of life affects daily activities of a person. It helps to identify their exact problem, to measure the impact of treatment, to know the effectiveness of therapy. Information on quality of life can teach healthcare professionals how to provide patients with the best possible long-term survival (Kaplan, 2003). Various psychosocial factors impact the quality of life of adults living with HIV. Among these, researchers examine elements like hardiness, perceived social support, and coping style.

Hardiness

Kobasa (1979) introduced a new concept of personality called “hardiness”. It attempted to explain why some people are less affected by stressful events in their

life. She believes that hardy people are protected from the impact of stressful life events due to their adoption of specific emotional and behavioral reactions. Hardiness, a personality trait characterized by three components: commitment, control, and challenge. Commitment is the tendency to invest oneself fully in one's work, relationships, and other activities. Hardy people are committed to their goals and values, and they are not easily discouraged by setbacks. Control is the belief that one can influence the course of events in their life. Hardy people believe that they have some control over their destiny, and they are not easily overwhelmed by stress. Challenge is the view of change as an opportunity for growth and development. Hardy people see change as a challenge, and they are not afraid to take risks (Kobasa1979).

All individuals are different in ways of their personality traits and it is important to analyze what personality traits related to the perceptions of the stress is experienced by the individual. Hardy people give priority to setting new goals and maximizing their capabilities. Those higher in hardiness tend to suffer less from stress than those low in hardiness (Banks & Gannon, 1988). A hardy person remains strong both physically and mentally when he or she confronts trauma, stress or a life obstacle. Psychological hardiness encompasses convictions, outlooks, individual characteristics, and behavioural patterns that set mentally resilient individuals apart from those susceptible to developing infections. Individuals with hardiness trait maintain a sense of commitment to their life and feel deeply intertwined with their everyday activities. They exert such dominance on their own circumstances because they have control over their lives. They see the changes, obstacles and issues in their lives as possibilities for growth and further development. (Adler & Dolan, 2006).

According to Kobasa (1982), hardy people might not be less ill than non-hardy people, but rather they might simply be less willing to acknowledge their infections.

All these three C's (commitment, control, and challenge) of hardiness are the steps to resilience under stress (Bonanno, 2004; Maddi, 2005). According to Kobasa, those people who have high level of hardiness exhibit resilience against the adverse effects of life stressors and have a lower likelihood of falling ill compared to those with low hardiness levels. They may be more resistant to infection because they find changes in their lives to be less stressful (Kobasa, 1979). Hardiness helps to provide a successful resolution to the stressful situation of an individual (Kobasa & Puccetti, 1983). Hardiness provides necessary motivation, courage and ability to believe in their own effectiveness and make good use of available resources. Hardiness is a mentality that combines the fortitude, drive, and capacity needed to transform environmental and developmental challenges into chances for healthy growth. (Thomason & Morris, 2009). Studies show that, those with poor psychological hardiness will eventually develop diseases, whereas those with high levels of hardiness are resistant to the harmful effects of stress (Seiler et al., 2020;Kowalski & Schermer, 2019).

A research cited by Kobasa (1982a) offers a possible explanation for how hardiness affects health. In particular, the subcomponents may have their impacts due to a decreased usage of inadequate or regressive coping mechanisms. These findings are in line with Rhodewalt and Agustsdottir's (1984) study on how resilient people view events in their lives. They claimed that while hardy people do not go through life in a way that is qualitatively different from how non-hardy people do, they do tend to regard their experiences more favorably and as being under control. When a patient is told they have a chronic condition, both the patient and his or her

family go through a lot of stress. The stressors prevent the patient from adjusting by interfering with physiological, psychological, and psychosocial processes. Chronic sickness is a state of altered health that cannot be reversed by a straightforward surgical procedure or a brief course of medical treatment (Fitzgerald Miller, 2000). Finding the hardiness trait in patients with numerous chronic infections has practical consequences and it has been established that hardiness explains variation in human reactions. Many individuals who suffer from chronic infection handle not only one disease but occasionally even two or three. Hardy individuals' exhibit psychological anguish when they believe that events are either completely beyond their control or only loosely under their control. But, they have a lower likelihood of experiencing it than those who lack hardiness. Despite the fact that these findings imply that hardiness is a valuable indicator of health and sickness, when faced with a crisis, people could spend their energy blaming others or themselves rather than trying to find a way to improve their situation. Hardiness is supposedly about making the most of the situation minimizing. According to research on hardiness, people who score highly on hardiness have better physical and mental health (Florian, Mikulincer & Taubman, 1995). A person with infection has a different personality and he/she experiences a high level of stress compared to those without infection. Stress can be both short lived and longer experienced as it may impact both the physical and psychological functioning of an individual. If not managed effectively, the stressful situation can pose a significant threat to the individual's health and wellness. The study of previous researchers shows that stressful life events are the significant contributors to the development of physical infection (Dohrenwend & Dohrenwend, 1974; Rabkin & Struening, 1976). During a period of stress, most

people experience low level of health and performance. It shows that there is a link between stress and health.

The idea of hardiness has even more importance when it comes to adults living with HIV. Without a question, having HIV is a difficult journey full of social, mental, and physical complications. Despite these difficulties, a significant number of adults living with HIV exhibit exceptional levels of resilience, which has a significant impact on their general well-being and quality of life. Hardiness necessitates the HIV infected adult's ability to maintain consistent treatment adherence despite the challenges of side effects, burden, and logistical barriers. This adherence is crucial for achieving viral suppression and preserving immune function. Significant psychological difficulties, such as anxiety, despair, and existential discomfort, are frequently brought on by HIV infection. Being hardy helps the HIV infected adults to create healthy coping strategies, such talking to others, social support, going to therapy, or meditating. These techniques provide them confidence to face their feelings, build resilience, and have an optimistic view on life.

Many individuals with chronic infections believe that they have some control over their circumstances, have optimistic expectations for the future, and have favorable opinions of themselves. Most of the time, these beliefs are adaptable for both mental and physical wellness (Taylor, 1983). HIV-positive people with hardiness tend to be dedicated to their goals and values, and they are not easily discouraged by setbacks. They have a strong sense of purpose and meaning in their lives. HIV-positive people with hardiness believe that they have some control over the events that happen in their lives. They do not see themselves as victims of circumstance. Instead, they believe that they can take steps to improve their

situation. HIV-positive people with hardiness view change as an opportunity for growth and development. They are not afraid to take risks and try new things. Being aware of one's ability to control a stressor is typically linked to improved coping with that stressor, and this applies to people living with HIV as well (Benight et al., 1997; Rotheram-Borus et al., 1996). Hardiness obviously facilitates successful coping with a chronic condition like HIV. Numerous studies have discovered a relationship between hardiness and quality of life (Asadiet. al., 2006 ; Mirzaian, 2021). Hardiness has been shown to be associated with a number of positive outcomes for HIV-positive people, including better physical health, reduced psychological distress and improved social relationships. Having a strong sense of purpose can help HIV-positive people to cope with the challenges of living with HIV. It can give them something to strive for and help them to feel like their lives have meaning. HIV-positive people can take steps to control the things that they can control, such as their diet, exercise, and stress levels. They can also learn about HIV and how to manage their health. HIV-positive people can view change as an opportunity for progress and transformation. They can use change as a chance to learn new things and to challenge themselves.

The advantages of hardiness on the quality life of Individuals who have HIV, including hardy characteristics, can obviously facilitate successful coping with their chronic condition. When assessing hardiness in the quality of life of HIV infected adults, it should be taken into account whether such hardiness develops through time in reaction to life events. The hardiness of adults living with HIV is an evidence of the extraordinary resilience of human spirit in the face of hardship. These people overcome the constraints placed on them by their diagnosis and exemplify what it means to live a life of dignity and purpose through resilience, tenacity, and

empowerment. Considering the present state of literature, there exists minimal empirical evidence regarding the correlation between hardiness and the quality of life among HIV-infected adults. A comprehensive understanding of hardiness could potentially enhance the quality of life of HIV infected adults. The present study aims to investigate the role of hardiness in contributing to the quality of life of HIV infected adults.

Perceived Social Support

Perceived social support is the subjective evaluation of the availability and adequacy of social support. It is a person's perception of how much support they will be given by their friends, family, and significant other support (Zimet et al. 1988). Perceived social support is a person's interpretation of the assistance they expect to receive from friends, family, and significant others, irrespective of its actual presence. When it comes to its impact on health, perceived social support holds greater significance than the actual provision of support (Berhe et al. 2022). The different forms of assistance that people perceive and receive from others are referred to as social support (Seeman, 2008). Social support is vital in disease prevention, maintaining overall health, ensuring adherence to therapy, and aiding in the recovery journey from infections. (Hao & Liu, 2015). People with the same chronic ailment may proceed differently and recover at different rates. One of the factors affecting how a disease progresses, is social support. Social support might serve as a shield and be linked to good health. Lack of social support may contribute to infection progression. Social support may have a significant impact on reducing the stress that HIV-positive people have to face. Infection always causes stress and it is significantly more stressful than other stressors in life. Individuals with chronic infection have an increased chance for psychological problems. Chronic infection

will have long term effects on the mental health and quality of life of HIV infected people. Social support reduce harmful effects related to stress that may arise from the life events and chronic condition. Berkman et al. (2000) stated that there is a widely accepted recognition of the significant influence that social relationships and affiliations exert on both physical and mental health, as well as overall well-being. Moreover, research findings consistently indicate that individuals who experience social isolation or marginalization tend to exhibit poorer psychological and physical health, and they are also at a higher risk of premature mortality due to various infectiones (House, Landis, and Umberson in 1988). The comprehension of how social networks impact health status, health-related behaviors, and the decision-making processes pertaining to health contributes significantly to the development of effective interventions aimed at preventing adverse health outcomes

Perceived social support usually focuses on the number of people who can help and this has an impact on the person's health. Main effect hypothesis and stress buffering hypothesis theories have explained the role of social support in health status (Cohen & Wills, 1985). According to the main effect hypothesis, social support is beneficial on its own, and its absence can lead to increased stress in life. This suggests that social support serves as a mediator in the stress-infection relationship and regardless of whether an individual is experiencing stress or not, social support has a positive impact on their health outcomes. According to the stress buffering hypothesis, social support influences a person's assessment of possible stressors and aids in coping with stress, moderating the stress-infection link by protecting the person from the stressor. Social support buffers individuals from the negative impacts of stressful situations and occurrences. One theoretical stance in the social support literature holds that social support acts as a buffer against

trauma or stress (Goldsmith, 2004; MacGeorge et al., 2011). Support lessens some of the detrimental effects that stress has on health outcomes. (MacGeorge et al., 2011). This protective effect of social support is believed to lower the effects of stressors as well as reactions to those stressors. It has been demonstrated that among HIV-positive individuals, low perceived social support is a significant predictor of emotional discomfort. Numerous studies validate the direct impact of social support on the response of immune system (Greene et al., 2013; Maman et al., 2014; Nunes et al., 2003; Posada et al., 2014; Qiao et al., 2014). People who view themselves to have a lot of social support tend to have more positive self-descriptions and fewer negatives. These positive self-assessments may then encourage the development of more useful coping mechanisms that can be applied when facing particular situations. (Zeidner & Endler, 1995). Social support is that it may help people handle stress in their lives more skillfully. One's capacity to deal with obstacles in life may be improved by feeling that others are willing to help. Good social support either enhances health or provides some level of infection protection. Researchers have been interested in social support, since it may have an impact on health outcomes in various circumstances (Bastardo & Kimberlin, 2000). Amidst growing attention, it is recognized that social support can serve as a valuable resource for safeguarding individuals during stressful circumstances, potentially impacting both quality of life and health outcomes (Yang, et al., 2003). There is now plenty of data to support the idea that social support can be used to mitigate the detrimental effects of stressors on one's health (Yang et al., 2003).

There are many sources of support that have been identified, including family, friends and support from others (Zimet et al., 1988). According to Greenberger et al. (2000) social support comes from family, friends, and peers who

can offer emotional support. Professional and other social relationships within the community could also be potential sources of support (Brashers et al., 2002). Earlier research has examined two sources of social support. The initial source pertains to support from family and friends, whereas the second relates to assistance from government, nonprofit organizations, and the healthcare sector. (Shippy, 2007). Peer counselors and other health professionals are crucial in offering guidance and assistance to individuals seeking counseling and medical treatment, thereby fostering hope (Akinsola, 2001; Harris & Larsen, 2008). An important factor in the quality of life of HIV infected adults is how they evaluate their social support system. The perceived help or encouragement people get from their social networks—friends, family, and the others—are referred to as social support. Social support can be extremely important for adults living with HIV in managing the difficulties brought on by the infection.

Social support from peers helps the people living with HIV for better psychological functioning. However, it becomes a more significant factor in determining psychological wellbeing during times of stress (Crystal & Kersting, 1998). Additionally, those with HIV who feel content with the level of assistance offered to them have a tendency to have reduced psychological discomfort and an improved quality of life, whereas those who believe they receive little or no social support feel more depressed. HIV-positive people might benefit from social support in many different ways. It is more likely for HIV-positive individuals with support to improve their sense of self-worth, confidence, and self-efficacy. People without support may engage in habits that are harmful to their health, like binge drinking and excessive smoking. On the other hand, HIV-positive people who receive greater support are more likely to practice other health-promoting behaviors, such as taking

their medications consistently. The ability of people with HIV to assess their stress and cope with it can be improved through social assistance. Social support networks can help individuals find coping resources that are now unavailable to them and can assist their efforts to deal with stressors in their lives in an adaptive way.

On the other hand, a lack of social support may have unfavorable effects on the lives of HIV infected adults. Research has demonstrated that perceived social support is linked to favorable outcomes and reduced adverse effects among individuals living with HIV (McDowell & Serovich, 2007). HIV diagnoses frequently come with depression, especially for those with minimal social support. Bereavement itself may make the disease more likely to advance (Bower, Kemeny, Taylor, & Fahey, 1997). Suicidal thoughts are frequent, especially in those who are socially isolated (Heckman et al., 2002). For instance, it has been discovered that psychological impairment in people going through a crisis is connected to low expectations of help from others, such as family, friends, or others (Lazarus & Folkman, S. 1984). Such findings emphasize the significance of others' perceived availability for support in coping with life's obstacles as well as their presence during times of crisis. Stressful situations and social support were connected to the progression of HIV into AIDS. (Coleman, & Holzemer, 1999). These findings postulate that social support encourages HIV infected people to see stressful situations less adversely and social support protects people against the harmful consequences of stressors. (Lakey& Cohen, 2000).

The relationship between perceived social support among individuals with HIV and their health-related quality of life has been extensively established, indicating a significant influence. (Nunes et al., 1995). According to studies on Individuals who have HIV, a positive social environment, especially acceptance

from friends and family, was substantially related to quality of life (Friedland, 1996; Ichikawa & Natpratan, 2006). Maintaining the well-being and social support of individuals living with HIV is required for taking care of their physical, psychological, and social relationships (Srisurapanont, et al., 2001; Bastardo & Kimberlin, 2000). Physical functioning is harmed by a lack of social support (Remor, 2002). Additionally, the type of social support has an impact on life quality since emotional support reduces pain, inability to engage in normal activities, depression and anxiety symptoms, and physical and mental suffering. (Strine, 2008).

Higher levels of social support could potentially lessen the negative impact of various factors, such as disease progression, symptoms, social stigma, and psychosocial stressors, on the quality of life experienced by HIV infected adults. In the present study, the researcher tries to uncover the correlation between perceived social support and the quality of life among HIV-infected adults.

Coping Style

According to Carver et al. (1989), coping style is "a habitual way of responding to stressful events. " They found that people tend to have a preferred coping style, but they may also use other coping styles depending on the specific situation associated with different outcomes. Coping is the use of ideas and behaviors to manage the demands of stressful events on both the inside and outside of the individual. There are several significant traits of coping. Coping with a stressful situation has a dynamic and a sequence of interactions between an individual and a specific environment, each of which has its own resources, needs, and limitations (Folkman & Moskovitz, 2004; Taylor & Stanton 2007). Coping is not a single action that someone performs but rather a series of reactions that takes

place over time and allows the environment and the individual to impact one another. The objectives of coping, according to Cohen and Lazarus (1979), are to lessen stressful environmental situations and increase the likelihood of recovery, tolerating or adjusting to adverse situations to keep a favorable perception of one, to keep one's emotions under control and to maintain fulfilling relationships with other people. The idea of a coping "style" generally reflects the "trait" approach and implies that people have fairly consistent coping mechanisms. Almost all chronic conditions necessitate some kind of self-management. Patients may not be effective co-managers. It indicates the potential challenges faced by individuals living with HIV. These challenges include non-adherence to treatment plans, difficulty in recognizing returning or worsening symptoms of other infection, and engagement in risky behaviors such as smoking and drug abuse, which can have detrimental effects on their health. An essential part of managing a chronic condition is coming to a realistic understanding of the limitations imposed by the condition as well as the necessary regimen. Patients frequently have trouble adjusting to chronic sickness when they adopt an incorrect paradigm for their disorder.

Living with a life-threatening infection is difficult for anyone, but HIV-positive individuals may find it more difficult than others (Gaynes et al., 2008; Whetten et al., 2008). They are more likely to have a history of traumas and co-existing mental health issues, such as anxiety disorders, depression, and drug abuse disorders. As a result, they might not have very effective coping mechanisms at their disposal. HIV patients have unique difficulties. Since HIV infection is now a chronic condition as opposed to an acute one, psychological concerns brought on by chronic sickness are more prominent. It is important to focus on how people with HIV and AIDS use psychological or behavioral coping mechanisms for dealing with their

current condition. The magnitude of the stressor and the stress-infection relationship are both thought to be affected by coping. Coping mechanisms serve as a link between psychological stress and adverse health effects, and they are crucial for preserving both physical and mental health (Rodrigue et al., 2000). HIV-positive individuals and their families must deal with a variety of stressors brought on by their medical and psychosocial difficulties. Coping strategies make a cognitive and behavioral attempt to cope with stressors or demands that place a strain on the person's resources(Lazarus & Folkman,1984). Families' psychological and physical health may be influenced by how they handle these difficulties. Coping techniques can help people living with HIV to handle the discomforts associated with their HIV efficiently (Finkelstein-Fox et al., 2019). Utilizing coping mechanisms help to cope with their personal and psychosocial problems. The psychological effects of HIV infection can be significantly influenced by how a person manages the demands of the condition. Effective coping is associated with increased quality of life (QoL) and decreased risk-taking (Friedland et al., 1996). Numerous studies have shown that a patient's individual coping strategy might affect immunological responses, particularly if it is connected to the occurrence of extremely stressful situations (Leserman et al., 1997).

Researchers describe different types of approaches for coping, namely problem-solving and emotion-regulation techniques, adaptive and maladaptive coping methods (Lazarus & Folkman, 1984). Those who use problem-focused coping strategy make an effort to lessen the stressor's demands or improve the resources available to handle it. On the other hand, people with emotion-focused coping strategies, make efforts to control the feelings that the traumatic experience has brought up. People control their emotions through both behavioral and cognitive

techniques. Active coping, planning, suppression of competing activities, religious observance, seeking emotional support and social support, as well as accepting the infection, are examples of adaptive coping. In addition, increased CD4 counts and viral load suppression have been connected to effective adaptive coping. (Earnshaw et al., 2018; Kremer et al., 2015). Maladaptive coping strategies, on the other hand, have been linked to a rise in infection progression (Earnshaw et al., 2018). Disengagement or avoidance form of coping such as self distraction, drug use, alcohol consumption was linked to more health-related stress and poor social functioning (Schmitz & Crystal, 2000;Moneyham et al., 1998). Frequent use of avoidance mechanisms including withdrawal and aversion may also relate to poor social interaction. Social isolation and poor social interactions cause stress to the individual and this will, in turn, affect the ability of the person to ensure effective social functioning (Fleishman et al., 2000). All these imply that coping through avoidance may really have a negative impact on productivity. Friedland et al (1996) discovered that increased utilization of problem- and perception-focused coping mechanisms correlated with enhanced quality of life among individuals living with HIV. Perspectives on different aspects of life vary among individuals, and the sense of control over one's life varies accordingly. Avoidance and acceptance coping techniques are typically seen as maladaptive and linked to lower quality of life, while confrontation coping like social support is generally seen as adaptive and linked to higher quality of life (Rodrigue et al., 2000). Additionally, recent research has revealed a relationship between declining avoidance coping and decreased psychological distress in people living with HIV (Cherenack et al., 2018). Active coping techniques strengthen a sense of control over their problems (Nyblade et al., 2003; Silva et al., 2008) whereas prolonged use of maladaptive methods such as

denial, emotional outbursts, and behavioral disengagement are signs of a poorer adjustment, which avoids coping with change. Maladaptive coping mechanisms and stress may contribute to immunological deterioration (Nyblade et al., 2003; Deichert, 2008).

The present study emphasizes the significance of coping behavior as a factor in determining the quality of life of people living with HIV, and how people subjectively view different parts of their lives. Levels of discomfort and unhealthy coping strategies are factors that are related to physical functioning, energy/fatigue level, social functioning, and role functioning of HIV infected adults. Individuals develop coping strategies to reduce their stress and improve their quality of life. However, some coping strategies that lessen current stress may eventually result in a lower quality of life, making the person less adaptive (Carver et al., 1989). Coping mechanisms used by them are influenced by their socio-cultural context and it is crucial to identify the coping mechanisms employed by HIV infected adults that improve their quality of life. This study looks at the impact of coping styles on the quality of life of HIV infected adults.

Most people manage HIV fairly well in the long run. The majority of HIV-positive persons modify their health habits for the better nearly right away after being diagnosed, including eating healthier, exercising more, quitting or cutting down on smoking, and lowering or discontinuing drug usage (Collins et al., 2001). Meditation practice and training in coping mechanisms may also help patients acclimatize to the sickness (Seyed Alinaghi et al., 2012). Research indicates that implementing adaptive coping methods among individuals with HIV can lead to improved psychological outcomes, potentially reduce depression, and influence the progression of infection. (Fauk et al., 2020). Studying the predictors of coping

mechanisms in individuals living with HIV is essential due to their significant impact on various health outcomes. Researchers have consistently found that coping mechanisms play a mediating role in the relationship between psychosocial factors, such as social support and quality of life, among people living with HIV (Shrestha et al., 2019). People living with HIV must manage many acute infection-related stressors, such as worry about infection progression (McIntosh & Roselli, 2012), relational changes (Kalichman et al., 2003), experienced or anticipated stigma associated with their HIV-positive status (Earnshaw & Chaudoir, 2009). All these affect the quality of life of HIV infected adults. Patients use different coping mechanisms. It has been demonstrated that difficulties managing disease are a common cause of poor quality of life. To comprehend the dynamics of the disease and the effects of coping style, it is essential to understand the relationship between coping strategies and quality of life among the HIV community.

A tremendous degree of persistent stress experienced by adults living with HIV results in affective and behavioral changes, making the disease chronic. Reports of coping mechanisms are described in terms of the activities and cognitions a person uses to deal with difficult situations. People with HIV have severe mental health requirements as a result of bereavement associated with the disease. This seems to still contribute to the quality of life. Interventions for coping are required to lessen psychological suffering in individuals with HIV (Sikkema et al., 2003). In this study, we aim to investigate how various coping strategies impact the mental well-being and overall quality of life among adults living with HIV. Our hypothesis posits that individuals exhibiting lower levels of hardiness personality traits, perceived social support, and engaging in maladaptive coping mechanisms will experience a diminished quality of life.

Quality of Life

Enhancing quality of life (QoL) has risen as a significant metric in medical assessments, with prioritizing its advancement becoming a primary goal. QoL includes components such as psychological status, medical adherence, physical and social functioning. Quality of life focuses on the management of chronic infection. As it is understood that HIV infection can have an impact on many aspects of patients' lives, quality of life in HIV infected adults is a term that has gained more attention in the literature. (Buseh et al., 2008). Quality of life refers to an individual's perception of their place within the cultural values of their society, considering their aspirations, expectations, and personal standards (Whoqol Group, 1995). A patient's wellbeing is influenced by a variety of social and psychological factors in addition to their physical status and treatment response. To better adapt to health and social care services and enhance HIV infected adults' functioning and wellbeing, it is critical to identify the variables that influence QoL. Identifying QoL related elements that may be changed may make it easier to provide additional services to those who need them in order to improve quality of life of HIV infected adults. (McDonnell et al., 2005).

The World Health Organization defines quality of life as how individuals perceive their standing in society, taking into account the cultural and value systems of their environment, as well as their personal goals, expectations, standards, and concerns (WHOQOL, 2012). This definition emphasizes that the quality of life of HIV-infected people is a subjective experience, and that it is influenced by a variety of factors, including physical health, mental health, social relationships, and economic circumstances (American Psychological Association [APA], 2023). Quality of life has been recognized as a fundamental element of overall health for

individuals living with HIV (Copfer et al., 1996; Wu & Lamping, 1994; Lubeck et al., 1993). Quality of life" has been used to refer to a person's entire sense of wellbeing, including their level of happiness and general level of life satisfaction. It is difficult to assess since it encompasses so many different domains, including health, housing, employment, education, neighborhood, culture, values, and spirituality (Costanza et al., 2007). The term "quality of life" is often utilized to gauge the extent to which human needs are fulfilled or the satisfaction levels individuals or communities experience across different facets of their lives. Essentially, it serves as an indicator of subjective well-being relative to the fulfillment of objective human necessities. (Smith et. al., 1996).

The social obstacles encountered by individuals living with HIV, such as stigma, economic hardship, emotional distress, substance misuse, and cultural perceptions, significantly impact their overall well-being, including physical, mental, and social aspects of life. These hurdles can also significantly impede patients' engagement in meaningful activities and pursuits (Aranda-Naranjo, 2004). Health quality of life includes elements that have an impact on one's physical or mental health. They encompass perceptions about one's physical and mental health as well as numerous infections that may have an impact on them. These include socioeconomic position, functional status, social support, and health risks and problems. (Costanza et al., 2007). Healthcare providers prioritize assessing the effectiveness of HIV treatment by evaluating the Quality of Life (QoL) of individuals living with the virus, according to research conducted by Vu et al. in 2020. QoL provides valuable information about efficiency and effectiveness of health care programmes to healthcare professionals. Quality of life encompasses elements including physical, psychological, social, level of independence,

spirituality and environment. Patient's state of health and infection affects their quality of life. According to Vetter (2009), enhancing quality of life stands as a crucial health indicator warranting improvement. Factors such as compromised immune response, non-compliance with treatment, mental health challenges, and the severity of infections have all been correlated with diminished QoL (Vu et al., 2020). Most people would like to live shorter but with a better quality of life (Zimpel and Fleck, 2007).

Patients' quality of life (QoL) in relation to their health is severely impaired by HIV/AIDS. Psychiatric conditions, particularly those associated with the progression of HIV, were found to detrimentally affect dimensions of Health-Related Quality of Life (HRQOL), such as mental well-being, social interactions, and overall health perceptions, more significantly than physical health, as highlighted by Bettinger in 1997. It is important to note that the quality of life of HIV-infected people is not a static measure. It can change over time, depending on a person's circumstances. For example, the quality of life of an HIV-infected person may improve if they are able to get treatment for a chronic infection or if they are able to build stronger social relationships. The quality of life of HIV-infected adults is an important issue to consider when developing health policies and interventions. By understanding the factors that influence the quality of life of HIV-infected adults, we can work to improve their quality of life and help them live longer, healthier lives. Consequently, it is crucial to identify the variables that might have an impact on quality of life.

The current understanding of HIV infection as a chronic condition places a substantial emphasis on the diagnosis and management of symptoms with the aim of delaying disease progression and maintaining optimal QOL. Researchers have

therefore tried to uncover factors that are correlated with health related quality of life (Nair & Muthukrishna, 2009). Finding these correlates can assist researchers, healthcare professionals, and patients in determining the best areas for action in the healthcare system. Here the researcher tries to uncover the role of hardiness, perceived social support and coping style on the quality of life of HIV infected adults. Literature review shows that HIV infected people with higher hardiness had higher quality of life (Mirzaian, 2021). Another factor to consider is social support, which research indicates is positively linked with the health-related quality of life among individuals with HIV. (Viswanathan et al., 2005). Reviews indicate that coping styles are related with better quality of life of HIV infected people (Kohli et al., 2016) Furthermore, factors encompassing both physical and mental well-being, alongside socio-demographic characteristics including age, gender, educational attainment, income level, and employment status, have demonstrated significant correlations with the quality of life among individuals affected by HIV (Cowdery & Pesa, 2002; Murri et al., 2003).

The present research tries to identify how the variables such as hardiness, coping style and perceived social support, will contribute to betterment of quality of life for people living with HIV. Several studies have been conducted about the quality of life of HIV people (Basavaraj et al., 2010; Nirmal et al., 2008;Murri et al., 2003). The relationship between hardiness, coping style, perceived social support, and their impact on the association with quality of life in HIV-infected adults in Kerala remain uncertain and require further investigation. In order to fill the gap in the literature, this study intends to look at the role of hardiness, coping style and perceived social support in the quality of life of HIV infected adults. All these factors emphasize the complexity of a person's behavioral or emotional reactions to

disease. The present study highlights the significance of quality of life of HIV infected adults, with the effect of above mentioned psychological variables.

Review of literature

The subject of quality of life has been subjected to considerable scrutiny in recent years, especially with regards to chronic illnesses. It is important to consider how it is measured and assessed at individual and community levels. Chronic conditions like HIV and issues concerning hardiness, perceived social support, coping style and quality of life (QoL) have emerged as important components of care. Hardiness, perceived social support and coping style influence the QoL of HIV infected adults. This chapter provides a capsule of research work related to the study variables viz. , quality of life, hardiness, perceived social support, coping style and quality of life HIV infected adults.

Hardiness

People with high degrees of psychological hardiness who view painful experiences as learning opportunities may be able to cope with psychological stress. Brooks (2003) conducted a critical analysis on how health-related hardiness and chronic illness are fundamentally related to each other. Patients with chronic illnesses exhibited improved results at higher levels of hardiness. Adaptation to chronic disease was researched in the context of hardiness, a personality trait intended to moderate the stress response and lower the likelihood of sickness. It indicates that the significant correlation between health-related hardiness and psychological, psychosocial, and physiological adaptation underscores the positive impact of heightened hardiness levels on patients coping with chronic illness. This suggests that leveraging existing insights on health-related hardiness and chronic

illness management can greatly benefit patients contending with both single and multiple chronic conditions.

Adamu et al. (2021)conducted a study to observe the connection between HIV-related stress and hardiness in 748 selected HIV-positive women. This study attempted to determine the connection between HIV-related stress and hardiness in women living with the virus. It is found that perceived stress is statistically significantly correlated with the hardiness subscales, commitment, control and challenge. The results of the study show that more hardiness is linked to less perceived stress, which may facilitate better coping in women living with HIV. Psychological, behavioral, and physiological adaptability were significantly correlated with the presence of the health-related hardiness feature. Pandey & Shrivastava (2015) compared the social support and hardiness of men and women battling HIV. The results of the study showed that the sub dimensions of the hardiness personality trait, commitment and challenge, significantly varied between men and women living with HIV. In comparison to female participants, male participants' mean scores on both hardiness dimensions were higher. There is no discernible gender difference in the social support variables. Mirzaian (2021) examines the impact of health hardiness and anxiety on HIV patients' immune systems and quality of life. The result of the study indicates that anxiety and health hardiness are not linked to a weakened immune system. However, patients with more debilitating levels of anxiety exhibited lower quality of life and patients with higher health hardiness had higher quality of life.

While significant strides have been made in reducing mortality and morbidity associated with HIV, the ongoing impact of the pandemic on human suffering remains evident. The paper by Rajeswaran (2016) examines the varied

experiences of people living with HIV (PLWH) in Nigeria to demonstrate how conceptual models can be leveraged to improve patient outcomes. By integrating a review of literature with anecdotal evidence, we employ the hardiness model to assess the characteristics of PLWH in Nigeria. Findings suggest that individuals living with HIV in Nigeria may not exhibit high levels of hardiness in managing their condition. Nurses play a crucial role in supporting clients to assert control over their challenges through advocacy and empowerment, fostering commitment, belief, and a positive outlook in the interactive process.

Farber et al. (2000) investigated various aspects of hardiness, such as commitment, challenge, and control, as factors of resilience in the adjustment of 200 individuals with symptomatic HIV disease and AIDS. The findings indicated that individuals with elevated levels of hardiness contributed to a significant reduction in the psychological distress levels. Within the context of HIV infection, it was noted that increased levels of hardiness were associated with improved perceived quality of life across domains of physical health, mental well-being, and overall functioning. Individuals demonstrated more positive personal convictions regarding the kindness of the world and its inhabitants, self-esteem, and the unpredictability of life occurrences. However, there was a decreased belief in the controllability of life events. Notably, commitment emerged as the primary factor within hardiness that consistently played a significant role in predicting adaptation outcomes. Nicholas and Webster (1996), employing a pretest-posttest pre-experimental design, investigated the impact of a 10-week behavioral medicine support group intervention on individuals with HIV, utilizing hardiness as a measure. The findings revealed significant correlations between pre-intervention levels of hardiness and pre- and post-intervention CD4 counts with health status. Interestingly, while

hardiness remained consistent, CD4 counts of people with HIV decreased throughout the behavioral medicine program. Pandey (2018) investigates the connection between immune response and hardiness among male HIV positive injection drug users. Results showed that for the criterion variable CD4+ count, the total contribution of hardiness variance was expected to be 39. 8%, whilst the contributions of the hardiness components commitment, control, and challenge were predicted to be 20. 7%, 9. 8%, and 9. 3%, respectively. These results demonstrated a strong positive correlation between the criteria variable CD4+ count. It suggests that hardiness has a crucial role in raising the immunity level (CD4+ count) of HIV-positive individuals.

A study was conducted by Smit (1992) to ascertain whether there is a link between hardiness and psychosocial adaptation to hypertension. Significant connections between commitment and social support, hardiness and social support, and commitment/challenge and social support were also found. In another study, the researcher (Bigalke, 2011) The study investigated the relationships among parental stress, social support, coping strategies, and family hardiness in mothers of children undergoing active cancer treatment. Results indicated that family hardiness and problem-solving coping mechanisms did not emerge as separate predictors of parenting stress. Shirazi et al. (2018) examined how psychological hardiness influenced the quality of life of dialysis patients. Results indicated that there were direct and evident correlations between quality of life and psychological hardiness. This suggests that psychological hardiness could be considered a significant factor in predicting the quality of life of these patients. Specifically, within the three subscales of psychological hardiness, the challenge and control subscales were found to explain 16% of the variations in their quality of life.

Banks & Gannon, 1988 conducted a study on hardiness of 30 male & female students. Result shows that the individuals with higher levels of hardiness tended to encounter fewer stressors and perceived the minor events they did experience as less stressful, in contrast to individuals with lower hardiness who experienced more frequent stressors and perceived them as more impactful. Anjum (2022) also conducted a study to investigate the interaction between hardiness, social support, and psychological well-being in university students. The findings reveal an emphatic and positive correlation between social support, hardiness, and all facets of psychological well-being. Furthermore, both social support and hardiness emerge as significant predictors of psychological well-being. These results underscore the importance of fostering and cultivating social skills and hardiness attributes among students, offering promising avenues for enhancing their psychological well-being.

Carson & Green (1992) examined the correlation between spiritual well-being and hardiness. It was investigated among a cohort of 100 subjects who tested positive for the human immunodeficiency virus. The findings brought to light a significant association between spiritual well-being and hardiness. The study concludes that individuals within this sample who exhibited higher levels of spiritual well-being, characterized by a sense of meaning and purpose in life, also demonstrated greater hardiness. Sorayyanezhad et al. (2022) investigated the correlation between caregiver strain and resilience as well as hardiness in caregivers of older adults with chronic diseases, within a family. The study found that family caregivers exhibited high levels of hardiness. The findings underscore the significance of caregiver strain, highlighting its association with resilience and hardiness.

Perceived social support

The social support requirements could not be satisfied as they work to support the sick. Losing friends, relatives, or personal ties leads to poor health outcomes for those with HIV. A person's satisfaction with family support was reported to have assisted overcoming depression, reducing high-risk behaviors, seeking medical attention, and returning to a normal way of life. Support from families and others has been reported to have either positive or negative effects after disclosure (Salter et al.,2010; Reilly and Woo, 2004; Vyavaharkaret. al.,2007).

Remor (2002) investigated the dynamics between social support and health-related quality of life (HRQoL), particularly assessing whether lower levels of social support were linked to poorer HRQoL outcomes, conducting a study among 100 patients diagnosed with HIV infection. The results revealed significant disparities in HRQoL among individuals with HIV based on their level of social support. Specifically, those with lower levels of social support reported worsening of perceived health, increased pain, impaired physical functioning, greater challenges in daily activities, heightened health-related distress, and poorer cognitive and emotional well-being. Overall, individuals with lower social support exhibited lower HRQoL compared to those with higher levels of social support.

Birore et al., (2022) conducted a 6-week Social Care Intervention (SCI) Program in Ghana, a study aimed at identifying the protective factors influencing Quality of Life (QoL) among individuals living with HIV/AIDS (PLWHA). The findings revealed a favorable link between the SCI model, particularly social support, and variations in the Quality of Life (QoL) among People Living With HIV/AIDS (PLWHA). Logistic regression analysis indicated a positive association

between social support, particularly affectionate support, and elevated QoL levels. Moreover, older and healthier individuals tended to report higher QoL levels compared to their younger and less healthy counterparts. These results underscore the importance of establishing robust social support networks as an empowering strategy to improve the quality of life among PLWHA in low- and middle-income countries (LMICs) with limited resources. In their 2019 research, Pratiwi and Ramahwati sought to investigate how family support impacts the quality of life of mothers living with HIV. Their findings indicated a moderate, positive correlation between family support and the quality of life of these mothers. Specifically, increased levels of family support were associated with higher overall quality of life among these individuals, suggesting that enhancing family support could lead to improved well-being for affected mothers.

Pandey and Shrivastava (2015) explored gender disparities in social support and hardiness among individuals living with HIV. Result shows that men and women living with HIV display considerable differences in commitment and challenge sub dimensions of hardiness. Butthere is no significant gender difference in social support. Pandey and Shrivastava (2017) conducted a study to understand the potential mediating role of social support in the relationship between hardiness and immune response among 200 individuals living with HIV. The findings revealed that when social support was incorporated into the model, the overall effect of hardiness on immune response lessened. Furthermore, the analysis demonstrated that social support has a remarkably positive effect on immune response.

Pathak et al. (2018) evaluated stress and perceived social support among asymptomatic and symptomatic people living with HIV/AIDS. In the three main groups of respondents (asymptomatic, symptomatic, and AIDS patients), men and

women appeared to be roughly equal in terms of stress and social support measures, and there appeared to be little correlation between these two variables in the three main categories. The association between stress and social support measures and 'between-groups' effects is quite strong. It showed that AIDS patients had much higher stress scores than symptomatic patients, and both groups showed significantly higher scores than patients without symptoms. Additionally, social support scores for asymptomatic patients were evidently higher than the scores for symptomatic patients, and social support scores for both groups were significantly higher than in AIDS group.

Wu and colleagues (2015) investigated the interconnectedness between perceived stigma, social support, and quality of life among individuals living with HIV. Results shows that perceived stigma and social support are correlated with the quality of life in people living with HIV. Nott et al. (1995), the study involved the examination of 91 gay men living with HIV to investigate the relationship between social support, affective indicators, and health results. The study aimed to assess the stability of support levels over a 6-month period and the directionality of the relationship. The findings indicated that the overall levels of support within the group were moderately high and remained consistent over the duration of the study, correlating with enhanced psychological well-being. Disparities in depression, stress, coping efficacy, and self-worth were observed among individuals receiving varying levels of support, with those receiving insufficient support reporting higher levels of depression. Notably, initial support levels emerged as the strongest predictors of subsequent support levels.

Yadav (2010) looked into the relationship between perceived levels of social support satisfaction and quality of life (QoL) of individuals who have been

diagnosed with HIV. He discovered that the non-family support system was superior to the family support. The general satisfaction with social support was strongly connected with QoL; the impact on social relationships was the least positive and environmental functioning had the largest impact. Emotional support predicted social relationships less accurately than other categories of support.

Rao et al. (2012) conducted a study with 120 HIV outpatients to explore potential mechanisms for mitigating HIV stigma and its adverse effects. They investigated whether social support dictates the relationship between enacted stigma and depressive symptoms as well as quality of life (QoL). The results revealed that higher levels of perceived social support were associated with reduced stigma, decreased depressive symptomatology, and enhanced QoL. Utilizing multivariable regression models, the study demonstrated that social support acted as a complete mediator, effectively attenuating the influence of stigma on both depressive symptoms and QoL. These findings underscore the relevance of social support interventions in alleviating the detrimental effects of stigma on psychosocial well-being.

Nunes and colleagues (1995) explored the connection between social support and quality of life among individuals with HIV. Their findings suggested a notable correlation between social support and quality of life, indicating that increased CD4 counts were associated with enhanced quality of life in this group of HIV-positive individuals. Higher CD4 levels were generally found to ensure higher quality of life. Yadav (2010) looks into the perceived levels of social support satisfaction, hope, and quality of life in people living with HIV. The non-family support network outnumbered the family support network, according to the results. Hope and overall satisfaction from social support were factors that determined the quality of life;

emotional support was shown to predict social relationships less, in comparison to other types of support. Social support had the greatest impact on environmental functioning and the least on social relationships.

Gielen and colleagues (2001) conducted a study to investigate the association between social support and health-related quality of life in a group of 280 women living with HIV. Result shows that there is a strong association between health-related quality of life and potentially modifiable factors like social support and self-care behaviors, presenting a promising opportunity to enhance the well-being of women living with HIV. In a group of HIV-positive persons, conducted a study examining both the direct and indirect effects of perceived social support on the quality of life related to physical and mental health. Result shows that both physical and mental health was significantly impacted directly by perceived social support. Lan et al. (2015) evaluated the connections between quality of life and social support of people living with AIDS. Social support and participants' quality of life were found to be significantly correlated. Subramanian et al. (2021) conducted an analysis of the variables affecting social support and its impact on quality of life. They found that physical functioning, social functioning, and cognitive functioning were all favorably correlated with social support (from family, friends, or others). Higher CD4 count was observed to be correlated with higher perceived social support. They found that QoL in people living with HIV is significantly influenced by social support, including assistance from sources other than family. The study of Hudson et al. (2001) investigated the correlation between perceived social support and psychological distress in women living with HIV. The results showed that these women experienced significant deficits in social interactions with both family and friends, leading to a diminished perception of social support. Crucially, the study

highlighted that the women's perception of limited social support served as a significant predictor of distress within this group. The study suggests that supportive interactions from healthcare providers could play a crucial role in mitigating distress among HIV-positive women by mediating the impact of HIV-related stressors.

The study conducted by Kimberly and Serovich (1996) aimed to address this discrepancy by investigating the perceived availability of social support among 77 individuals living with HIV/AIDS. Interestingly, no statistically significant differences were noted in the perception of support received from either friends or family members. McDowell and Serovich (2007) conducted a study examining the influence of perceived and actual social support on the mental health of gay men, heterosexual or bisexual men, and women affected by HIV/AIDS. The results suggest that perceived social support is a strong predictor of improved mental health in all subgroups, whereas the impact of actual social support is relatively limited.

Coping style

Jaiswal et al. (2019) examined the gender differences in coping strategies, mental health, and rumination among HIV-positive individuals in a study conducted on 100 patients, comprising 50 males and 50 females. Significant disparities were observed between HIV-positive males and females in their coping mechanisms, mental health, and rumination. The findings revealed that, in comparison to their female counterparts, males tended to employ more problem-focused coping strategies and reported higher levels of positive mental health.

Devi et al. (2011) looked at the coping mechanisms employed by female sex workers who were HIV positive. According to the findings, the most common coping mechanism chosen was denial/blame, whereas social support was one of the

least common. In comparison to those not receiving antiretroviral medication (ART), subjects receiving ART employed acceptance, positive distraction, social support, and problem solving more frequently. Without ART, subjects employed greater denial/blame, destructive diversion, and religion/faith. It was discovered that subjects who lived in their own houses tended to use religion or faith as a coping mechanism more frequently than those who lived in sheltered homes. There were notable differences in coping mechanisms between married and single respondents. Compared to unmarried participants, married subjects used religion and/or faith as coping mechanisms more frequently.

Nicholson and Long (1990) investigated the correlation among self-worth, social support, internalized homophobia, and coping tactics in a sample of 89 HIV-positive gay men. Additionally, it explored the relationship between coping strategies and mood state. The findings indicated that increased levels of internalized homophobia and decreased self-esteem correlated with the adoption of avoidant coping mechanisms, whereas reduced levels of homophobia and a shorter duration since diagnosis were associated with the utilization of proactive coping strategies. Moreover, longer duration since diagnosis, reduced use of avoidant coping, lower levels of homophobia, and higher self-esteem were predictive of improved mood state.

Pakenham et al. (1994) investigated how HIV stage, social support, coping strategies, and adjustment to HIV interacted among 96 HIV-positive gay men and 33 seronegative participants. Although coping strategies and social support showed no significant variation based on HIV stage, adjustment was linked to both social support and coping strategies. Coping strategies were contingent on psychosocial adjustment, while social support exhibited a stronger correlation with health-related

factors. Contrary to expectations, there was limited evidence of buffering effects from either coping strategies or social support. Four coping strategies were associated with reduced levels of psychological distress. Interestingly, the relationships between coping strategies and adjustment remained consistent across HIV stages, but the association between adjustment and certain aspects of social support varied depending on the stage of HIV.

Koopman and colleagues (2000) examined the impact of coping strategies, attachment style, and perceived social support (PSS) on perceived stress levels among a group of individuals living with HIV. Less income, more behavioral and emotional disengagement, and a higher PSS score were all substantially related with coping with HIV. These findings suggest that HIV-positive people with lower incomes and those who emotionally and behaviorally withdraw from managing their illness are the ones who face the most stress in their daily lives.

Moneyham et al (1998) analyzed the efficacy of active and passive coping strategies in 264 women living with HIV. The study compared active coping strategies, such as seeking social support, illness management, and participation in spiritual activities, with avoidance coping as a measure of passive coping. Findings indicated that while present avoidance coping exhibited no link with emotional distress, current active coping was positively associated with physical symptoms and negatively correlated with emotional distress. Notably, the initial effects of active coping seemed to serve a protective role, as emotional distress decreased despite an escalation in physical symptoms. In contrast, avoidance coping did not demonstrate such protective effects on emotional distress. Moreover, as physical symptoms intensified, the use of avoidance coping decreased while active coping increased, suggesting a propensity for increased utilization of active coping mechanisms in

response to escalating physical symptoms. Vosvick et al. (2002) looked at the connections between coping mechanisms and psychological quality of life (QOL) in HIV/AIDS patients. The findings indicated that opting for maladaptive coping strategies to manage the stress associated with HIV significantly diminishes the psychological quality of life, encompassing cognitive functioning, mental health, and health distress.

Grassi et al. (1998) investigated the link between coping and social support among human immunodeficiency virus (HIV) infected adults. Result indicates that coping style based on the inability and unwillingness to confront HIV infection was associated with low social support. The patients who showed maladjustment to HIV infection reported inadequate coping responses and poorer social support. Rzeszutek (2018) investigated gender variations in the health related quality of life (HRQOL) and coping mechanisms of patients with HIV. A number of statistically significant interactions between the gender of participants and their coping mechanisms in regard to HRQoL categories were found. Vosvick et al. (2003) explored factors affecting four aspects of functional quality of life (physical functioning, energy/fatigue, social functioning, and role functioning) among 142 individuals living with HIV/AIDS. Their findings revealed that higher reliance on maladaptive coping strategies corresponded to lower levels of energy and social functioning. Additionally, substantial pain that disrupted daily activities was linked to reduced functional quality of life across all four dimensions. The findings suggest that interventions focused on fostering adaptive coping mechanisms and enhancing pain management could potentially enhance the functional aspects of quality of life in individuals living with HIV/AIDS.

Weaver et al. (2004) investigated the relationship between quality of life (QoL) and three coping mechanisms specific to HIV (namely cognitive coping strategies, denial, and religious coping) among HIV-positive individuals, predominantly minority women who were receiving highly active antiretroviral medication. However, the employment of cognitive coping techniques was linked to higher QoL, while denial was linked to lower QoL. Religious coping was not associated with quality of life. The findings imply that using specific coping mechanisms may reduce or increase perceptions of life stress and alter QoL of this understudied population. Sharma and Sokhey (2012) conducted a study to understand how coping mechanisms affect the quality of life of HIV patients. The findings assert the affirmative relationship between problem-focused coping strategies and QOL. Positive relationships between emotion-focused coping mechanisms, roles and social functioning have been discovered. Ineffective coping mechanisms and mental health were found to be negatively correlated. Substantial differences were noted in several coping-related factors, encompassing the emphasis on and communication of emotions, dependence on social support, denial, religious coping, humor, utilization of emotional support, and substance use.

In 120 HIV+ individuals, coping, social support, and quality of life (QoL) were evaluated by Friedland et al. (1996). The findings indicate that Quality of Life (QoL) was positively associated with income, emotional social support, and problem- and perception-focused coping strategies. However, tangible social support and emotion-focused coping showed negative correlations with QoL. Most forms of support were given by close friends. Despite expressing a desire for more emotional support, respondents exhibited high levels of general satisfaction with support. Despite members' generally good health and education, unemployment was high.

This study aimed to investigate factors predicting the quality of life (QOL) among 95 individuals living with HIV/AIDS (PLWHA), with a particular emphasis on how perceptions of illness impact QOL through coping mechanisms. The results demonstrate that illness perception influences QOL both directly and indirectly, mediated by coping strategies. In particular, perceiving HIV as highly threatening is linked to lower QOL among PLWHA. However, employing coping strategies such as acceptance, distraction, and instrumental support, while reducing the use of behavioral disengagement and positive reinterpretation, can mitigate these negative effects.

Leiberich et al. (1997) conducted a study to look at people with HIV, their life and coping mechanisms to find patterns of effective adjustment to the demands of HIV infection. The majority of test subjects demonstrated a high degree of flexibility in their employment of cognitive-actional and emotional-palliative methods, successfully managing the demands imposed by the infection and achieving a high quality of life. Conversely, individuals who experienced significant distress, particularly those with a history of drug use, tended to cope with their distress in an avoidance-oriented manner, which was associated with reporting lower quality of life. The study found notable correlations between ineffective coping strategies and diminished quality of life.

Molassiotis et al., (2001) conducted a cross-sectional study that evaluated a sample of symptomatic HIV patients' quality of life (QOL), coping mechanisms, mood, and uncertainty regarding their illness. The findings indicate that high levels of uncertainty were associated with lower levels of total QOL, higher levels of psychological dysfunction, poorer environmental adaptability, and higher levels of mood disturbance. The sample mainly employed internal coping, which was

likewise positively connected with greater QOL ratings. Osamika (2019) investigates how Coping strategies serve as predictors for the quality of life (QoL) of individuals living with HIV/AIDS (PLWHA) who are undergoing antiretroviral therapy. The findings indicate that coping strategies significantly predict various domains of QoL, including physical, psychological, social relationships, environment, and spirituality, as well as the overall WHOQOL-BREF score among PLWHA. However, coping strategies do not significantly predict the level of independence domain of QoL. Specifically, coping strategies such as self-distraction, active coping, acceptance, and religion independently predict the overall WHOQOL-BREF score among PLWHA. The environment domain yielded the highest mean score, whereas the spirituality domain of the WHOQOL-BREF obtained the lowest mean score. The study underscores the importance of coping strategies as crucial indicators for enhancing the QoL of PLWHA, playing a significant role in determining various domains and overall QoL among this population.

Kamen et al., (2012) conducted a study set out to look at how denial coping strategies affected quality of life (QOL) over time in HIV-positive people. Lower baseline QOL in terms of physical and mental health were linked to denial coping. Though QOL remained low in denial coping users, denial coping indicated an increase in QOL with time. Denial coping had a more detrimental effect on men's baseline mental health-related QOL than on women's. In comparison to men, women's QOL tended to rise more gradually over time. Hesselink et al. (2004) explored the connection between coping strategies, psychological resources, and health-related quality of life (HRQoL), finding that individuals with asthma or chronic obstructive pulmonary disease exhibited diminished HRQoL, which was

independently associated with a tendency toward emotional coping methods. In addition, poor HRQoL was independently linked to lower levels of self-efficacy, lower levels of mastery, a more avoidant coping style, and poor pulmonary function in asthma patients. Poor HRQoL was independently correlated with a more analytical coping style. The findings of Oliveira França et al. (2022) revealed that individuals receiving treatment for HIV/AIDS can maintain their perceived quality of life. Moreover, higher scores in coping mechanisms were associated with better adherence to HAART.

Quality of life

A key factor in assessing the well-being of individuals living with HIV is quality of life (QoL). Osei-Yeboah J et al. (2017) selected 158 HIV-positive participants, 126 had an excellent overall quality of life and 14 had a good QoL; the remaining 18 said that HIV/AIDS had a negative impact on their lives. The findings indicate that the religious domain of quality of life was the most impacted, followed by the physical and level of independence domains. Poor overall QoL was linked to the patients' occupation, sense of health, sexual activity, and disease stage. In general, among HIV patients, lower quality of life was associated with being a symptomatic male, abstaining from sexual activity, or lacking experience with antiretroviral therapy (ART). Arjun et al. (2019) conducted another study on gender difference in the quality of life of HIV infected people. They found that HIV is one of the key issues that have a negative impact on the standard of living in developing nations. Their study aimed to investigate the comparisons between the quality of life of male and female HIV patients who received antiretroviral medication. The study results indicate a relationship between gender and the quality of life of individuals living with HIV, but there was no correlation between the clinical profiles and

chosen demographic characteristics of male and female HIV patients on ART and their quality of life. Kohli et al. (2005) evaluated the quality of life (QoL) for HIV-positive people. The results show that the physical health, job and wages, daily activities, and hunger and food intake of HIV-positive people showed significant effects on QoL. Despite having less advanced disease than men, women showed significantly lower scores on quality of life measures. People with lower CD4 counts had considerably poorer QoL scores overall, but especially in certain areas of physical health. McDonnell et al. (2000) assessed the quality of life for women with HIV. Compared to some HIV-positive male samples, women reported poorer levels of functioning and well-being. Sowell et al. (1997) led a study aimed to assess the relative significance of psychological (stigma, emotional distress, intrusion, avoidance, and fatalism) and social (social support, material resources, disclosure, and family functioning) factors that forecast the quality of life among women who are HIV positive. The findings of this study confirm that social and, in particular, psychological elements have a strong influence on the quality of life for women who are HIV-positive.

Dhillon and Sandhu (2017) examine the degree of depression and quality of life among those with HIV/AIDS. According to their findings, the majority of HIV/AIDS patients (52. 50%) suffer from severe depression, whereas 7. 50% are depressed at all. On the other side, 10 percent of HIV patients enjoy great quality of life, compared to 52. 5% who have terrible quality of life. It means that the majority of HIV patients reported significant depression and poor quality of life. But there is no statistically significant correlation between certain sociodemographic factors and quality of life. Pereira & Canavarro (2012) describe Quality of life (QoL) and emotional distress experienced during pregnancy and the initial postpartum period,

as well as to investigate the potential for psychopathological symptoms to predict QoL at this time. For this purpose, a group of 75 pregnant women, comprising 31 who were HIV-positive and 44 who were HIV-negative, were evaluated. In comparison to HIV-negative women, seropositive women during pregnancy reported worse overall QoL scores. When compared to the time during pregnancy, Both mothers who are HIV-positive and those who are HIV-negative experienced increased quality of life after giving birth. In HIV-positive women, reduced levels of anxiety and depressive symptoms during pregnancy are key factors associated with enhanced psychological quality of life and overall quality of life during the early postpartum period. Better physical QoL was predicted by fewer severe somatic symptoms.

Lubeck and Fries (1992) conducted a study to examine the health-related quality of life (QOL) of 669 patients with varying severity of HIV infection over a 12-month period. At baseline, demographic and health status differences, such as age and CD4+ cell count, were evaluated. Over the 12-month period, all patient groups experienced declines in health status and psychosocial well-being. Patients with symptoms and those diagnosed with AIDS showed considerable reductions in all facets of role functioning (social interactions, daily activities, energy levels, and overall health) and reported worsening disease symptoms. However, there were no significant decreases observed in cognitive function or mental health. Patients with AIDS experienced more pronounced declines compared to those with symptomatic disease. Both AIDS patients and those with symptoms reported fewer working hours and more dysfunctional days compared to asymptomatic patients. The study highlights the profound impact of HIV disease on the health status of non-AIDS symptomatic patients.

Balderson et al. (2013) conducted a study on chronic illness burden and quality of life (QoL) in 452 aging HIV population. The study found high rates of depression among people living with HIV (PLWH). The overall quality of life (QoL) for the sample was moderately high. The presence of other chronic health problems, particularly physical ones, significantly impacted physical functioning. Social functioning, mental health functioning, stress, and depression were also strongly influenced by the burden of chronic disease. The study highlighted that additional chronic health issues are common among PLWH aged 50 years and older. To discover patterns of effective adaptation to the demands imposed by the infection, Leiberich et al. (1997) undertook a longitudinal study on the burdens, quality of life, and coping methods of HIV-positive individuals. Results indicate that, overall, mental, and familial suffering dramatically decreased over the same timeframe. The majority of subjects were able to manage the demands of the infection well, leading to great quality of life. On the other hand, people who were really upset, primarily drug users, tended to deal in an evasive-regressive manner and reported having a poor quality of life. Significant correlations between poor coping mechanisms and poor quality of life were discovered.

Coping mechanisms and their connections to several aspects of quality of life (QoL) of HIV-positive people were evaluated by Kohli et al. (2016). Significant relationships have been found between coping mechanisms, employment, earning domains, marital status, and other variables of the QoL questionnaire. Kamenet al. (2012) examined how HIV patients' health-related quality of life was impacted by denial. The findings indicated that poorer baseline physical and mental health-related QOL was connected with the adoption of denial coping. Denial coping had a more detrimental effect on men's baseline mental health-related QOL than on

women's. In comparison to men, women's QOL tended to rise more gradually over time. Vosvick et al. (2003) found that lower levels of energy and social functioning were linked to greater usage of maladaptive coping mechanisms. On all four quality of life dimensions, pain that is severe enough to interfere with everyday activities is linked to poorer levels of functional quality of life.

Franchi and Wenze (1998) conducted a literature review on Human immunodeficiency virus patients' health-related quality of life (HRQoL). It reveals that symptoms have a big influence on HRQoL and that HRQoL scores don't necessarily correlate with illness stage or health indicators. Studies have also shown that several HIV and opportunistic infection treatments come at a significant cost to HRQL. Future therapy choices for HIV-positive individuals as well as the creation and promotion of new pharmacological medicines will be significantly influenced by HRQoL outcomes. Mrus et al. (2005) found that women generally reported lower scores across all HRQoL domains compared to men, except for overall health. Nevertheless, both genders experienced similar improvements in their HRQoL over time, attributable to the effectiveness of treatment. Gielen et al. (2001) found that greater social support networks among women were associated with greater overall quality of life and mental health. Women who took better care of themselves by managing stress, eating a balanced diet, getting enough sleep, exercising, and taking vitamins reported having better physical and mental health overall. In Slater's (2011) study, the quality of life, social support, health, and coping strategies of older gay men living with HIV were examined. Results revealed significant positive correlations between quality of life and factors such as age, perceived health, social support, and problem-focused coping. On the other hand, medical co morbidities, social stigma, and emotion-focused coping exhibited negative correlations with

quality of life. Another study (Souri & Ashoori, 2015) sought to examine the association between type II diabetes patients' quality of life and perceived social support, psychological hardiness, and family communication habits. The result revealed a favorable and significant correlation between quality of life and psychological hardiness, perceived social support, and conversational communication style.

Findings of Bekele et al. (2013) shows that perceived social support had significant direct effects on physical health and an indirect effect on both physical and mental HROQL of HIV people. Naziket al. (2013) found no relationship between quality of life and perceived social support. Garrido-Hernansaiz et al. (2016) examined that perceived social support can predict the quality of life for people living with HIV. Results show that being married, widowed or deserted, contribute negatively in predicting HRQOL. Xiaowen et al. (2018) found that social support significantly predicted better quality of life. Anxiety and depression symptoms fully explained the connections between objective support, support utilization, and Health-Related Quality of Life (HRQOL). Beka & Shaka (2018) aimed to explore the link between perceived social support and psychological well-being among individuals living with HIV/AIDS. Findings indicated that the overall psychological well-being of HIV patients was notably diminished, and a significant positive correlation was observed between total perceived social support and total psychological well-being.

Jia et al. (2004) examine the relationship between psychosocial elements and quality of life (QoL) related to health. It involved 226 male HIV-infected individuals. The findings revealed that coping and social support had effects on some dimensions of QoL, although not all, while depression was associated with all

QoL dimensions. Moreover, the effects of social support and coping were primarily mediated by depression. In the era of highly active antiretroviral therapy (HAART), where QoL concerns are paramount, the study underscores the importance of strategies aimed at enhancing social support, coping mechanisms, and particularly addressing depressive symptoms.

Cederfjäll et al. (2001) investigates the perceptions of health-related quality of life (HRQOL) among HIV-infected patients concerning their coping capacity. Finding shows that women scored less positively on well-being, exhibited weaker sense of cohort, and reported less social support compared to men. Garrido-Hernansaiz et al. (2016) study conducted in India involved 961 individuals living with HIV/AIDS and aimed to construct a prediction model for health-related quality of life (HRQoL). Various predictors previously associated with HRQoL were examined, including sociodemographic factors, HIV symptoms, social support, stigmas, and avoidant coping. Results indicated that when all variables were considered together, certain factors negatively influenced HRQoL prediction, including marital status, intensity of HIV symptoms, internalized stigma, disclosure avoidance, and enacted stigma. Conversely, factors such as employment status, positive disclosure expectations, and strong social support positively contributed to predicting HRQoL.

Bastardo and Kimberlin (2000) explored the connections between health-related quality of life (HRQL), social support, demographic characteristics, and factors related to the disease in a group of 118 individuals living with HIV. Social support demonstrated a significant association with all HRQL domains except physical functioning and bodily pain. In summary, the research underscores the importance of addressing social support in interventions aimed at improving HRQL

for this population. In Hatamipour's (2017) study, the investigation centered on assessing the quality of life among nurses, examining the influence of their perceived social support and psychological hardiness. Result indicated the percentage of improvements in quality of life that may be predicted by perceived social support and psychological hardiness.

Wang, J. F. (2015) looks into loneliness, quality of life, and health-related hardiness of HIV positive farmers. Participants from more developed regions displayed stronger health-related hardiness and a higher quality of life. In comparison to individuals with no education, those with higher education showed noticeably greater hardiness. Participants who were married displayed greater hardiness and less loneliness. Improved income and having family members care for them were both associated with higher life quality and decreased loneliness, respectively. Chandra and colleagues (2006) explored the correlation between quality of life (QOL) aspects and biological indicators of HIV disease progression, specifically viral load (VL) and CD4 counts, among asymptomatic individuals with HIV subtype C infection in South India. Their findings presented a mix of results, with certain QOL dimensions being linked to high VLs and low CD4 counts, while others showed no such correlations. Notably, there were significant associations between low CD4 counts and the psychological and social relationships domain, indicating lower mean scores in these areas among individuals with CD4 counts $<200/mm^3$. However, no significant variations were detected between CD4 subgroups for domains pertaining to physical health, level of independence, environment, and spirituality. Conversely, notably lower mean QOL scores were observed in the highest VL subgroup compared to other groups across various

domains of WHOQOL HIV-BREF, including physical, psychological, level of independence, and environmental aspects.

Deepa et al. (2015) explored the impact of nutrition on the quality of life among women with HIV, who were receiving antiretroviral therapy (ART). Results indicated positive correlations between nutritional parameters and CD4 cell count, specifically weight, BMI, and hemoglobin levels. This suggests that higher nutritional status was associated with better immune function, as indicated by higher CD4 cell counts. The study found significant associations between QOL scores and weight, BMI, and hemoglobin levels. This implies that better nutritional status was linked to higher QOL scores among the women on ART. Nastiti and Mujarwati (2019) compare adherence to medication and quality of life among HIV patients who participated in peer support groups with those who did not. The majority of people living with HIV have not joined a peer support group, and both the quality of life and adherence to medication remain low for them. When people living with HIV participated in a peer support group, their medication adherence level and quality of life were higher than when they did not.

Relevance of the study

Kerala, despite its impressive social development indicators, faces a significant challenge in managing HIV. While antiretroviral therapy (ART) has improved life expectancy, many individuals living with HIV still experience a diminished quality of life (QoL) due to psychological and social factors. There are certain factors that are highly individualistic by nature and also act as a protective resource against adversity. In order to identify which group of factors constitutes quality of life, questions remain unanswered. Hardiness and coping are two of them,

and researchers have embraced their positive outcomes in the long run. Along with hardiness and coping style, social support is also considered a social determinant that collectively contributes to overall well-being. Identifying such psychological and social factors is vital to the management of HIV. Examining how these factors interact and influence QoL can provide valuable insights into the holistic well-being of HIV infected people in Kerala. By identifying the specific factors influencing QoL, the study can pave the way for developing targeted interventions. This could involve strengthening social support networks, promoting adaptive coping mechanisms, and fostering individual hardiness. The findings can inform public health policy and resource allocation in Kerala. This can lead to the development of more comprehensive and effective programs to support HIV infected adults, improving their overall well-being and contributing to a better quality of life. The study focuses on the Kerala context, which might have unique socio cultural factors influencing the lives of HIV infected adults. The current research can address the specific needs and challenges faced by this population within the state. While research exists on the individual factors influencing QoL in HIV infected adults, a comprehensive understanding of their combined and interactive effects in the Kerala context remains limited. This study aims to address this gap by providing valuable insights specific to the state. By addressing the specific needs and challenges faced by this population, research can contribute to improving health outcomes and reducing the burden of HIV in the region. Understanding these social determinants can inform efforts to reduce stigma, promote acceptance, and improve the quality of life of HIV infected adults. Research in this field can shed light on the levels of stigma and discrimination faced by HIV-infected adults in Kerala. Insights gained from research can integrate findings into their treatment approaches, not only

medical needs but also psychosocial aspects affecting quality of life. The outcomes of this study have the potential to provide insights not only for individuals affected by HIV in Kerala but also to guide interventions and support approaches for those living with HIV in comparable social and cultural settings elsewhere. In conclusion, investigating the role of hardiness, perceived social support, and coping styles on the quality of life of HIV-infected adults in Kerala holds significant value for improving the well-being of this population, informing public health strategies, and potentially contributing to broader knowledge in the field of HIV management.

While research exists on the individual factors (hardiness, perceived social support, coping styles, and quality of life) in the context of HIV in India, there seems to be a lack of studies specifically investigating their combined influence on the quality of life of HIV-infected adults in Kerala. This gap presents an opportunity to explore the interplay between these factors and their unique contribution to the well-being of this population in Kerala. Existing research might not fully capture the cultural aspects of Kerala that may influence the expression of hardiness, social support networks, coping style, and the perception of quality of life among HIV-infected adults. Studies that consider these cultural specificities would provide a more comprehensive understanding of the factors impacting their well-being. Research in this area might not adequately represent the diversity of the HIV-infected population in Kerala. Studies focusing on specific subgroups, such as age, gender, education, marital status, education, residential background etc. could offer valuable insights into the heterogeneity of experiences and potential variations in the influence of these factors. By addressing these potential research gaps, future studies can contribute valuable knowledge to improve the holistic well-being of HIV-infected adults in Kerala.

Statement of the problem

Given the context of HIV infection, understanding the interplay between psychological constructs such as hardiness, perceived social support, and coping style is crucial in clarifying their collective impact on the quality of life among affected individuals. Despite advancements in medical interventions, the psychosocial aspects remain significant determinants of well-being in this population. The impact of sociodemographic factors and infection-related variables on hardiness, perceived social support, coping style, and quality of life among HIV-infected adults remains an essential area of inquiry within the field of HIV research. By examining how variables such sociodemographic factors & infection-related factors, hardiness traits, perceived social support networks, and coping style interact and influence quality of life outcomes, researchers can identify key factors that contribute to resilience and adaptation in the face of HIV. Thus, investigating the subtle roles of sociodemographic factors & infection-related factors, hardiness, perceived social support, and coping style is essential for developing comprehensive strategies to enhance the quality of life and overall health outcomes for HIV-infected adults. The current study is entitled as "Role of Hardiness, Perceived Social Support, Coping Style on the Quality of Life in HIV-Infected Adults"

Definition of key Term

Hardiness

Kobasa (1979) introduced the concept psychological hardiness, as a personality trait linked to sustained well-being and effective performance during times of stress. Hardiness serves as a moderator in the connection between stressful

life events and susceptibility to infection. Kobasa delineated hardiness into three components, known as the 3C's: Commitment, Control, and Challenge.

In this current research, hardiness score is obtained by participants' scores on the "Psychological Hardiness Scale" devised by Singh in 2008.

Perceived social support

"Perceived social support" refers to individuals' perceptions of their friends, family members, and others as potential sources of assistance, encompassing practical, emotional, and overall support, particularly during times of need (Ioannou et al., 2019).

In this current study, perceived social support is indicated by the scores derived from participants' responses to "The Multidimensional Scale of Perceived Social Support," (Zimet et al., 1988).

Coping Style

A person's disposition or orientation toward the preferred use of particular types or categories of coping methods is known as coping style (Anshel & Delany, 2001).

In this study, coping style is measured by the scores participants achieve on "The Brief COPE," (Carver, 1997)

Quality of Life

Quality of life as "a person's view of their place in life in relation to their objectives, expectations, standards, and concerns in the context of the culture and value systems in which they live" (WHOQOL, 2012).

In the present study, quality of life s is represented by the scores obtained by the participants in “World Health Organization Quality Of Life-HIV BREF (WHO, 2002)

HIV

HIV (Human Immunodeficiency Virus) is a viral infection that attacks the immune system, particularly the CD4 cells (also known as T cells), which play a crucial role in assisting the immune system in combating infections. HIV is a lifelong infection and it is not treated, AIDS (Acquired Immuno Deficiency Syndrome) can develop (WHO, 2021)

HIV-Infected Adults

HIV-infected adults are individuals who have tested positive for the presence of the HIV virus in their blood. In this study, adult means people belonging to the age of 20 to 60 years.

Research Questions

1. What is the effect of sociodemographic & infection-related factors on Hardiness, perceived social support, coping style, and Quality of Life among HIV-infected adults?
2. What is the nature of the relationship between Hardiness, perceived social support, coping style, and Quality of Life among HIV-infected adults?
3. What is the predictive significance of sociodemographic & infection-related factors, hardiness, perceived social support, and coping style in determining Quality of Life among HIV-infected adults?

Objectives of the study

1. To examine the effect of sociodemographic and infection-related factors on the hardiness, perceived social support, coping style, and quality of life of HIV-infected adults.

2. To find out the relationship between hardiness, perceived social support, coping style, and quality of life of HIV-infected adults.
3. To examine the predictive role of sociodemographic and infection-related factors on the quality of life of HIV-infected adults
4. To examine the predictive role of hardiness, perceived social support, and coping style on the quality of life of HIV-infected adults.

Hypotheses

1. There is no significant difference in dimensions of hardiness, perceived social support, coping style and quality of life of HIV-infected adults based on sociodemographic factors.

1.1 There is no significant age difference in the dimensions of hardiness of HIV-infected adults.

1.2 There is no significant age difference in the dimensions of perceived social support among HIV-infected adults.

1.3 There is no significant age difference in the dimensions of the coping style of HIV-infected adults.

1.4 There is no significant age difference in the domains of quality of life of HIV-infected adults.

1.5 There is no significant gender difference in the dimensions of hardiness of HIV-infected adults.

1.6 There is no significant gender difference in the dimensions of perceived social support for HIV-infected adults.

1.7 There is no significant gender difference in the dimensions of the coping style of HIV-infected adults.

1.8 There is no significant gender difference in the domains of quality of life of HIV-infected adults.

1.9 There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their education.

1.10 There is no significant difference in the dimensions of perceived social support of HIV-infected adults based on their education.

1.11 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their education.

1.12 There is no significant difference in the domains of quality of life of HIV-infected adults based on their education.

1.13 There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their occupation.

1.14 There is no significant difference in the perceived social support of HIV-infected adults based on their occupation.

1.15 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their occupation.

1.16 There is no significant difference in the domains of quality of life of HIV-infected adults based on their occupation.

1.17 There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their marital status.

1.18 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their marital status.

1.19 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their marital status.

1.20 There is no significant difference in the quality of life of HIV-infected adults based on their marital status.

1.21 There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their residential background.

1.22 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their residential background.

1.23 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their residential background.

1.24 There is no significant difference in the domains of quality of life of HIV-infected adults based on their residential background.

1.25 There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their type of family.

1.26 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their type of family.

1.27 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their type of family.

1.28 There is no significant difference in the domains of quality of life of HIV-infected adults based on their type of family.

2 There is no significant difference in the dimensions of hardiness, perceived social support, coping style, and quality of life of HIV-infected adults based on infection-related factors.

2.1 There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their HIV serostatus.

2.2 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their HIV serostatus.

2.3 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their HIV serostatus.

2.4 There is no significant difference in the domains of quality of life of HIV-infected adults based on their HIV serostatus.

2.5 There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on the mode of transmission.

2.6 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on the mode of transmission.

2.7 There is no significant difference in the dimensions of coping styles of HIV-infected adults based on the mode of transmission.

2.8 There is no significant difference in the domains of quality of life of HIV-infected adults based on mode of transmission.

2.9 There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on the duration of the infection.

2.10 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on the duration of the infection.

2.11 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on the duration of the infection.

2.12 There is no significant difference in the domains of quality of life of HIV-infected adults based on the duration of the infection.

2.13 There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their CD4 cell count.

2.14 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their CD4 cell count.

2.15 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their CD4 cell count.

2.16 There is no significant difference in the domains of quality of life for HIV-infected adults based on their CD4 cell count.

2.17 There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their duration of ART.

2.18 There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their duration of ART.

2.19 There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their duration of ART.

2.20 There is no significant difference in the domains of quality of life of HIV-infected adults based on their duration of ART.

3 There is no significant relationship between hardiness, perceived social support, coping style, and quality of life of HIV-infected adults.

3.1 There is no significant relationship between hardiness and perceived social support in HIV-infected adults.

3.2 There is no significant relationship between hardiness and coping style in HIV-infected adults.

3.3 There is no significant relationship between perceived social support and coping style in HIV-infected adults.

3.4 There is no significant relationship between hardiness (commitment, control, and challenge) and six domains of quality of life in HIV-infected adults.

3.5 There is no significant relationship between perceived social support (family, friends, and significant others) and six domains of quality of life in HIV-infected adults.

3.6 There is no significant relationship between coping style (self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame) and the six domains of quality of life of HIV-infected adults.

4 Sociodemographic and infection-related factors, hardiness, perceived social support, and coping style, are not significantly predicting the quality of life of HIV-infected adults.

4.1 Sociodemographic and infection-related factors do not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

4.2 Hardiness does not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

4.3 Perceived social support does not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

4.4 Coping style does not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

4.5 Sociodemographic and infection-related factors do not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

4.6 Hardiness does not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

4.7 Perceived social support does not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

4.8 Coping style does not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

4.9 Sociodemographic and infection-related factors do not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

4.10 Hardiness does not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

4.11 Perceived social support does not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

4.12 Coping style does not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

4.13 Sociodemographic & infection related factors do not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

4.14 Hardiness does not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

4.15 Perceived social support does not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

4.16 Coping style does not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

4.17 Sociodemographic and infection-related factors do not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

4.18 Hardiness does not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

4.19 Perceived social support does not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

4.20 Coping style does not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

4.21 Sociodemographic & infection related factors do not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

4.22 Hardiness does not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

4.23 Perceived social support does not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

4.24 Coping style does not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

Chapter 2

METHOD

Research design

Participants

Ethical consideration

Instruments for the study

Pilot study

Procedure

Statistical analysis

This section outlines the research methodology, including the design, sample selection and techniques, the instruments utilized, the data collection process, and the statistical methods applied for data analysis. It entails gathering data to address inquiries regarding the present condition of the study subjects and aims to uncover relationships between existing non manipulated variables. Here tried to find out "Role of Hardiness, Perceived Social Support, and Coping Style on the Quality of Life in HIV-Infected Adults**".** Questionnaire was used in the present study to collect data from a representative sample population.

Research design

The research design serves as a comprehensive outline of the investigation, outlining the specific procedures for testing hypotheses and analyzing the collected data. It essentially acts as the blueprint for the study's methodology. The current research is correlational, predictive in nature and used a cross-sectional research design. The chosen research design, correlational and predictive in nature, facilitates the examination of relationships between variables, shedding light on potential causal relationships or predictive patterns. By forecasting how changes in independent variables (hardiness, perceived social support, coping style) may affect the dependent variable (quality of life), the study aims to provide actionable insights for interventions and support strategies among individuals living with HIV. The cross-sectional design enables the collection of data at a single moment in time. providing a portrait the relationships within the HIV-infected population and enabling a comprehensive understanding of these dynamics.

Participants

The sample for the study comprised of 441 HIV infected adults. For collecting the sample, Kerala is divided into three zones, south, middle and north.

From these zones the respondents were selected using purposive sampling method. Purposive sampling can be a more efficient and resource-effective approach, particularly when the target population is difficult to access. In the case of HIV-infected adults, recruiting participants through purposive sampling may be more practical and feasible than using other sampling methods, which could be logistically challenging and time-consuming. The participants were taken from registered NGO's such as Kuriakose Elias Service Society (KESS), community based organizations and care support centers for people living with HIV in Trivandrum, Kollam, Alappuzha, Kottayam, Idukki, Thrissur, Kozhikode, Malappuram and Wayanad districts in Kerala. The age of the respondents ranged from 20 to 60 years. Socioemotional selectivity theory (Carstensen, 2021) suggests that individuals' goals and priorities may shift across the lifespan, influencing their coping strategies and perceptions of social support. Younger adults may prioritize future-oriented goals, while older adults may focus more on present moment experiences and meaningful social relationships. Due representation was given to both sexes as well as the age (early adulthood, middle adulthood), district of residence, education (SSLC, plus two, graduation), occupation (with job, without job), marital status (married, unmarried, widow/divorced), residential background (rural, urban), type of family (nuclear, joined), HIV serostatus (asymptomatic, symptomatic), mode of transmission (blood transfusion, injection, sex, others), duration of infection (1 to 5 years, 6 to 10 years, more than 10 years), CD4 count (201-350, 351-500, more than 500), duration of ART (1 to 5 years, more than 5 years). Following inclusion and exclusion criteria was also adopted.

Inclusion Criteria

- HIV infected adults who are diagnosed for a period of one year to ten years will be included.
- The age group of participants must range from 20 to 60 years.
- Those who are receiving ART and undergoing treatment.
- Both males and females are included in the study.

Exclusion Criteria

- Individuals diagnosed with other mental illness apart from HIV.
- Participants who are institutionalized, such as those residing in psychiatric facilities, nursing homes, or correctional institutions.
- Individuals diagnosed with AIDS (Acquired Immunodeficiency Syndrome).

Ethical consideration

When conducting research involving HIV-infected adults ethical considerations are salient, because of the delicate or confidential nature of the topic and vulnerabilities of the participants. Before starting the study the researcher had created a rapport with the participants. In this study, Informed consent was obtained from each participant, indicating their voluntary agreement to participate in the study after fully understanding its implications. Participants were guaranteed the option to withdraw from the study at any point. Measures were implemented to safeguard the confidentiality and privacy of participants' personal information and research data. No data revealing the identity of participants were collected. Efforts were made to minimize any potential harm or discomfort to participants throughout the research process. Participants were provided with access to support services and resources, including counseling and referrals to healthcare professionals, in case

they experienced emotional distress or other adverse effects related to participation in the study. Participants were treated with respect and dignity, and their right to make autonomous decisions about their participation in the study was upheld. Efforts were made to ensure that the benefits of the research outweighed any potential risks or burdens to participants. The selection of participants and the conduct of the study were carried out in a fair and equitable manner, without discrimination or bias. The Human Ethical Committee was not constituted at the university when the researcher started the work. So, primary approval from the research ethical committee of the research centre (college) was obtained. Later, ethical approval was obtained from the Human Ethical Committee of the University of Calicut. It provides further assurance of the study's compliance with ethical principles.

Instruments

The following instruments were utilized to gather data on 'Role of Hardiness, Perceived Social Support, and Coping Style on Quality of Life in HIV-Infected Adults'. This section deals with a brief description of the tools used in the present research. Four psychometric tools were used along with consent form, personal data sheet (sociodemographic and infection related factors) of the participants.

1. Personal Data Sheet
2. Singh Psychological Hardiness Scale(Arun Kumar Singh,2007)
3. The Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet& Farley, 1988)
4. The Brief COPE (Carver, 1997)
5. Quality of Life - WHOQOL-HIV BREF (WHO, 2002)

Personal Data Sheet

The investigator utilized a personal data sheet to gather information concerning the sociodemographic characteristics and factors related to infection from the respondents. The sociodemographic characteristics like age, gender, district of residence, education, occupation, marital status, residential background, type of family. Infection related factors include HIV serostatus, mode of transfusion, duration of infection, CD4 count, and duration of ART.

Singh Psychological Hardiness Scale (Singh, 2007)

The 30 item Psychological Hardiness Scale (SPHS) developed by Singh (2007), was used to measure hardiness. The scale consists of three dimensions that are, Commitment (item No. 1, 4, 7, 10, 13, 16, 19, 22, 25, 28) Control (item No. 2, 5, 8, 11, 14, 17, 20, 23, 26, 29), Challenge (3, 6, 9, 12, 15, 18, 21, 24, 27, 30). The instrument comprises a total of 30 items, each offering five response choices: strongly agree, agree, neutral, disagree, and strongly disagree. For all items except numbers 17, 21, 25, and 28, scores of 5, 4, 3, 2, and 1 correspond to the above mentioned response categories. On the other hand, since these specific items (17, 21, 25, 28) are formulated negatively, scores are reversed, with 1, 2, 3, 4, and 5 assigned to the response options in order. The total score on the test is obtained by summing the scores achieved by the participants on each item. A higher total score indicates greater psychological hardiness, while a lower score suggests lower psychological hardiness. The maximum attainable score on the SPHS is 150. In this study, Cronbach's alpha coefficient for hardiness scale is . 77.

The Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al., 1988, comprises 12 items. Each item is rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The scale assesses the perceived adequacy of social support from three distinct sources: family, friends, and significant others. Specifically, items 3, 4, 8, and 11 pertain to support from family members, while items 6, 7, 9, and 12 relate to support from friends, and items 1, 2, 5, and 10 focus on support from significant others. Each sub-scale scores are calculated by summing across their respective items, then divided by four gives the sub-scale score. The overall scale score is determined by summing all items and then dividing the total by 12. In this study, Cronbach's alpha coefficient for MSPSS is 0. 91.

The Brief COPE

The Brief COPE (Carver, 1997) is a self-administered questionnaire designed to evaluate various coping behaviors and thoughts individuals may adopt in response to specific situations. The scale comprises a total of 28 items categorized into 14 subscales. For instance, Self-distraction includes items 1 and 19, Active coping comprises items 2 and 7, and Denial encompasses items 3 and 8, among others. Additionally, items 2, 7, 10, 14, 23, and 25 are classified as indicative of a problem-focused coping style, while the remaining items are categorized as emotion-based coping. Responses are rated on a four-point scale, ranging from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). In this study, Cronbach's alpha coefficient for Brief Cope is . 82.

Quality of Life - WHOQOL-HIV BREF (WHO, 2002)

The WHOQOL-HIV BREF is a shortened version of the WHOQOL-BREF, which is derived from the longer WHOQOL-100 questionnaire. It consists of 31 items, including 29 items distributed across six domains: physical, psychological, level of independence, social relationships, environment, and spirituality. Additionally, there is one item each for overall quality of life and general health perception, collectively representing 30 facets. Each of the six domain scores reflects an individual's perception of their quality of life. Five of these facets are specific to HIV. It includes four items in the physical domain (3,4,14 & 21), five items in the psychological domain (6,11,15,24 & 31), four items in the level of independence domain (5,20,22 & 23), four items in the social relationship domain (17,25,26 & 27), eight items in the environment domain (12,13,16,18,19,28,29 & 30), four items in spirituality (7,8,9 & 10). The individual items are assessed using a 5-point Likert scale, with 1 indicating low or negative perceptions, and 5 indicating high or positive perceptions. Domain and facet scores are typically scaled in a positive direction, where higher scores correspond to better quality of life. However, certain facets (3, 4, 5, 8, 9, 10, and 31) are not scaled positively, meaning that higher scores do not necessarily indicate higher quality of life. These facets require recoding so that higher scores reflect better quality of life. To calculate domain scores, the mean score of items within each domain is determined. These mean scores are then multiplied by 4 to ensure consistency with the scoring system used in the WHOQOL, resulting in domain scores ranging from 4 to 20. In this study, the Cronbach's alpha coefficient for the overall quality of life scale was found to be 0. 88.

Pilot study

In the present research four scales namely, Singh Psychological Hardiness Scale, The Brief COPE, The Multidimensional Scale of Perceived Social Support scale, Quality of Life - WHOQOL-HIV BREF, questionnaire were found appropriate, all scale were available in English. But in the context of this research sample, questionnaires were initially explained to them. The scales in pilot study were-hardiness scale (30 items), Multidimensional Scale of Perceived Social Support scale (12 items), The Brief COPE (28 items), Quality of Life - WHOQOL-HIV BREF (31 items). Pilot study was conducted on the research sample of 30 HIV infected adults age ranging from 20-60 years. The aim of the pilot study was to check the appropriateness, understanding and finalization of the scale. Scoring for all the tools was done as per the scoring procedure specified for each scale. After conducting the pilot study, the reliability of all items was calculated and found items in each scale are reliable.

Table 1

Result for pilot study

Questionnaires	Description	No. of items	Time taken	Cronbac Alpha
Singh Psychological Hardiness Scale	Measure hardiness	30	25 minutes	. 77
The Multidimensional Scale of Perceived Social Support	Measure perceived social support	12	5 minutes	. 91
The Brief COPE	Measure coping style	28	20 minutes	. 82
WHOQOL-HIV BREF	Measure quality of life of HIV infected people	31	30 minutes	. 88

The participants were comfortable as the researcher had built a good relationship with the participants while filling the questionnaire. Completing the questionnaires provided a platform for participants to express themselves, leading to validation and relief. Clear explanations of the questionnaires create confidence in the research and the significance of their contribution. Knowing their input was valuable and confidential could have generated a sense of satisfaction and fulfillment. Good results on questionnaire reliability (Cronbach's alpha) further support the validity of the research.

Procedure

The present research has made an attempt to study the role of hardiness, perceived social support, coping style on quality of life in HIV-infected adults. As the first step in the procedure for data collection, the researcher approached Kerala State Aids Control Society (KSACS) and they gave a list of NGO's in each district in Kerala associated with HIV infected people. Then the respondents of study were selected from different NGOs such as KESS, community based organizations and care support centers for people living with HIV in Trivandrum, Kollam, Alappuzha, Kottayam, Idukki, Thrissur, Kozhikode, Malappuram and Wayanad districts in Kerala. The selected respondents were met individually and were informed about the purpose of the study. Data was collected using self reported questionnaires of hardiness, perceived social support, coping style and quality of life with validated and reliable scales.

The researcher approached the authorities of the NGO's for their permission to meet the participant individually. Immediately after the consultation with the physician, the participants will approach their respective NGOs to collect nutritional

resources. During the period, the participants are available for discussion. A rapport has been established with the participants through face-to-face interactions. The researcher conducted small discussions as a part of rapport-building, and it also helped participants open up about their distressful concerns. At the end of the discussion, the questionnaires were administered with their consent and permission to use the information for research purposes by promising them that the information would be kept confidential so that it would assist HIV-infected individuals as well as government and non-government entities in delivering better services. To help the HIV individual comprehend the value of the study, the questionnaire was initially explained to them. Additionally, volunteers and counsellors assisted in instilling confidence in the responses. First, they were asked to fill out a personal data sheet with all the basic information like age, gender, district of residence, education, occupation, marital status, residential background, type of family, HIV serostatus, mode of transmission, duration of infection, CD4 count, and duration of ART. They were also asked to fill out the questionnaires on hardiness, perceived social support, coping style, and quality of life. They were free to quit the test at any time without consent.

Statistical Analysis

The data were inputted into a Microsoft Excel spreadsheet. All statistical analyses were conducted using the R programming (version 4. 0. 6), and Microsoft Word was utilized to create tables. Prior to analyzing the data to test the hypotheses, the normality of the distribution was assessed using the Kolmogorov-Smirnov test. The following statistical techniques were used for analysing the data:

- Descriptive statistics
- Kolmogorov-Smirnov test
- Mann-Whitney U test
- Kruskal-Wallis H test
- Spearman's rank correlation rho
- Analysis of Variance
- Multiple linear regression

Descriptive Statistics

Descriptive statistics, including frequencies and percentages, were employed to depict the demographic characteristics of the participants.

Kolmogorov-Smirnov test

The Kolmogorov-Smirnov test, a nonparametric test for goodness-of-fit, assesses differences between two distributions or between an observed distribution and a hypothesized distribution. This test is advantageous because it evaluates distribution functions comprehensively (Kolmogorov–Smirnov test, 2008).

Mann-Whitney U test

The Mann-Whitney U test serves as a nonparametric alternative to the independent t-test, enabling comparison between two independent samples. It is used to determine whether two samples come from the same population. The Mann-Whitney U test is a great choice when the data is not normally distributed. It can also be applied in cases where the variances of the two groups are unequal (Daniel & Cross 2013).

Kruskal-Wallis H test

The Kruskal-Wallis (Kruskal & Wallis, 1952) test is a tool used in statistics for analyzing data that doesn't follow a normal distribution. It specifically checks for means among three or more independent groups, where each group has measurements on a single continuous variable. It assists researchers in determining whether multiple groups (minimum of three) exhibit statistically significant differences from each other when the data deviates from normal distribution. (McKight & Najab, 2010).

Spearman's Rank Correlation Rho

Spearman rank correlation method was developed by Charles Spearman and comes under the non-parametric method. It measures the direction and strength of the relationship between the variables. It also assesses the relationship using a monotonic function. It can be applied with both continuous and discrete variables (Myers & Sirois, 2004).

Analysis of Variance (ANOVA)

Researcher do an ANOVA to determine which prospective predictor variables show significant differences in means across various groups before utilizing multiple linear regression. The selection of pertinent variables that will eventually be incorporated into the regression model depends on this approach. Researcher can effectively identify relevant predictor variables, lower the probability of multicollinearity, and guarantee that statistically significant variables are included in the final regression model by using ANOVA prior to multiple linear regression.

Multiple linear regression analysis

Multiple regression analysis was applied to know about quality of life and the predictor relation to dimensions of hardiness, perceived social support, coping style, and with demographic data such as age, gender, education, occupation, marital status, residential background, type of family, HIV serostatus, mode of transmission, duration of infection, CD4 count, and duration of ART.

Multiple linear regression, also referred to as multiple regression, is a statistical method that employs multiple explanatory variables to forecast the outcome of a response variable. The objective of multiple linear regression is to construct a model that describes the linear association between the explanatory (independent) variables and the response (dependent) variable. It is an extension of simple linear regression and uses the same basic concept of predicting a response variable as a linear combination of the explanatory variables. Multiple linear regression serves not only to determine the magnitude of the relationship between several explanatory variables and the response variable but also to evaluate the influence of these variables on the response. Furthermore, it aids in pinpointing the most significant explanatory variables that exert the most substantial impact on the response variable. (Kutner et al., 2004).

Chapter 3

RESULTS AND DISCUSSION

This chapter provides the results of the analysis of the data, along with the discussion of the results. The obtained data were consolidated, coded, and analyzed using different statistical methods. Section 1 provides the sociodemographic characteristics of the participants. Section 2 provides the results of the comparisons of the main variables such as hardiness, perceived social support, coping style and quality of life under study with respect to different subgroups of the participants categorized on the basis of relevant sociodemographic & infection related variables' such as age, gender, education, occupation, marital status, residential background, type of family, HIV serostatus, mode of transmission, duration of infection, CD4 cell count, and duration of ART. Section 3 provides the result and discussion of the relationship obtained among the dimensions of main variables such as hardiness, perceived social support, coping style and quality of life. Section 4 provides the result and discussion of the predictive role obtained among the sociodemographic & infection related factors, and dimensions of main variables such as hardiness, perceived social support, coping style and quality of life.

Hardiness

Hardiness is a psychological concept referring to an individual's ability to cope with stress and adversity. It is a measure of one's psychological resilience. It is composed of three main components: commitment, control, and challenge (Kobasa, 1979).

- ***Commitment***

Commitment is the first dimension of hardiness. It is defined as the individual's commitment to their beliefs, values, and goals, despite the obstacles and

challenges they may face. This commitment serves as a motivating factor in the individual's life, and can give them a sense of purpose and direction.

- ***Control***

Control is the second dimension of hardiness. It refers to the individual's ability to take control of their environment, rather than being at the mercy of external forces. It involves the ability to make decisions about one's own life, as well as the capacity to influence and manage the outcomes of those decisions.

- ***Challenge***

Challenge is the third dimension of hardiness. It is the ability to accept and face challenges, rather than avoiding them. It involves the capacity to take risks, be creative, and remain open to change. It also involves the ability to learn from mistakes and use them to grow and develop.

Perceived social support

Perceived social support is an individual's subjective interpretation of the amount of support they receive from family, friends, and significant others. It is the individual's perception of the amount of emotional support and encouragement they receive from the important people in their life. Support from family, friends and significant others can manifest in many different ways (Zimet et al,1988)

- ***Support from family***

Support from family can include spending quality time together, offering advice and guidance, providing emotional support, and helping out with daily tasks.

- ***Friends***

Friends provide emotional support, companionship, and a safe space to express oneself without judgement.

- ***Significant others***

Support from significant others offer emotional support, companionship, understanding, and a sense of security. All of these forms of support can help an individual feel connected and valued, thus improving their overall wellbeing.

Coping style

Coping style refers to the strategies and techniques individuals use to manage stress, cope with difficult situations, and regulate their emotions. Different coping styles can be learned, developed, and adapted depending on the situation and the individual. Here the scale includes 14 subscales, self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, items venting, positive reframing, planning, humor, acceptance, religion, self-blame. Each of which measures an individual's use of a different coping strategy (Carver, 1997)

- ***Self-distraction:***

Self-distraction coping style involves changing one's focus away from a problem or stressor to something more pleasant or enjoyable.

- ***Active Coping***

Active coping style involves actively trying to solve the problem or reduce the stressor.

- ***Denial***

Denial coping style involves avoiding the problem or denying its existence.

- ***Substance Use***

Substance use coping style involves using alcohol or drugs as a way to cope with stress or difficult emotions.

- ***Use of Emotional Support***

Use of emotional support coping style involves seeking emotional support from friends, family, or professionals.

- ***Use of Instrumental Support***

Use of instrumental support coping style involves seeking practical help from others.

- ***Behavioral Disengagement***

Behavioral disengagement coping style involves avoiding the problem or distancing oneself from it.

- ***Venting***

Venting coping style involves expressing strong emotions related to the problem.

- ***Positive Reframing***

Positive reframing coping style involves looking for the positive aspects of a situation or trying to find a way to make the best of it.

- ***Planning***

Planning coping style involves breaking a problem down into smaller pieces and making a plan to address them.

- ***Humor***

Humor coping style involves using humor to lighten the mood or make the situation less stressful.

- ***Acceptance:***

Acceptance coping style involves accepting the situation and not trying to change it.

- ***Religion***

Religion coping style involves turning to religious beliefs and practices to cope with stress or difficult emotions.

- ***Self-Blame***

Self blame coping style involves blaming oneself for the problem or feeling guilty.

Quality of life

Quality of life refers to persons' overall satisfaction with life. It composed of six domains: physical (domain 1), psychological (domain 2), level of independence (domain 3), social relationships (domain 4), environment (domain 5), and spirituality (domain 6), it includes two items question 1 asks about overall quality of life and question 2 asks about health quality of life (WHOQOL, 2012)

- ***Domain 1(physical)***

The physical domain of quality of life contains questions about physical functioning, pain, energy, and sleep.

- ***Domain 2(psychological)***

The psychological domain of quality of life contains questions about feelings of self-esteem, satisfaction with life, and cognitive functioning.

- ***Domain 3(level of independence)***

The level of independence domain of quality of life depends on the individual, the situation, and the context. Generally, it is a measure of the extent to which an individual can make decisions and act independently and autonomously.

- ***Domain 4(social relationship)***

The social relationships domain of quality of life contains questions about the quality of relationships, support, and feeling of belonging.

- ***Domain 5(environment)***

The environment domain of quality of life contains questions about access to health care, financial resources, and physical safety.

- ***Domain 6(spirituality)***

The spirituality domain of quality of life contains questions about the respondent's beliefs, values, and spiritual support.

Section 1

Descriptive data of the participants

Table 2

Sociodemographic characteristics of the participants

Demographic variables	**n (441)**	**%**
Age		
Early adulthood	181	41. 04%
Middle adulthood	260	58. 96%
Gender		
Male	205	46. 49%
Female	236	53. 51%
Education		
SSLC	130	29. 48%
Plus two	234	53. 06%
Degree and above	77	17. 46%
Occupation		
With job	200	45. 35%
Without job	241	54. 65%
Marital status		
Married	260	58. 96%
Unmarried	89	20. 18%
Widow/divorced	92	20. 86%
Residential background		
Rural	356	80. 73%
Urban	85	19. 27%
Type of family		
Nuclear	130	29. 48%

Joined	311 70.	52%
HIV serostatus		
Asymptomatic	64	14. 51%
Symptomatic	377	85. 49%
Mode of transmission		
Blood transfusion	26	5. 9%
Injection	17	3. 85%
Sex	340	77. 1%
Others	58	13. 15%
Duration of infection		
1-5 years	259	58. 73%
6-10 years	110	24. 94%
More than 10 years	72	16. 33%
CD 4 count		
201-300	30	6. 8%
301-400	221	50. 11%
More than 500	190	43. 08%
Duration of ART		
1-5 years	263	59. 64%
More than 5 years	178	40. 36%

Table 2 shows the sociodemographic characteristics and percentage-wise distribution of HIV-infected adults. The age-wise distribution shows that 58. 96% (260) of people are in middle adulthood, and the remaining 41. 04% (181) belong to early adulthood. Many researchers have emphasized the role of age in the management of HIV. Studies reported that people who are in the age group of 50 to 59 are at the highest risk for severe health problems, including death (Blanco et al., 2012). The findings highlight the importance of a regular care plan for middle-aged adults to prevent mortality and illness-related uncertainties. Lucas & Wilson (2019) suggest that without any improvements in life standards, increased primary school completion may not reduce HIV transmission. So for the current study, education was taken as a demographic variable; 205 (46. 49%) were men and 236 (53. 51%)

were women. 53. 06% (234) participants have plus two levels of education; 130 (29. 48%) of them have less than 10th standard education; and only 77 (17. 46%) people have higher education. In order to comprehend health behaviours, health outcomes, and HIV transmission among individuals living with HIV, employment is a social determinant of health (Maulsby et al., 2020). For the present study, 241 (54. 65%) of them are jobless, and only 200 (54. 65%) of them have jobs.

The categories of marital status of HIV-infected adults are: 260 (58. 96%) were married women, 89 were unmarried (20. 18%), and 92 were widowed or divorced (20. 86%). Shisana et al. (2016) found that, compared to all other marital spouse categories, married individuals living with their spouse had a much lower chance of becoming HIV-positive. The study will help to find out whether there is any influence of marital status. According to Ibragimov et al. (2019), residential segregation can be a distal HIV predictor. Here, 356 (80. 73%) were from rural areas, and only 85 (19. 27%) were from urban areas. Bor & Goldman (1993) HIV disease impacts the entire family system, just like any other illness. Families impacted by HIV may experience a variety of disruptions as roles and relationships shift. Most participants are from joined family, 311 (70. 52%) and 130 (29. 48%) belongings to nuclear family.

Among the participants, 64 (14. 51%) of people with HIV serostatus are asymptomatic, and 377 (85. 49%) of them are symptomatic. Disclosure of one's serostatus is a crucial part of secondary HIV prevention, and it can help society by lowering risk factors for HIV transmission as well as the individual by increasing social support (Shacham, 2012). In the current study, 26 (5. 9%) persons mode of transmission of HIV is by blood transmission, 17 (3. 85%) by injection, 340 (77. 1%) of them infected with HIV by sex, and 58 (13. 15%) of them in other ways.

Although the ways of transmission of the Human Immunodeficiency Virus (HIV) have been well established, there are still a lot of misconceptions that lead to the stigmatisation of persons who are infected with the virus in society (Opeodu & Ogunrinde, 2015).

The duration of infection for 259 (58. 73%) people was one to five years; 110 (24. 94%) people had six to ten years of infection; and only 72 (16. 33%) people had been infected with HIV for more than ten years. Over the course of the HIV disease, the participants' quality of life has changed (Liu, 2006). The measurement of CD4 cell count helps to identify the progression of HIV (MacArthur, 2005). Only 30 (6. 8%) participants CD4 count is between 201-300; most of them, 221 (50. 11%) of them, are between 301–400, and 190 (43. 88%) people's CD4 count is more than 500. The morbidity and death rates of people living with HIV (PLWH) have significantly decreased with the advent of combination antiretroviral therapy (Bhaskaran,2008). In the present study, 263 (59. 64%) of them received ART for one to five years, and of 178 (40. 36%), the duration of ART was more than ten years.

Section 2

Comparisons of the sub variables based on sociodemographic & infection related factors

One of the main objective of the present study comparisons of the dimensions of main variables such as hardiness, perceived social support, coping style and quality of life under study with respect to relevant sociodemographic & infection related factors' such as age, gender, education, occupation, marital status, residential background, type of family, HIV serostatus, mode of transmission,

duration of infection, CD4 cell count, and duration of ART. To check if data is normally distributed, researcher can use the Kolmogorov-Smirnov test. Once normality is not established, use nonparametric tests like the Mann-Whitney U test (for two groups) to compare group means. And the Kruskal-Wallis H test for comparing differences between three or more groups.

Age: Age is a crucial factor when examining HIV vulnerability. Although it poses a threat to everyone, certain age groups may be at higher risk due to biological, social, and economic disparities. This study focuses on two groups, early and middle adulthood (specifically those aged 20 to 60) HIV infected adults.

Table 3

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on age

Variables	Age	N	Median	Mean	SD	Normality (P value)	Mean test (P value)
Commitment	Early Adulthood	181	35. 00	34. 39	4. 44	0. 00	0. 00
	Middle Adulthood	260	33. 00	32. 80	4. 70	0. 00	
Control	Early Adulthood	181	33. 00	32. 60	4. 37	0. 00	0. 23
	Middle Adulthood	260	32. 00	32. 05	4. 54	0. 00	
Challenge	Early Adulthood	181	33. 00	32. 46	4. 75	0. 00	0. 00
	Middle Adulthood	260	30. 00	30. 68	4. 48	0. 00	
Family	Early Adulthood	181	3. 00	3. 22	1. 19	0. 00	0. 00
	Middle Adulthood	260	3. 75	3. 71	1. 39	0. 00	
Friends	Early Adulthood	181	3. 00	3. 15	1. 18	0. 00	0. 00
	Middle Adulthood	260	3. 50	3. 59	1. 31	0. 00	
Significant others	Early Adulthood	181	2. 50	2. 94	1. 26	0. 00	0. 00
	Middle Adulthood	260	3. 25	3. 44	1. 30	0. 00	
Self distraction	Early Adulthood	181	4. 00	3. 94	1. 34	0. 00	0. 00
	Middle Adulthood	260	4. 00	4. 45	1. 30	0. 00	
Active coping	Early Adulthood	181	4. 00	4. 56	1. 24	0. 00	0. 01
	Middle Adulthood	260	5. 00	4. 83	1. 27	0. 00	
Denial	Early Adulthood	181	5. 00	4. 54	1. 38	0. 00	0. 16
	Middle Adulthood	260	5. 00	4. 74	1. 39	0. 00	
substance use	Early Adulthood	181	4. 00	4. 31	1. 42	0. 00	0. 35
	Middle Adulthood	260	4. 00	4. 45	1. 50	0. 00	
Use of emotional support	Early Adulthood	181	4. 00	3. 91	1. 34	0. 00	0. 00

Variables	Age	N	Median	Mean	SD	Normality (P value)	Mean test (P value)
Use of instrumental support	Middle Adulthood	260	5. 00	4. 47	1. 34	0. 00	0. 10
	Early Adulthood	181	4. 00	4. 61	1. 36	0. 00	
Behavioral disengagement	Middle Adulthood	260	5. 00	4. 82	1. 44	0. 00	0. 01
	Early Adulthood	181	4. 00	4. 19	1. 28	0. 00	
Venting	Middle Adulthood	260	5. 00	4. 50	1. 40	0. 00	0. 01
	Early Adulthood	181	5. 00	4. 60	1. 41	0. 00	
Positive reframing	Middle Adulthood	260	5. 00	4. 95	1. 25	0. 00	0. 00
	Early Adulthood	181	4. 00	4. 34	1. 37	0. 00	
Planning	Middle Adulthood	260	5. 00	4. 74	1. 19	0. 00	0. 20
	Early Adulthood	181	5. 00	4. 66	1. 39	0. 00	
Humor	Middle Adulthood	260	5. 00	4. 83	1. 41	0. 00	0. 00
	Early Adulthood	181	4. 00	4. 50	1. 26	0. 00	
Acceptance	Middle Adulthood	260	5. 00	4. 94	1. 35	0. 00	0. 00
	Early Adulthood	181	5. 00	4. 73	1. 34	0. 00	
Religion	Middle Adulthood	260	5. 00	5. 20	1. 46	0. 00	0. 00
	Early Adulthood	181	5. 00	4. 87	1. 44	0. 00	
Self blame	Middle Adulthood	260	5. 00	5. 30	1. 51	0. 00	0. 21
	Early Adulthood	181	5. 00	4. 84	1. 42	0. 00	
Domain 1 (Physical)	Middle Adulthood	260	5. 00	5. 00	1. 32	0. 00	0. 75
	Early Adulthood	181	12. 00	11. 52	1. 72	0. 00	
Domain 2 (Psychological)	Middle Adulthood	260	11. 00	11. 48	1. 63	0. 00	0. 00
	Early Adulthood	181	9. 60	9. 73	2. 05	0. 00	
Domain 3 (level of independence)	Middle Adulthood	260	10. 40	10. 60	2. 09	0. 00	0. 00
	Early Adulthood	181	10. 00	10. 69	2. 10	0. 00	
Domain 4 (Social relationship)	Middle Adulthood	260	11. 00	11. 41	1. 81	0. 00	0. 00
	Early Adulthood	181	10. 00	10. 12	2. 75	0. 00	
Domain 5 (Environment)	Middle Adulthood	260	11. 00	11. 16	2. 56	0. 00	0. 00
	Early Adulthood	181	40. 00	39. 71	9. 12	0. 00	
Domain 6 (Spirituality)	Middle Adulthood	260	42. 00	42. 84	8. 29	0. 00	0. 00
	Early Adulthood	181	13. 00	12. 42	2. 17	0. 00	
	Middle Adulthood	260	12. 00	11. 68	2. 29	0. 00	

Table 3 reveals significant age differences among adults living with HIV in several key areas. These areas include: hardiness (commitment and challenge), perceived social support (support from family, friends, and significant others), coping styles (self-distraction, active coping, use of emotional support, use of

instrumental support, behavioral disengagement, venting, positive reframing, humor, acceptance, and religion), and quality of life (psychological, independence, social relationships, environment, and spirituality domains).

Age & hardiness: Early adults showed greater commitment and challenge (dimensions of hardiness) compared to middle adults. Notably, age did not significantly influence the control dimension of hardiness. This difference in hardiness between age groups might be due to varying physical and mental capabilities among HIV-infected adults in these two groups. Younger people with HIV tend to have more physical and mental energy, which can make them more likely to take on challenges and commit to them. On the other hand, older people may have less physical and mental energy, which can make them less likely to take on challenges and commit to them. Hardiness is correlated with increasing age (Nicholas & Leuner, 1999).

Age & perceived social support: In the present study more support from family, friends and significant others (dimensions of perceived social support) received by middle adults than early adults. HIV infection can have a significant impact on a person's life, and the social support they receive from family, friends, and significant others can vary greatly depending on their age. Younger people may be more likely to receive support from their peers, while older people with HIV infection may be more likely to receive support from family and friends. In contrast to present study it is found that the support of friends decreases with age as does the support of significant others (Prezza & Giuseppina Pacilli, 2002).

Age & coping style: The study reveals how coping styles differ between early and middle adulthood for people living with HIV. In most of the coping styles

such as self-distraction, active coping, emotional support, behavioral disengagement, positive reframing, humor, acceptance, and religion, middle adults scored high when compared to early adults. This might be due to their experience in managing the diagnosis, stigma, and challenges associated with HIV. With more time to adjust, they might have developed a stronger sense of self-efficacy and a preference for proactive coping mechanisms. A middle adult often involves juggling career and family responsibilities, leading to increased stress. Established emotional support networks from friends and family can offer comfort and guidance during these demanding times. Differences in behavioral disengagement could be due to various factors like infection progression, heightened sense of responsibility, or decreased ability to manage stress otherwise. Variance in the use of venting as a coping style might suggest that with age, individuals become more aware of the consequences of their actions and turn towards other strategies like problem-solving or seeking social support. Similarly, positive reframing indicates a potential development of a more optimistic outlook as individuals navigate life with HIV. Humor usage as a coping strategy followed the same pattern as active coping, with two groups. Humor can be a powerful tool for reducing stress, and anxiety, and improving mood. Acceptance of the situation also increased with age. This suggests a potentially better ability to accept challenging situations and focus on coping mechanisms. Religion emerged as a more prominent coping strategy for middle-aged adults, and can provide a sense of community, purpose, hope, and comfort, all crucial aspects of managing the challenges associated with HIV. These results indicate that coping styles in adults with HIV evolve as they navigate life stages. While middle adulthood might utilize more experience-based proactive coping strategies, early adulthood might rely more

on emotional expression. Both age groups seem to benefit from social support networks and positive outlooks.

Age & quality of life: This study result reveals that overall, middle adulthood seems to be associated with a better quality of life (QoL) across various domains (psychological, level of independence, social relationship, and environment) except spirituality. Psychological QoL of middle adults due to established relationships and stronger support networks that provide a buffer against the challenges of HIV. Research suggests a similar trend, with individuals aged 40 and above generally reporting a higher overall QoL (Karkashadze et al., 2017). A similar pattern emerged for the level of independence domain within QoL. This might be because they've had more time to adjust to the diagnosis, develop coping mechanisms, and gain a better understanding of their needs, leading to increased self-efficacy. However, Pereira & Canavarro (2011) found younger adults with HIV reported higher scores in the level of independence domain. More research is needed to understand this discrepancy. The social relationship domain of QoL also showed a positive correlation with age. This likely reflects the established social networks and pre-existing relationships with family and friends that provide crucial support for individuals living with HIV. The environment domain of QoL of middle adults because of advancements in HIV treatment, improved healthcare access, and greater societal acceptance likely contribute to a more manageable environment for those living with HIV. The study found in spirituality domain of QoL early adults scored higher than middle adults. Younger adults may grapple more intensely with their mortality and seek solace and coping mechanisms through faith and spiritual practices in the initial stages after diagnosis. Research by Ansah (2017) also supports the existence of quality of life variations across different age groups among

people with HIV. The study result suggests that QoL in adults with HIV improves with age, potentially due to factors like established social networks, better self-efficacy, and a more manageable environment. However, the trend for spirituality suggests further exploration of how individuals navigate their faith and HIV diagnosis at different stages of life

Gender: Gender differences in people living with HIV are important to consider when developing prevention and treatment strategies. Gender can influence HIV transmission and susceptibility, access to health care, social support, and psychological well-being. Both males and females are included in the study.

Table 4

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on gender

Variables	Gender	N	Median	Mean	SD	Normality	Mean test
Commitment	Male	236	34. 00	33. 66	4. 51	0. 00	0. 30
	Female	205	34. 00	33. 20	4. 82	0. 00	
Control	Male	236	32. 00	32. 29	4. 49	0. 00	0. 80
	Female	205	32. 00	32. 25	4. 46	0. 00	
Challenge	Male	236	31. 00	31. 46	4. 78	0. 00	0. 97
	Female	205	31. 00	31. 35	4. 55	0. 00	
Family	Male	236	3. 00	3. 34	1. 30	0. 00	0. 00
	Female	205	3. 75	3. 71	1. 34	0. 00	
Friends	Male	236	3. 00	3. 29	1. 26	0. 00	0. 03
	Female	205	3. 50	3. 55	1. 28	0. 00	
Significant others	Male	236	2. 75	3. 08	1. 29	0. 00	0. 01
	Female	205	3. 25	3. 41	1. 32	0. 00	
Self distraction	Male	236	4. 00	4. 05	1. 34	0. 00	0. 00
	Female	205	4. 00	4. 45	1. 31	0. 00	
Active coping	Male	236	5. 00	4. 57	1. 24	0. 00	0. 01
	Female	205	5. 00	4. 89	1. 27	0. 00	
Denial	Male	236	5. 00	4. 55	1. 33	0. 00	0. 11
	Female	205	5. 00	4. 78	1. 44	0. 00	
substance use	Male	236	4. 00	4. 25	1. 46	0. 00	0. 03
	Female	205	4. 00	4. 56	1. 47	0. 00	
Use of emotional support	Male	236	4. 00	4. 07	1. 34	0. 00	0. 01
	Female	205	4. 00	4. 43	1. 38	0. 00	
Use of instrumental support	Male	236	5. 00	4. 70	1. 38	0. 00	0. 35
	Female	205	5. 00	4. 78	1. 44	0. 00	
Behavioral disengagement	Male	236	4. 00	4. 20	1. 27	0. 00	0. 00
	Female	205	5. 00	4. 58	1. 43	0. 00	

Variables	Gender	N	Median	Mean	SD	Normality	Mean test
Venting	Male	236	5. 00	4. 69	1. 30	0. 00	0. 03
	Female	205	5. 00	4. 95	1. 35	0. 00	
Positive reframing	Male	236	4. 00	4. 55	1. 36	0. 00	0. 61
	Female	205	5. 00	4. 60	1. 19	0. 00	
Planning	Male	236	5. 00	4. 66	1. 43	0. 00	0. 10
	Female	205	5. 00	4. 87	1. 35	0. 00	
Humor	Male	236	5. 00	4. 64	1. 35	0. 00	0. 03
	Female	205	5. 00	4. 89	1. 30	0. 00	
Acceptance	Male	236	5. 00	4. 90	1. 45	0. 00	0. 05
	Female	205	5. 00	5. 13	1. 41	0. 00	
Religion	Male	236	5. 00	4. 99	1. 48	0. 00	0. 04
	Female	205	5. 00	5. 28	1. 50	0. 00	
Self blame	Male	236	5. 00	4. 83	1. 37	0. 00	0. 06
	Female	205	5. 00	5. 05	1. 34	0. 00	
Domain 1 (Physical)	Male	236	11. 00	11. 44	1. 64	0. 00	0. 58
	Female	205	11. 00	11. 56	1. 70	0. 00	
Domain 2 (Psychological)	Male	236	10. 40	10. 10	2. 15	0. 00	0. 32
	Female	205	10. 40	10. 40	2. 07	0. 00	
Domain 3 (level of independence)	Male	236	11. 00	10. 94	1. 96	0. 00	0. 04
	Female	205	11. 00	11. 33	1. 95	0. 00	
Domain 4 (Social relationship)	Male	236	10. 00	10. 29	2. 68	0. 00	0. 00
	Female	205	11. 00	11. 24	2. 62	0. 00	
Domain 5 (Environment)	Male	236	40. 00	40. 24	8. 46	0. 00	0. 00
	Female	205	44. 00	43. 07	8. 89	0. 00	
Domain 6 (Spirituality)	Male	236	12. 00	12. 00	2. 28	0. 00	0. 92
	Female	205	12. 00	11. 96	2. 26	0. 00	

Table 4 indicates that there is no significant gender difference in hardiness. However there is a significant gender differences observed in perceived social support, coping styles (Self-distraction, active coping, substance use, use of emotional support, behavioral disengagement, venting, humor, and religion), quality of life (level of independence, social relationships, and environment domains).

Gender & perceived social support: The study found that females received greater support from family, friends, and significant others compared to males. This aligns with the perception of women being more vulnerable and needing more support. However, it's important to note that another study by Pandey & Shrivastava (2015) found no significant gender difference in social support for people living

with HIV. This inconsistency highlights the need for further research to understand the complex interplay between gender, social support networks, and HIV infection.

Gender & coping style: Females scored higher than males in use of various coping styles (Self-distraction, active coping, substance use, emotional support, behavioral disengagement, venting, humor, and religion) of HIV infected adults. Differences in self-distraction, possibly due to societal expectations of women to openly express emotions. These strategies help them manage the intensity of their feelings. Uses of active coping reflect a sense of empowerment in taking control of their health and well-being. Variation in substance use may be linked to the unique stressors women face, such as discrimination and limited resources, leading them to turn to substances as a coping mechanism. Coping style like emotional support is valuable for managing emotions of HIV infected people. The lower perceived support for females suggests a potential impact on their overall health. Females also displayed higher scores in behavioral disengagement. Societal expectations and physical differences might contribute to this variation on venting as a coping style. This may indicate that women expressing emotions through verbal expression, societal norms often encourage women to be more expressive with their emotions. Venting allows for the release of built-up frustration and emotional intensity. Humor can be a valuable stress reliever, particularly for women living with HIV. Finally, religious coping showed a significant difference, with females scoring higher than males. This could be due to women being raised in more religious households and finding comfort and support in their faith. These findings support existing research on gender differences in coping mechanisms among people with HIV (Jaiswal et al., 2019; Rzeszutek, 2018). Understanding these disparities is crucial for developing gender-sensitive support programs for individuals living with HIV.

Gender & quality of life: Based on gender of HIV infected adults there are significant disparities have been observed in various domains of quality of life (level of independence, social relationship, environment). HIV infected females with level of independence often manage additional responsibilities and face greater social and economic challenges compared to men. Gender differences emerged in social relationships shows that the stigma surrounding HIV might lead women to seek support primarily from other women who share similar experiences. Disparity in the environment domain could be due to potential benefits for women with HIV, such as improved access to education, employment, housing, and greater social acceptance. These findings suggest that women with HIV might navigate social and economic challenges differently than men, potentially leading to variations in their quality of life.

Education: Education level is important for HIV infected adults as it helps to improve their quality of life and well-being. It can give them by means of knowledge and skills they require to make knowledgeable choices about their physical condition and well-being, including making better choices about their lifestyle, medication, and treatment. HIV-infected adults are classified according to their educational attainment levels, including SSLC, plus two and degree & above.

Table 5

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on education

Variables	Education	N	Median	Mean	SD	Normality	Mean test
Commitment	SSLC	130	32. 50	32. 60	4. 57	0. 00	0. 17
	Plus Two	77	32. 00	33. 03	4. 25	0. 00	
	Degree and Above	234	32. 00	31. 85	4. 46	0. 00	
Control	SSLC	130	32. 50	32. 60	4. 57	0. 00	0. 17
	Plus Two	77	32. 00	33. 03	4. 25	0. 00	
	Degree and Above	234	32. 00	31. 85	4. 46	0. 00	
Challenge	SSLC	130	31. 00	31. 05	4. 68	0. 00	0. 00

Variables	Education	N	Median	Mean	SD	Normality	Mean test
	Plus Two	77	34. 00	33. 74	4. 23	0. 00	
	Degree and Above	234	31. 00	30. 84	4. 59	0. 00	
Family	SSLC	130	3. 75	3. 95	1. 41	0. 00	0. 00
	Plus Two	77	2. 50	2. 84	1. 12	0. 00	
	Degree and Above	234	3. 25	3. 48	1. 25	0. 00	
Friends	SSLC	130	3. 75	3. 75	1. 31	0. 00	0. 00
	Plus Two	77	2. 50	2. 74	1. 08	0. 00	
	Degree and Above	234	3. 25	3. 44	1. 23	0. 00	
Significant others	SSLC	130	3. 50	3. 71	1. 33	0. 00	0. 00
	Plus Two	77	2. 00	2. 43	0. 92	0. 00	
	Degree and Above	234	3. 00	3. 24	1. 28	0. 00	
Self distraction	SSLC	130	5. 00	4. 57	1. 35	0. 00	0. 00
	Plus Two	77	3. 00	3. 47	1. 30	0. 00	
	Degree and Above	234	4. 00	4. 31	1. 25	0. 00	
Active coping	SSLC	130	5. 00	4. 88	1. 22	0. 00	0. 00
	Plus Two	77	4. 00	4. 17	1. 10	0. 00	
	Degree and Above	234	5. 00	4. 81	1. 29	0. 00	
Denial	SSLC	130	5. 00	4. 90	1. 38	0. 00	0. 00
	Plus Two	77	4. 00	4. 17	1. 32	0. 00	
	Degree and Above	234	5. 00	4. 68	1. 38	0. 00	
Substance use	SSLC	130	5. 00	4. 51	1. 50	0. 00	0. 46
	Plus Two	77	4. 00	4. 36	1. 42	0. 00	
	Degree and Above	234	4. 00	4. 33	1. 47	0. 00	
Use of emotional support	SSLC	130	5. 00	4. 51	1. 34	0. 00	0. 00
	Plus Two	77	3. 00	3. 51	1. 15	0. 00	
	Degree and Above	234	4. 00	4. 33	1. 37	0. 00	
Use of instrumental support	SSLC	130	5. 00	4. 82	1. 32	0. 00	0. 00
	Plus Two	77	4. 00	4. 22	1. 17	0. 00	
	Degree and Above	234	5. 00	4. 86	1. 49	0. 00	
Behavioral disengagement	SSLC	130	5. 00	4. 69	1. 39	0. 00	0. 00
	Plus Two	77	4. 00	3. 88	1. 11	0. 00	
	Degree and Above	234	4. 00	4. 36	1. 37	0. 00	
Venting	SSLC	130	5. 00	5. 11	1. 36	0. 00	0. 00
	Plus Two	77	4. 00	4. 42	1. 47	0. 00	
	Degree and Above	234	5. 00	4. 77	1. 22	0. 00	
Positive reframing	SSLC	130	5. 00	4. 87	1. 25	0. 00	0. 00
	Plus Two	77	4. 00	4. 07	1. 26	0. 00	
	Degree and Above	234	4. 00	4. 58	1. 25	0. 00	
Planning	SSLC	130	5. 00	4. 99	1. 34	0. 00	0. 11
	Plus Two	77	5. 00	4. 65	1. 42	0. 00	
	Degree and	234	5. 00	4. 67	1. 41	0. 00	

Variables	Education	N	Median	Mean	SD	Normality	Mean test
Humor	Above SSLC	130	5. 00	5. 02	1. 44	0. 00	0. 00
	Plus Two	77	4. 00	4. 18	1. 23	0. 00	
	Degree and Above	234	5. 00	4. 80	1. 24	0. 00	
Acceptance	SSLC	130	5. 00	5. 35	1. 44	0. 00	0. 00
	Plus Two	77	4. 00	4. 30	1. 35	0. 00	
	Degree and Above	234	5. 00	5. 04	1. 38	0. 00	
Religion	SSLC	130	6. 00	5. 48	1. 60	0. 00	0. 00
	Plus Two	77	4. 00	4. 47	1. 30	0. 00	
	Degree and Above	234	5. 00	5. 14	1. 43	0. 00	
Self blame	SSLC	130	5. 00	5. 12	1. 34	0. 00	0. 01
	Plus Two	77	5. 00	4. 54	1. 47	0. 00	
	Degree and Above	234	5. 00	4. 96	1. 31	0. 00	
Domain 1 (Physical)	SSLC	130	11. 50	11. 53	1. 66	0. 00	0. 84
	Plus Two	77	11. 00	11. 40	1. 44	0. 00	
	Degree and Above	234	11. 00	11. 50	1. 74	0. 00	
Domain 2 (Psychological)	SSLC	130	11. 20	10. 88	1. 91	0. 00	0. 00
	Plus Two	77	8. 80	9. 13	2. 13	0. 00	
	Degree and Above	234	10. 40	10. 25	2. 08	0. 00	
Domain 3 (level of independence)	SSLC	130	12. 00	11. 71	1. 81	0. 00	0. 00
	Plus Two	77	10. 00	9. 97	1. 75	0. 00	
	Degree and Above	234	11. 00	11. 16	1. 95	0. 00	
Domain 4 (Social relationship)	SSLC	130	11. 00	11. 19	2. 22	0. 00	0. 00
	Plus Two	77	9. 00	9. 38	2. 82	0. 00	
	Degree and Above	234	11. 00	10. 93	2. 75	0. 00	
Domain 5 (Environment)	SSLC	130	44. 00	43. 26	7. 78	0. 00	0. 00
	Plus Two	77	36. 00	36. 96	8. 22	0. 00	
	Degree and Above	234	42. 00	42. 12	8. 98	0. 00	
Domain 6 (Spirituality)	SSLC	130	12. 00	11. 75	2. 06	0. 00	0. 00
	Plus Two	77	13. 00	13. 20	1. 71	0. 00	
	Degree and Above	234	12. 00	11. 71	2. 42	0. 00	

Table 5 shows significant difference in hardiness (challenge), perceived social support (Support from family, friends, and significant others), coping styles (Self-distraction, active coping, denial, use of emotional support, use of instrumental

support, behavioral disengagement, positive reframing, venting, humor, acceptance, religion and self blame), and quality of life (psychological, level of independence, social relationships, environment and spiritual domains) of HIV infected adults based on their level of education.

Education & hardiness: Adults with higher education (plus two) scored highest on the challenge dimension, indicating a better perception of their ability to control their health. This could be due to increased knowledge and skills related to HIV management. No significant differences were found in commitment and control scores based on education level. Commitment and control may be influenced by factors beyond education, such as social support, access to healthcare, and individual personality. The findings suggest that education may play a role in how HIV-infected adults perceive their ability to manage their condition. However, other factors likely play a significant role as well.

Education & perceived social support*:* There's a potential link between educational attainment and perceived social support among HIV-infected adults, with those having SSLC education reporting the highest social support. Adults with SSLC education reported the highest perceived social support from family, friends, and significant others. This could be due to various reasons; perhaps individuals at this SSLC level are at a stage in life where they have established strong social connections with family and friends who are willing to provide support.

Education & coping style*:* In the current study, a notable divergence emerges in the educational background of HIV-infected adults, particularly in the utilization of coping styles. Those with lower education (SSLC) score higher on coping styles (self-distraction, active coping, denial, use of emotional support, use of

instrumental support, behavioral disengagement, positive reframing, venting, humor, acceptance, religion and self-blame) than other groups.

The use of coping styles among lower-educated adults with HIV is likely influenced by a complex interplay of socioeconomic, cultural, and psychological factors. Lower-educated individuals may have limited access to resources such as healthcare, social support, and information about HIV. As a result, they may rely more on coping strategies that are readily available to them, such as self-distraction or denial, to manage the stress and challenges associated with living with HIV. They may face higher levels of stigma and discrimination related to their HIV status. Coping strategies such as denial or substance use may be used as a way to avoid or escape from the negative feelings and experiences associated with stigma and discrimination. Less knowledge about HIV and its management, leading to a reliance on coping strategies that are not necessarily effective in addressing the challenges of living with HIV. Social support networks or may be surrounded by peers who also have limited education and resources. This can influence the types of coping strategies that are perceived as acceptable or effective within their social circles. In some cultures or socioeconomic contexts, seeking professional help for mental health issues may be stigmatized or financially inaccessible, leading individuals to rely on other coping strategies. Lower-educated individuals may have higher rates of comorbid mental health issues such as depression or anxiety, which can influence their coping strategies. For example, individuals experiencing depression may be more likely to use avoidant coping strategies such as self-blame or behavioral disengagement.

Education & quality of life*:* Education plays a vital role in enhancing the quality of life for individuals living with HIV infected adults, it serves as a crucial

tool in the prevention of HIV transmission, achieving this through capacity building, providing essential information, and empowering individuals (Bhatta et al., 2013). The present study shows a significant difference in psychological (domain 2) level of independence (domain 3), social relationships (domain 4), environment (domain 5) and spirituality (domain 6) quality of life based on education of HIV infected adults. It is possible that lower educated people with HIV may have more support from others, which can help to improve their psychological quality of life. In contrast to present study, another study result revealed that lower education level was related with poor quality of life in the psychological and environment domains (da Silva et al., 2013). Lower educated people with HIV may have a higher level of independence in terms of their quality of life because they may have fewer financial resources and fewer social connections than more educated people. In contrast to present study, another study result found that persons with high education were more likely to have good general quality of life as compared with those with low education (Karkashadze et al., 2017). Social relationship of HIV-positive individuals, which could lead to a higher level of social support. Environment quality of life of them may have access to better medical care, counseling, and other services that can help them manage their condition. In contrast to present study, another study result revealed that lower education level was related with poor quality of life in environment domains (da Silva et al., 2013). Those with lower levels of education may be more likely to have a greater understanding of the spiritual aspects of life. This could lead to a higher quality of life overall. The impact of educational programs extends to improving adherence to antiretroviral therapy, enhancing knowledge about the condition, and ultimately leading to better health outcomes (Goujard et al., 2003). Additionally, education emerges as a key factor in

diminishing HIV-related risks and vulnerabilities, in addition to alleviate the overall bang of the pandemic of affected persons and communities (Aggleton et al., 2011)

Occupation: Employment status holds significant importance in the lives of HIV-infected adults, offering them structure, stability, and a sense of purpose. The study encompasses HIV-infected adults both with job and without job.

Table 6

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on occupation

Variables	Occupation	N	Median	Mean	SD	Normality	Mean test
Commitment	With Job	200	34. 00	33. 19	4. 69	0. 00	0. 22
	Without Job	241	34. 00	33. 66	4. 63	0. 00	
Control	With Job	200	33. 00	32. 32	4. 48	0. 00	0. 44
	Without Job	241	32. 00	32. 24	4. 47	0. 00	
Challenge	With Job	200	31. 00	30. 96	4. 51	0. 00	0. 04
	Without Job	241	32. 00	31. 78	4. 78	0. 00	
Family	With Job	200	3. 75	3. 75	1. 30	0. 00	0. 00
	Without Job	241	3. 00	3. 31	1. 32	0. 00	
Friends	With Job	200	3. 50	3. 64	1. 24	0. 00	0. 00
	Without Job	241	3. 00	3. 21	1. 27	0. 00	
Significant others	With Job	200	3. 25	3. 48	1. 27	0. 00	0. 00
	Without Job	241	2. 75	3. 03	1. 30	0. 00	
Self distraction	With Job	200	4. 00	4. 44	1. 25	0. 00	0. 00
	Without Job	241	4. 00	4. 07	1. 39	0. 00	
Active coping	With Job	200	5. 00	5. 00	1. 26	0. 00	0. 00
	Without Job	241	4. 00	4. 49	1. 23	0. 00	
Denial	With Job	200	5. 00	4. 74	1. 46	0. 00	0. 24
	Without Job	241	5. 00	4. 59	1. 32	0. 00	
substance use	With Job	200	4. 00	4. 49	1. 52	0. 00	0. 24
	Without Job	241	4. 00	4. 31	1. 43	0. 00	
Use of emotional support	With Job	200	4. 00	4. 47	1. 35	0. 00	0. 00
	Without Job	241	4. 00	4. 05	1. 35	0. 00	
Use of instrumental support	With Job	200	5. 00	4. 92	1. 44	0. 00	0. 00
	Without Job	241	4. 00	4. 58	1. 36	0. 00	
Behavioral disengagement	With Job	200	4. 00	4. 41	1. 42	0. 00	0. 68
	Without Job	241	4. 00	4. 35	1. 31	0. 00	
Venting	With Job	200	5. 00	4. 88	1. 29	0. 00	0. 18
	Without Job	241	5. 00	4. 75	1. 36	0. 00	
Positive reframing	With Job	200	5. 00	4. 65	1. 23	0. 00	0. 26
	Without Job	241	4. 00	4. 51	1. 32	0. 00	
Planning	With Job	200	5. 00	4. 76	1. 38	0. 00	0. 80
	Without Job	241	5. 00	4. 75	1. 42	0. 00	
Humor	With Job	200	5. 00	4. 91	1. 20	0. 00	0. 02
	Without Job	241	5. 00	4. 63	1. 42	0. 00	

Variables	Occupation	N	Median	Mean	SD	Normality	Mean test
Acceptance	With Job	200	5. 00	5. 12	1. 38	0. 00	0. 11
	Without Job	241	5. 00	4. 91	1. 47	0. 00	
Religion	With Job	200	5. 00	5. 36	1. 46	0. 00	0. 00
	Without Job	241	5. 00	4. 93	1. 50	0. 00	
Self blame	With Job	200	5. 00	5. 01	1. 31	0. 00	0. 18
	Without Job	241	5. 00	4. 86	1. 40	0. 00	
Domain 1 (Physical)	With Job	200	12. 00	11. 63	1. 77	0. 00	0. 17
	Without Job	241	11. 00	11. 38	1. 57	0. 00	
Domain 2 (Psychological)	With Job	200	10. 40	10. 58	2. 04	0. 00	0. 01
	Without Job	241	10. 40	9. 96	2. 14	0. 00	
Domain 3 (level of independence)	With Job	200	11. 00	11. 47	1. 89	0. 00	0. 00
	Without Job	241	11. 00	10. 82	1. 97	0. 00	
Domain 4 (Social relationship)	With Job	200	11. 00	11. 17	2. 54	0. 00	0. 00
	Without Job	241	10. 00	10. 37	2. 76	0. 00	
Domain 5 (Environment)	With Job	200	44. 00	43. 49	8. 34	0. 00	0. 00
	Without Job	241	40. 00	39. 95	8. 81	0. 00	
Domain 6 (Spirituality)	With Job	200	12. 00	11. 76	2. 36	0. 00	0. 08
	Without Job	241	12. 00	12. 17	2. 18	0. 00	

Table 6 shows a significant difference in hardiness (challenge), perceived social support (support from family, friends, and significant others), coping styles (Self-distraction, active coping, use of emotional support, use of instrumental support, humor, and religion), and quality of life (psychological, level of independence, social relationships, and environment domains) of HIV infected adults based on their occupation status.

Occupation & hardiness: Unemployed HIV-infected adults may experience greater difficulty developing hardiness, particularly the challenge dimension, as shown by their higher mean scores. This could be due to the additional challenges they face, such as stigma, financial strain, and emotional distress. There is no significant differences were found in the commitment and control dimensions of hardiness.

Occupation & perceived social support*:* The study found that employed HIV-infected adults reported higher perceived social support from family, friends,

and significant others compared to unemployed individuals. This difference could be due to several factors. Employment might provide greater access to financial resources, allowing individuals to afford counseling or support groups. Employed individuals might build stronger social networks through work colleagues or professional circles, leading to more people willing to offer emotional and practical support. Unemployed individuals might face limitations in accessing these resources and social connections, potentially leading to feelings of isolation and lower perceived social support.

Occupation & coping style*:* Employment appears to influence coping styles. Employed individuals reported using several coping mechanisms more frequently than unemployed individuals. Employed adults scored higher in self-distraction and active coping. This could be due to better access to resources like income and emotional support from colleagues, allowing them to manage challenges more effectively. Employed individuals also relied more on emotional support from others and used instrumental support more often. Having a job might provide a sense of purpose and structure, facilitating access to support systems. Employed adults also scored higher in using humor and religion as coping mechanisms. Employment-related stress might lead them to use humor more frequently, while a job could also contribute to a more positive outlook that fosters using humor. Lastly, employed individuals might be more likely to seek spiritual guidance and comfort from religion to manage job stress.

Occupation & quality of life: The study revealed a clear link between employment and a higher quality of life across multiple domains for HIV-infected adults. Employed individuals reported a significantly better psychological quality of life. This could be due to the social connections formed at work, fostering

meaningful relationships and boosting overall well-being. Employment provided greater independence and autonomy for those with HIV. A job can help to reduce the stigma associated with the virus and empower individuals to manage their lives more independently. This aligns with previous research by Swindells et al. (1999). Additionally, employment can offer access to health insurance and other benefits, further improving their quality of life. Employed adults reported a higher quality of life in their social relationships. Work environments can provide opportunities to build social connections, offering access to resources and support networks that can be crucial for managing HIV. Employed individuals had a significantly better environmental quality of life. This could be because employment allows access to better healthcare, essential support services, and various resources that can significantly aid in managing their HIV infection.

Marital status: The marital status of individuals living with HIV can profoundly affect their mental and physical well-being, access to broader social support networks, and adherence to medication regimens. The study sample includes HIV-infected adults who are married, unmarried, or widowed/divorced.

Table 7

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on marital status

Variables	Marital status	N	Median	Mean	SD	Normality	Mean test
Commitment	Married	260	33. 00	32. 77	4. 77	0. 00	0. 00
	Unmarried	89	36. 00	35. 54	3. 82	0. 00	
	Widow/ Divorced	92	34. 00	33. 35	4. 52	0. 00	
Control	Married	260	32. 00	31. 85	4. 43	0. 00	0. 11
	Unmarried	89	32. 00	32. 69	4. 20	0. 00	
	Widow/ Divorced	92	33. 00	33. 08	4. 74	0. 00	
Challenge	Married	260	31. 00	31. 02	4. 28	0. 00	0. 01
	Unmarried	89	33. 00	32. 97	4. 74	0. 00	
	Widow/ Divorced	92	31. 00	31. 01	5. 35	0. 00	
Family	Married	260	3. 75	3. 81	1. 32	0. 00	0. 00
	Unmarried	89	2. 50	2. 76	1. 01	0. 00	
	Widow/ Divorced	92	3. 00	3. 39	1. 34	0. 00	
Friends	Married	260	3. 50	3. 60	1. 22	0. 00	0. 00

Variables	Marital status	N	Median	Mean	SD	Normality	Mean test
	Unmarried	89	2. 50	2. 79	1. 11	0. 00	
	Widow/ Divorced	92	3. 25	3. 48	1. 39	0. 00	
Significant others	Married	260	3. 25	3. 46	1. 28	0. 00	0. 00
	Unmarried	89	2. 00	2. 44	0. 92	0. 00	
	Widow/ Divorced	92	3. 00	3. 38	1. 43	0. 00	
Self distraction	Married	260	4. 00	4. 46	1. 32	0. 00	0. 00
	Unmarried	89	3. 00	3. 53	1. 20	0. 00	
	Widow/ Divorced	92	4. 00	4. 30	1. 29	0. 00	
Active coping	Married	260	5. 00	4. 82	1. 20	0. 00	0. 00
	Unmarried	89	4. 00	4. 29	1. 23	0. 00	
	Widow/ Divorced	92	5. 00	4. 86	1. 41	0. 00	
Denial	Married	260	5. 00	4. 79	1. 38	0. 00	0. 01
	Unmarried	89	4. 00	4. 27	1. 31	0. 00	
	Widow/ Divorced	92	5. 00	4. 64	1. 42	0. 00	
Substance use	Married	260	4. 00	4. 46	1. 47	0. 00	0. 58
	Unmarried	89	4. 00	4. 32	1. 47	0. 00	
	Widow/ Divorced	92	4. 00	4. 27	1. 47	0. 00	
Use of emotional support	Married	260	5. 00	4. 51	1. 32	0. 00	0. 00
	Unmarried	89	3. 00	3. 48	1. 11	0. 00	
	Widow/ Divorced	92	4. 00	4. 20	1. 44	0. 00	
Use of instrumental support	Married	260	5. 00	4. 93	1. 37	0. 00	0. 00
	Unmarried	89	4. 00	4. 26	1. 33	0. 00	
	Widow/ Divorced	92	4. 50	4. 64	1. 48	0. 00	
Behavioral disengagement	Married	260	5. 00	4. 59	1. 35	0. 00	0. 00
	Unmarried	89	4. 00	3. 94	1. 20	0. 00	
	Widow/ Divorced	92	4. 00	4. 20	1. 42	0. 00	
Venting	Married	260	5. 00	4. 97	1. 24	0. 00	0. 00
	Unmarried	89	4. 00	4. 40	1. 50	0. 00	
	Widow/ Divorced	92	5. 00	4. 75	1. 31	0. 00	
Positive reframing	Married	260	5. 00	4. 74	1. 24	0. 00	0. 00
	Unmarried	89	4. 00	4. 15	1. 26	0. 00	
	Widow/ Divorced	92	4. 50	4. 52	1. 33	0. 00	
Planning	Married	260	5. 00	4. 84	1. 40	0. 00	0. 33
	Unmarried	89	5. 00	4. 61	1. 44	0. 00	
	Widow/ Divorced	92	5. 00	4. 67	1. 36	0. 00	
Humor	Married	260	5. 00	4. 95	1. 26	0. 00	0. 00
	Unmarried	89	4. 00	4. 21	1. 24	0. 00	
	Widow/ Divorced	92	5. 00	4. 76	1. 46	0. 00	
Acceptance	Married	260	5. 00	5. 18	1. 44	0. 00	0. 00
	Unmarried	89	4. 00	4. 36	1. 31	0. 00	
	Widow/ Divorced	92	5. 00	5. 13	1. 35	0. 00	
Religion	Married	260	5. 00	5. 28	1. 54	0. 00	0. 00
	Unmarried	89	5. 00	4. 57	1. 30	0. 00	
	Widow/ Divorced	92	5. 00	5. 22	1. 43	0. 00	
Self blame	Married	260	5. 00	5. 05	1. 30	0. 00	0. 02
	Unmarried	89	5. 00	4. 56	1. 42	0. 00	
	Widow/ Divorced	92	5. 00	4. 95	1. 39	0. 00	
Domain 1 (Physical)	Married	260	12. 00	11. 55	1. 63	0. 00	0. 37
	Unmarried	89	11. 00	11. 44	1. 64	0. 00	
	Widow/ Divorced	92	11. 00	11. 38	1. 78	0. 00	
Domain 2 (Psychological)	Married	260	10. 40	10. 52	2. 02	0. 00	0. 00
	Unmarried	89	9. 60	9. 30	2. 04	0. 00	
	Widow/ Divorced	92	10. 40	10. 36	2. 21	0. 00	

Variables	Marital status	N	Median	Mean	SD	Normality	Mean test
Domain 3 (level of independence)	Married	260	11. 00	11. 27	1. 74	0. 00	0. 00
	Unmarried	89	10. 00	10. 36	2. 12	0. 00	
	Widow/ Divorced	92	11. 00	11. 44	2. 21	0. 00	
Domain 4 (Social relationship)	Married	260	11. 00	11. 19	2. 54	0. 00	0. 00
	Unmarried	89	10. 00	9. 60	2. 94	0. 00	
	Widow/ Divorced	92	11. 00	10. 55	2. 53	0. 00	
Domain 5 (Environment)	Married	260	44. 00	43. 05	8. 56	0. 00	0. 00
	Unmarried	89	36. 00	37. 30	8. 69	0. 00	
	Widow/ Divorced	92	42. 00	41. 44	8. 12	0. 00	
Domain 6 (Spirituality)	Married	260	12. 00	11. 76	2. 13	0. 00	0. 00
	Unmarried	89	13. 00	13. 01	1. 81	0. 00	
	Widow/ Divorced	92	12. 00	11. 61	2. 75	0. 00	

Table 7 shows a significant difference in hardiness (commitment and challenge), perceived social support (Support from family, friends, and significant others), coping styles (Self-distraction, active coping, denial, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, humor, acceptance, religion and self blame), and quality of life (psychological, level of independence, social relationships, environment and spiritual domains) of HIV infected adults based on their marital status.

Marital status & hardiness: Marital status seems to be associated with differences in commitment and challenge aspects of hardiness. Unmarried individuals scored highest in commitment and challenge dimension of hardiness. There were no significant differences in control scores across marital statuses. Unmarried adults with HIV might rely more on themselves for support due to their relationship status. This could lead to a stronger sense of commitment and challenge in managing their health.

Marital status & perceived social support*:* The study suggests that married adults living with HIV receive greater perceived social support from family, friends,

and significant others compared to unmarried and widowed/divorced group. This social support network likely provides both emotional and practical assistance, potentially including help with medical appointments, financial aid, and emotional encouragement.

Marital status & coping style: The study identified connections between marital status and coping styles used by HIV-infected adults. Most of the coping styles are used by married when compared to others. This analysis suggests that married adults with HIV might prioritize emotional regulation and social support, while engaging less frequently in problem-focused strategies like active coping compared to other marital statuses. This could be because they have had more time to develop coping mechanisms or may feel a greater need to manage stress due to their roles. Married adults also relied more on denial as a coping strategy compared to other groups. The sense of shame associated with HIV or a desire to avoid discussing the diagnosis might contribute to this. Married individuals scored highest in seeking emotional support instrumental support compared to unmarried or widowed/divorced individuals. This suggests greater comfort in expressing emotions and accessing practical assistance within a marriage. Those using behavioral disengagement and venting feel pressure to maintain their marriage and disengage from conflict, while also needing to express their frustrations in a safe space. Spousal support might contribute to their ability to find positive aspects (positive reframing), use humor to cope, and ultimately accept their diagnosis. There were significant differences in using religion as a coping mechanism across marital statuses. Religious beliefs can provide a framework for understanding and coping with HIV, and spousal support within a marriage might further encourage seeking solace in religion. Married adults scored higher in self-blame compared to unmarried

individuals. Self-blame might be used as a way to maintain marital harmony by taking responsibility for the situation. Previous findings of Kohli (2016) reported that married people relied on assistance from their spouse and family, many unmarried people developed problem-focused coping strategies.

Marital status & quality of life: Marital status appears to be a significant factor influencing various aspects of quality of life for people with HIV. The result shows that married people have a better quality of life related to psychological, social relationship, and environment domains. On the other hand, the level of independence is found to be higher among widowed or divorced people, and spirituality is higher among unmarried people. People who are married had shown higher psychological quality of life domain scores than those who are unmarried and widowed (Arjun et al., 2017). Widowed/divorced individuals are not reliant on a partner for emotional or financial support, leading to a greater sense of independence. Having a supportive partner can provide emotional and practical support, strengthening social relationship. This is consistent with previous research by Arjun et al. (2017). Better psychological well-being associated with marriage, leading to a more positive outlook on their environment quality of life, including access to healthcare and resources. Unmarried individuals seek spiritual guidance and support from their faith community to cope with the challenges of HIV.

Residential background: The residential context of HIV-infected adults is crucial for understanding their access to care and support services, emphasizing the necessity for their accessibility. The research incorporates HIV-infected adults residing in both rural and urban settings.

Table 8

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on residential background

Variables	Residential background	N	Median	Mean	SD	Normality	Mean test
Commitment	Rural	356	33. 00	33. 14	4. 65	0. 00	0. 00
	Urban	85	35. 00	34. 74	4. 47	0. 00	
Control	Rural	356	32. 00	32. 11	4. 44	0. 00	0. 18
	Urban	85	32. 00	32. 95	4. 58	0. 00	
Challenge	Rural	356	31. 00	30. 93	4. 54	0. 00	0. 00
	Urban	85	33. 00	33. 42	4. 68	0. 00	
Family	Rural	356	3. 50	3. 68	1. 33	0. 00	0. 00
	Urban	85	2. 50	2. 80	1. 06	0. 00	
Friends	Rural	356	3. 50	3. 56	1. 26	0. 00	0. 00
	Urban	85	2. 50	2. 77	1. 10	0. 00	
Significant others	Rural	356	3. 25	3. 39	1. 31	0. 00	0. 00
	Urban	85	2. 25	2. 59	1. 09	0. 00	
Self distraction	Rural	356	4. 00	4. 38	1. 31	0. 00	0. 00
	Urban	85	3. 00	3. 62	1. 30	0. 00	
Active coping	Rural	356	5. 00	4. 79	1. 26	0. 00	0. 01
	Urban	85	4. 00	4. 40	1. 23	0. 00	
Denial	Rural	356	5. 00	4. 74	1. 35	0. 00	0. 00
	Urban	85	4. 00	4. 28	1. 47	0. 00	
substance use	Rural	356	4. 00	4. 41	1. 47	0. 00	0. 54
	Urban	85	4. 00	4. 29	1. 49	0. 00	
Use of emotional support	Rural	356	4. 00	4. 39	1. 36	0. 00	0. 00
	Urban	85	3. 00	3. 61	1. 20	0. 00	
Use of instrumental support	Rural	356	5. 00	4. 83	1. 43	0. 00	0. 00
	Urban	85	4. 00	4. 32	1. 23	0. 00	
Behavioral disengagement	Rural	356	4. 00	4. 44	1. 39	0. 00	0. 04
	Urban	85	4. 00	4. 11	1. 20	0. 00	
Venting	Rural	356	5. 00	4. 91	1. 33	0. 00	0. 00
	Urban	85	4. 00	4. 40	1. 26	0. 00	
Positive reframing	Rural	356	5. 00	4. 68	1. 27	0. 00	0. 00
	Urban	85	4. 00	4. 15	1. 24	0. 00	
Planning	Rural	356	5. 00	4. 85	1. 40	0. 00	0. 01
	Urban	85	4. 00	4. 39	1. 35	0. 00	
Humor	Rural	356	5. 00	4. 86	1. 31	0. 00	0. 00
	Urban	85	4. 00	4. 33	1. 32	0. 00	
Acceptance	Rural	356	5. 00	5. 09	1. 42	0. 00	0. 01
	Urban	85	4. 00	4. 63	1. 42	0. 00	
Religion	Rural	356	5. 00	5. 25	1. 49	0. 00	0. 00
	Urban	85	4. 00	4. 61	1. 40	0. 00	
Self blame	Rural	356	5. 00	4. 99	1. 33	0. 00	0. 11
	Urban	85	5. 00	4. 71	1. 46	0. 00	
Domain 1 (Physical)	Rural	356	11. 00	11. 53	1. 73	0. 00	0. 34
	Urban	85	11. 00	11. 35	1. 35	0. 00	
Domain 2 (Psychological)	Rural	356	10. 40	10. 42	2. 11	0. 00	0. 00
	Urban	85	9. 60	9. 50	2. 00	0. 00	

Variables	Residential background	N	Median	Mean	SD	Normality	Mean test
Domain 3 (level of independence)	Rural	356	11. 00	11. 24	2. 00	0. 00	0. 00
	Urban	85	10. 00	10. 59	1. 70	0. 00	
Domain 4 (Social relationship)	Rural	356	11. 00	10. 97	2. 66	0. 00	0. 00
	Urban	85	10. 00	9. 75	2. 60	0. 00	
Domain 5 (Environment)	Rural	356	12. 00	11. 81	2. 33	0. 00	0. 00
	Urban	85	13. 00	12. 71	1. 84	0. 00	
Domain 6 (Spirituality)	Rural	356	42. 00	42. 49	8. 81	0. 00	0. 00
	Urban	85	38. 00	37. 65	7. 43	0. 00	

Table 8 reveals significant differences in residential background of adults living with HIV in several key areas. These areas include: hardiness (commitment and challenge), perceived social support (support from family, friends, and significant others), coping styles (self-distraction, active coping, denial, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, and religion), and quality of life (psychological, independence, social relationships, environment, and spirituality domains).

Residential background & hardiness: The study suggests that individuals living with HIV in urban areas might exhibit a stronger sense of commitment and challenge (dimensions of hardiness) compared to those in rural areas. It indicates that an urban resident shows dedication to managing their health and perceiving control over their health. There were no significant differences in control scores between the two groups.

Residential background & perceived social support*:* Rural adults reported receiving greater perceived social support from family, friends, and significant others compared to their urban counterparts. This could be due to the stronger sense of community and closer relationships often found in rural areas. Such close-knit

communities might be more likely to offer emotional and practical support to those living with HIV, which also helps to reduce stigma associated with HIV.

Residential background & coping style: Rural areas cope differently compared to their urban counterparts. Rural residents with HIV tend to use more self-distraction and active coping strategies to manage stress and anxiety. This might be due to fewer resources available in rural settings. The study suggests that greater stigma surrounding HIV in rural areas might lead residents to use denial as a coping mechanism to feel safe. Rural residents with HIV seem to rely more heavily on emotional support and instrumental support to cope. The research suggests that due to potentially fewer resources, rural residents might use disengagement and venting as coping strategies. Humor might also be more important for them to deal with feelings of isolation. The study highlights the significance of acceptance as a coping strategy for rural residents with HIV. Religion also appears to play a bigger role in rural communities, providing a sense of belonging and acceptance. Overall, the study suggests that adults with HIV in rural areas may need different support systems and resources to cope effectively compared to their urban counterparts.

Residential background & quality of life*:* HIV infected adults who lives in rural area can positively impacts all domains of quality of life except physical, than urban people. Whether rural or urban, physical problems are the same for HIV positive people and therefore there is no significant difference in physical quality of life. In the other cases close-knit nature of rural communities provides a sense of belonging and support, which can be beneficial for mental health and psychological quality of life. The study found a significant difference in the level of independence domain for rural residents compared to urban . This might be due to the supportive rural environment allowing people with HIV to feel more independent and less

isolated. Rural communities tend to have closer social ties and larger extended families, providing a strong social relationship. The results showed a higher score for urban residents in the environment domain compared to rural residents. This might indicate that urban areas offer better access to healthcare facilities or other environmental factors impacting quality of life. Residential background of people, rural shows a significant difference in spiritual quality of life rural communities can provide significant advantages for the quality of life of adults with HIV, particularly in terms of social support, psychological well-being, and a sense of independence. However, access to healthcare and other environmental factors might be better in urban areas.

Type of family: Both nuclear and joined family members living with HIV are identified as study population. The family structure of HIV-infected adults plays a crucial role in offering supportive care and facilitating access to medical treatment. The study population includes HIV-infected adults living in both nuclear and joined family arrangements.

Table 9

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on type of family

Variables	Type of family	N	Median	Mean	SD	Normality	Mean test
Commitment	Joined	130	34. 00	33. 47	4. 91	0. 00	0. 77
	Nuclear	311	34. 00	33. 44	4. 56	0. 00	
Control	Joined	130	31. 00	31. 51	4. 57	0. 00	0. 01
	Nuclear	311	33. 00	32. 59	4. 40	0. 00	
Challenge	Joined	311	32. 00	31. 47	4. 67	0. 00	0. 03
	Nuclear	64	30. 00	30. 14	4. 59	0. 00	
Family	Joined	130	3. 00	3. 39	1. 31	0. 00	0. 20
	Nuclear	311	3. 25	3. 56	1. 34	0. 00	
Friends	Joined	130	3. 00	3. 26	1. 36	0. 00	0. 06
	Nuclear	311	3. 25	3. 47	1. 23	0. 00	
Significant others	Joined	130	2. 75	3. 09	1. 33	0. 00	0. 06
	Nuclear	311	3. 00	3. 30	1. 30	0. 00	
Self distraction	Joined	130	4. 00	3. 98	1. 34	0. 00	0. 01
	Nuclear	311	4. 00	4. 35	1. 33	0. 00	
Active coping	Joined	130	4. 00	4. 58	1. 28	0. 00	0. 10
	Nuclear	311	5. 00	4. 78	1. 26	0. 00	

Variables	Type of family	N	Median	Mean	SD	Normality	Mean test
Denial	Joined	130	4. 00	4. 39	1. 43	0. 00	0. 00
	Nuclear	311	5. 00	4. 76	1. 36	0. 00	
substance use	Joined	130	4. 00	4. 25	1. 43	0. 00	0. 31
	Nuclear	311	4. 00	4. 45	1. 49	0. 00	
Use of emotional support	Joined	130	4. 00	4. 04	1. 37	0. 00	0. 04
	Nuclear	311	4. 00	4. 32	1. 36	0. 00	
Use of instrumental support	Joined	130	4. 00	4. 58	1. 49	0. 00	0. 08
	Nuclear	311	5. 00	4. 80	1. 37	0. 00	
Behavioral disengagement	Joined	130	4. 00	4. 07	1. 34	0. 00	0. 00
	Nuclear	311	5. 00	4. 50	1. 35	0. 00	
Venting	Joined	130	5. 00	4. 81	1. 34	0. 00	0. 96
	Nuclear	311	5. 00	4. 81	1. 32	0. 00	
Positive reframing	Joined	130	4. 00	4. 48	1. 38	0. 00	0. 32
	Nuclear	311	5. 00	4. 62	1. 24	0. 00	
Planning	Joined	130	5. 00	4. 63	1. 39	0. 00	0. 28
	Nuclear	311	5. 00	4. 81	1. 40	0. 00	
Humor	Joined	130	4. 00	4. 48	1. 42	0. 00	0. 00
	Nuclear	311	5. 00	4. 88	1. 27	0. 00	
Acceptance	Joined	130	5. 00	4. 80	1. 43	0. 00	0. 04
	Nuclear	311	5. 00	5. 09	1. 43	0. 00	
Religion	Joined	130	5. 00	4. 77	1. 37	0. 00	0. 00
	Nuclear	311	5. 00	5. 27	1. 52	0. 00	
Self blame	Joined	130	5. 00	4. 75	1. 39	0. 00	0. 10
	Nuclear	311	5. 00	5. 01	1. 34	0. 00	
Domain 1 (Physical)	Joined	130	11. 50	11. 59	1. 69	0. 00	0. 63
	Nuclear	311	11. 00	11. 45	1. 66	0. 00	
Domain 2 (Psychological)	Joined	130	9. 60	9. 85	2. 35	0. 00	0. 01
	Nuclear	311	10. 40	10. 40	1. 99	0. 00	
Domain 3 (level of independence)	Joined	130	11. 00	10. 96	2. 03	0. 00	0. 17
	Nuclear	311	11. 00	11. 18	1. 93	0. 00	
Domain 4 (Social relationship)	Joined	130	10. 00	10. 09	2. 77	0. 00	0. 00
	Nuclear	311	11. 00	11. 00	2. 61	0. 00	
Domain 5 (Environment)	Joined	130	39. 00	39. 45	8. 97	0. 00	0. 00
	Nuclear	311	42. 00	42. 44	8. 54	0. 00	
Domain 6 (Spirituality)	Joined	356	12. 00	11. 81	2. 33	0. 00	0. 00
	Nuclear	85	13. 00	12. 71	1. 84	0. 00	

Table 9 shows significant differences in type of family of adults living with HIV in hardiness (control and challenge), coping styles (self-distraction, denial, use of emotional support, behavioral disengagement, humor, acceptance, and religion), and quality of life (psychological, social relationships, environment, and spirituality domains).

Type of family & hardiness: That adults with HIV in nuclear families might experience greater hardiness (control) due to the support and stability offered,

leading to a sense of control over their lives. The research indicates that those living in joint families scored highest in the challenge dimension of hardiness. This suggests that joint families might provide a strong support system to help individuals with HIV face challenges associated with the infection. No significant difference was found in the commitment dimension of hardiness based on family structure. This means regardless of family type, adults with HIV seem to show similar levels of commitment to overcoming challenges.

Type of family & coping style: This section examines how family structure (nuclear vs. joint) influences coping styles used by adults with HIV. Adults with HIV in nuclear families might rely more on self-distraction compared to joint families. Denial could also be more prevalent in nuclear families, possibly due to the need for difficult conversations about the diagnosis with family members who might be unaware. The study suggests that those in nuclear families utilize emotional support as a coping strategy more than nuclear families. This highlights the potential strength of a wider support network in families. However, the research also points to a higher use of behavioral disengagement in nuclear families compared to joint families. Humor related to the need to normalize the experience within a smaller family unit. Use of acceptance as a coping style in nuclear families could be due to the greater support and understanding offered by a nuclear family structure. The research indicates that religion might be a more prominent coping strategy for adults with HIV in nuclear families. The reason behind this difference could be related to the specific family dynamics and religious practices within each family structure.

Type of family & quality of life: Adults with HIV in nuclear families reported a higher psychological, social relationship, environmental, spirituality domains of quality of life compared to those in joint families. This suggests that the

closer, more intimate nature of nuclear families might provide greater emotional and social support, leading to better mental well-being and stronger social connections for people with HIV. Environmental quality of life due to various factors such as access to better healthcare facilities, cleaner living environments, or socioeconomic advantages that some nuclear families might have. Nuclear families might have established religious practices or traditions that offer spiritual comfort to members, including those with HIV. Maybe because of the fear of being known by everyone, the quality of life is not more for those from the nuclear family.

HIV Serostatus: HIV serostatus refers to an individual's HIV status, which is determined by testing for the presence of antibodies to the virus in their blood (White, 2013). For this study, we are considering individuals with HIV, symptomatic and asymptomatic serostatus.

Table 10

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on HIV serostatus

Variables	HIV seroatatus	N	Median	Mean	SD	Normality	Mean test
Commitment	Asymptomatic	130	34. 00	33. 47	4. 91	0. 00	0. 77
	Symptomatic	311	34. 00	33. 44	4. 56	0. 00	
Control	Asymptomatic	130	31. 00	31. 51	4. 57	0. 00	0. 01
	Symptomatic	311	33. 00	32. 59	4. 40	0. 00	
Challenge	Asymptomatic	311	32. 00	31. 47	4. 67	0. 00	0. 03
	Symptomatic	64	30. 00	30. 14	4. 59	0. 00	
Family	Asymptomatic	130	3. 00	3. 39	1. 31	0. 00	0. 20
	Symptomatic	311	3. 25	3. 56	1. 34	0. 00	
Friends	Asymptomatic	130	3. 00	3. 26	1. 36	0. 00	0. 06
	Symptomatic	311	3. 25	3. 47	1. 23	0. 00	
Significant others	Asymptomatic	130	2. 75	3. 09	1. 33	0. 00	0. 06
	Symptomatic	311	3. 00	3. 30	1. 30	0. 00	
Self distraction	Asymptomatic	130	4. 00	3. 98	1. 34	0. 00	0. 01
	Symptomatic	311	4. 00	4. 35	1. 33	0. 00	
Active coping	Asymptomatic	130	4. 00	4. 58	1. 28	0. 00	0. 10
	Symptomatic	311	5. 00	4. 78	1. 26	0. 00	
Denial	Asymptomatic	130	4. 00	4. 39	1. 43	0. 00	0. 00
	Symptomatic	311	5. 00	4. 76	1. 36	0. 00	
substance use	Asymptomatic	130	4. 00	4. 25	1. 43	0. 00	0. 31
	Symptomatic	311	4. 00	4. 45	1. 49	0. 00	
Use of emotional support	Asymptomatic	130	4. 00	4. 04	1. 37	0. 00	0. 04

Variables	HIV seroatatus	N	Median	Mean	SD	Normality	Mean test
	Symptomatic	311	4. 00	4. 32	1. 36	0. 00	
Use of instrumental support	Asymptomatic	130	4. 00	4. 58	1. 49	0. 00	0. 08
	Symptomatic	311	5. 00	4. 80	1. 37	0. 00	
Behavioral disengagement	Asymptomatic	130	4. 00	4. 07	1. 34	0. 00	0. 00
	Symptomatic	311	5. 00	4. 50	1. 35	0. 00	
Venting	Asymptomatic	130	5. 00	4. 81	1. 34	0. 00	0. 96
	Symptomatic	311	5. 00	4. 81	1. 32	0. 00	
Positive reframing	Asymptomatic	130	4. 00	4. 48	1. 38	0. 00	0. 32
	Symptomatic	311	5. 00	4. 62	1. 24	0. 00	
Planning	Asymptomatic	130	5. 00	4. 63	1. 39	0. 00	0. 28
	Symptomatic	311	5. 00	4. 81	1. 40	0. 00	
Humor	Asymptomatic	130	4. 00	4. 48	1. 42	0. 00	0. 00
	Symptomatic	311	5. 00	4. 88	1. 27	0. 00	
Acceptance	Asymptomatic	130	5. 00	4. 80	1. 43	0. 00	0. 04
	Symptomatic	311	5. 00	5. 09	1. 43	0. 00	
Religion	Asymptomatic	130	5. 00	4. 77	1. 37	0. 00	0. 00
	Symptomatic	311	5. 00	5. 27	1. 52	0. 00	
Self blame	Asymptomatic	130	5. 00	4. 75	1. 39	0. 00	0. 10
	Symptomatic	311	5. 00	5. 01	1. 34	0. 00	
Domain 1 (Physical)	Asymptomatic	130	11. 50	11. 59	1. 69	0. 00	0. 63
	Symptomatic	311	11. 00	11. 45	1. 66	0. 00	
Domain 2 (Psychological)	Asymptomatic	64	10. 40	10. 71	2. 16	0. 00	0. 08
	Symptomatic	377	10. 40	10. 16	2. 10	0. 00	
Domain 3 (level of independence)	Asymptomatic	64	12. 00	12. 09	2. 37	0. 00	0. 00
	Symptomatic	377	11. 00	10. 95	1. 84	0. 00	
Domain 4 (Social relationship)	Asymptomatic	64	11. 00	10. 78	2. 19	0. 00	0. 99
	Symptomatic	377	11. 00	10. 72	2. 77	0. 00	
Domain 5 (Environment)	Asymptomatic	64	42. 00	42. 62	6. 96	0. 00	0. 36
	Symptomatic	377	42. 00	41. 37	9. 03	0. 00	
Domain 6 (Spirituality)	Asymptomatic	64	11. 00	10. 36	2. 19	0. 00	0. 00
	Symptomatic	377	12. 00	12. 26	2. 17	0. 00	

Table 10 shows a significant difference in HIV serostaus of participants in relation to their hardiness (control and challenge), coping styles (self-distraction, denial, use of emotional support, behavioral disengagement, humor, and religion), and quality of life (level of independence and spirituality domains).

HIV serostatus & hardiness: Adults with symptomatic HIV scored higher on control than those who were asymptomatic. This suggests that facing the physical and psychological challenges of symptomatic HIV may lead to a greater sense of control over one's life. In contrast, asymptomatic individuals scored higher on the

challenge dimension than symptomatic individuals. This could be due to the stigma and discrimination faced by people with asymptomatic HIV, which can be quite challenging. There were no significant differences in commitment based on HIV status. It indicates that hardiness may be affected by whether someone with HIV is experiencing symptoms or not. People with symptoms may develop a stronger sense of control, while those who are asymptomatic may face more challenges due to stigma.

HIV serostatus & coping style: The study described that people with symptomatic HIV tend to use more coping styles than those who are asymptomatic. This means that people who are experiencing symptoms of HIV may be using a variety of strategies to cope with their infection, such as self distraction, denial, emotional support, behavioral disengagement, humor, and religion. It is found that those who have symptomatic serostatus use emotional-focused coping strategies. When a person identifies that they have HIV, they will develop a lot of psychological and emotional problems. However, after a long period of time, they will begin to adapt to their situation. This could be a way of protecting themselves from the emotional impact of the diagnosis. Then they will develop their own coping styles to overcome the infection-related problems. Healthy coping mechanisms can provide comfort, strength, and a sense of purpose, especially for people who are experiencing symptoms.

HIV serostatus & quality of life*:* Asymptomatic participants scored higher than symptomatic participants in the level of independence domain of quality of life. It indicates that without symptoms, people with HIV can maintain a more normal life, work, socialize, and participate in activities they enjoy, leading to a better overall quality of life. The findings showed an opposite trend for spirituality

(domain 6). Symptomatic participants scored higher than asymptomatic participants. This could be because facing infection and potentially one's mortality can lead some people to seek spiritual meaning and comfort. One of the research findings suggested an inverse relationship between the quality of life and various stages of HIV infection (Rai et al., 2010).

Mode of transmission: Mode of transmission of HIV refers to the ways in which the virus can be spread from one person to another (HIV Transmission, 2020). In the current study, researchers have categorized individuals into four groups based on the mode of HIV transmission: through blood, sexual contact, injection, and other means (such as from mother to child during pregnancy, childbirth, or breastfeeding).

Table 11

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on mode of transmission

Variables	Education	N	Median	Mean	SD	Normality	Mean test
Commitment	Blood Transfusion	26	34. 50	33. 69	4. 80	0. 00	0. 06
	Injection	17	31. 00	30. 18	5. 72	0. 00	
	Sex	58	35. 00	34. 12	4. 11	0. 00	
	Others	340	34. 00	33. 48	4. 63	0. 00	
Control	Blood Transfusion	26	33. 00	32. 85	5. 68	0. 00	0. 14
	Injection	17	32. 00	32. 12	4. 04	0. 00	
	Sex	58	34. 00	33. 57	4. 40	0. 00	
	Others	340	32. 00	32. 02	4. 38	0. 00	
Challenge	Blood Transfusion	26	31. 00	32. 73	4. 89	0. 00	0. 04
	Injection	17	30. 00	29. 47	5. 52	0. 00	
	Sex	58	32. 50	32. 72	4. 65	0. 00	
	Others	340	31. 00	31. 18	4. 56	0. 00	
Family	Blood Transfusion	26	2. 75	3. 20	1. 49	0. 00	0. 00
	Injection	17	2. 75	2. 85	0. 96	0. 00	
	Sex	58	2. 50	3. 05	1. 35	0. 00	
	Others	340	3. 50	3. 65	1. 30	0. 00	
Friends	Blood Transfusion	26	2. 25	2. 84	1. 41	0. 00	0. 01
	Injection	17	2. 25	2. 68	0. 94	0. 00	
	Sex	58	2. 38	3. 03	1. 44	0. 00	
	Others	340	3. 00	3. 33	1. 28	0. 00	
Significant others	Blood Transfusion	26	2. 25	2. 84	1. 41	0. 00	0. 01
	Injection	17	2. 25	2. 68	0. 94	0. 00	
	Sex	58	2. 38	3. 03	1. 44	0. 00	
	Others	340	3. 00	3. 33	1. 28	0. 00	
Self distraction	Blood Transfusion	26	4. 00	4. 23	1. 56	0. 00	0. 01

Variables	Education	N	Median	Mean	SD	Normality	Mean test
	Injection	17	5. 00	4. 47	1. 07	0. 00	
	Sex	58	4. 00	3. 79	1. 42	0. 00	
Active coping	Others	340	4. 00	4. 30	1. 31	0. 00	
	Blood Transfusion	26	4. 50	4. 38	1. 24	0. 00	0. 00
	Injection	17	5. 00	4. 71	1. 10	0. 00	
	Sex	58	4. 00	4. 17	1. 16	0. 00	
	Others	340	5. 00	4. 84	1. 27	0. 00	
Denial	Blood Transfusion	26	5. 00	4. 73	1. 12	0. 00	0. 00
	Injection	17	5. 00	4. 65	1. 32	0. 00	
	Sex	58	4. 00	4. 05	1. 34	0. 00	
	Others	340	5. 00	4. 75	1. 40	0. 00	
Substance use	Blood Transfusion	26	4. 00	4. 23	1. 21	0. 00	0. 25
	Injection	17	4. 00	4. 24	1. 30	0. 00	
	Sex	58	4. 00	4. 07	1. 41	0. 00	
	Others	340	4. 00	4. 46	1. 50	0. 00	
Use of emotional support	Blood Transfusion	26	4. 00	4. 00	1. 13	0. 00	0. 00
	Injection	17	4. 00	4. 12	1. 54	0. 00	
	Sex	58	3. 00	3. 69	1. 33	0. 00	
	Others	340	4. 00	4. 36	1. 36	0. 00	
Use of instrumental support	Blood Transfusion	26	5. 00	4. 65	1. 23	0. 00	0. 24
	Injection	17	4. 00	4. 41	1. 87	0. 00	
	Sex	58	4. 00	4. 43	1. 34	0. 00	
	Others	340	5. 00	4. 81	1. 40	0. 00	
Behavioral disengagement	Blood Transfusion	26	4. 00	4. 35	1. 32	0. 00	0. 11
	Injection	17	5. 00	4. 35	1. 11	0. 00	
	Sex	58	4. 00	4. 03	1. 09	0. 00	
	Others	340	5. 00	4. 44	1. 41	0. 00	
Venting	Blood Transfusion	26	6. 00	5. 58	1. 30	0. 00	0. 02
	Injection	17	5. 00	5. 06	0. 97	0. 00	
	Sex	58	5. 00	4. 64	1. 32	0. 00	
	Others	340	5. 00	4. 77	1. 33	0. 00	
Positive reframing	Blood Transfusion	26	5. 00	4. 85	1. 08	0. 00	0. 02
	Injection	17	4. 00	4. 06	1. 30	0. 00	
	Sex	58	4. 00	4. 19	1. 37	0. 00	
	Others	340	5. 00	4. 65	1. 26	0. 00	
Planning	Blood Transfusion	26	5. 00	5. 12	1. 40	0. 00	0. 46
	Injection	17	4. 00	4. 53	1. 12	0. 00	
	Sex	58	5. 00	4. 66	1. 45	0. 00	
	Others	340	5. 00	4. 76	1. 40	0. 00	
Humor	Blood Transfusion	26	5. 00	4. 96	1. 61	0. 00	0. 04
	Injection	17	5. 00	5. 00	1. 77	0. 00	
	Sex	58	4. 00	4. 31	1. 22	0. 00	
	Others	340	5. 00	4. 81	1. 29	0. 00	
Acceptance	Blood Transfusion	26	5. 00	5. 00	1. 44	0. 00	0. 23
	Injection	17	6. 00	5. 76	1. 48	0. 00	
	Sex	58	5. 00	4. 83	1. 24	0. 00	
	Others	340	5. 00	5. 00	1. 45	0. 00	
Religion	Blood Transfusion	26	5. 00	5. 19	1. 79	0. 00	0. 11

Variables	Education	N	Median	Mean	SD	Normality	Mean test
	Injection	17	5. 00	5. 24	1. 52	0. 00	
	Sex	58	5. 00	4. 67	1. 44	0. 00	
	Others	340	5. 00	5. 19	1. 47	0. 00	
Self blame	Blood Transfusion	26	5. 00	5. 00	1. 52	0. 00	0. 87
	Injection	17	5. 00	4. 59	1. 77	0. 00	
	Sex	58	5. 00	5. 03	1. 36	0. 00	
	Others	340	5. 00	4. 93	1. 32	0. 00	
Domain 1 (Physical)	Blood Transfusion	26	11. 50	11. 27	1. 66	0. 00	0. 83
	Injection	17	11. 00	11. 35	1. 27	0. 00	
	Sex	58	11. 00	11. 47	1. 50	0. 00	
	Others	340	11. 50	11. 52	1. 71	0. 00	
Domain 2 (Psychological)	Blood Transfusion	26	11. 20	10. 98	2. 15	0. 00	0. 02
	Injection	17	10. 40	10. 16	1. 91	0. 00	
	Sex	58	9. 60	9. 59	1. 83	0. 00	
	Others	340	10. 40	10. 30	2. 15	0. 00	
Domain 3 (level of independence)	Blood Transfusion	26	11. 00	10. 88	1. 84	0. 00	0. 63
	Injection	17	11. 00	11. 29	1. 99	0. 00	
	Sex	58	11. 00	10. 88	2. 06	0. 00	
	Others	340	11. 00	11. 17	1. 96	0. 00	
Domain 4 (Social relationship)	Blood Transfusion	26	10. 50	10. 73	2. 88	0. 00	0. 36
	Injection	17	11. 00	10. 59	2. 50	0. 00	
	Sex	58	10. 00	10. 19	2. 71	0. 00	
	Others	340	11. 00	10. 83	2. 68	0. 00	
Domain 5 (Environment)	Blood Transfusion	26	43. 00	42. 00	10. 49	0. 00	0. 90
	Injection	17	42. 00	41. 41	7. 99	0. 00	
	Sex	58	40. 00	41. 07	8. 59	0. 00	
	Others	340	42. 00	41. 61	8. 73	0. 00	
Domain 6 (Spirituality)	Blood Transfusion	26	12. 00	12. 19	2. 26	0. 00	0. 26
	Injection	17	11. 00	11. 65	1. 22	0. 00	
	Sex	58	12. 00	12. 53	1. 69	0. 00	
	Others	340	12. 00	11. 89	2. 39	0. 00	

Table 11 shows significant differences in mode of transmission of HIV in adults in related to their hardiness (challenge), perceived social support (Support from family, friends, and significant others), coping styles (self-distraction, active coping, denial, use of emotional support, venting, positive reframing, behavioral disengagement, and humor) and psychological domain of quality of life of HIV infected adults.

Mode of transmission & hardiness: With regard to challenge (hardiness) there is a significant difference in mode of transmission of HIV (by blood, by sex,

by injection and others). The highest mean scores were obtained by those adults who acquired HIV through blood transfusion than other modes of transmission. It's possible that certain transmission modes are more prevalent in certain populations with differing personality traits (hardiness). For instance, people who share needles might have a different risk profile or personality characteristics compared to those contracting HIV through blood transfusions

Mode of transmission & perceived social support*:* Perceived social support is more for those who got HIV through other methods. The "others" category, which likely refers to transmission modes besides blood transfusion, sex, and injection. The others category is broad and could include situations where the infection is less stigmatized or where there is greater social support, such as occupational exposure for a healthcare worker.

Mode of transmission & coping style: People who acquired HIV through injection used self-distraction the most. Those in the "others" category (mother-to-child transmission, etc.) scored highest on actively coping with their situation. People unsure of how they contracted HIV (likely in the others category) used denial the most, possibly as a way to avoid the reality of the situation. The others category also showed the highest score for seeking emotional support, which could be due to the nature of transmission (e. g. , mother-to-child) or a factor influencing testing and treatment. Those infected through blood transfusion reported venting their emotions the most. People who received HIV through blood transfusions scored highest on positive reframing (focusing on the positive) and using humor as coping mechanisms. This might be due to the unexpected nature of blood transfusion infection and the desire to find ways to manage the situation.

***Mode of transmission & quality of life**:* Mean scores with respect to psychological (domain 2) quality of life of HIV infected adults, it is mostly found among those infected HIV through injection compared to others. People who get HIV through injection may have a possibility to receive early diagnosis and treatment, which can help reduce the psychological burden of living with HIV.

Duration of infection: Understanding the duration of HIV infection among infected adults can enhance comprehension of the long-term effects of the virus and its associated conditions. The research encompasses three groups based on infection duration: 1 to 5 years, 6 to 10 years, and over 10 years.

Table 12

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on duration of infection

Variables	Duration of infection	N	Median	Mean	SD	Normality	Mean test
Commitment	1-5 Years	259	34. 00	33. 35	4. 78	0. 00	0. 80
	6-10 Years	110	34. 00	33. 73	4. 37	0. 00	
	More than 10 Years	72	34. 00	33. 38	4. 70	0. 00	
Control	1-5 Years	259	32. 00	31. 59	4. 28	0. 00	0. 00
	6-10 Years	110	33. 00	32. 65	4. 39	0. 00	
	More than 10 Years	72	34. 00	34. 17	4. 73	0. 00	
Challenge	1-5 Years	259	31. 00	31. 55	4. 53	0. 00	0. 51
	6-10 Years	110	31. 00	30. 92	4. 49	0. 00	
	More than 10 Years	72	31. 00	31. 65	5. 40	0. 00	
Family	1-5 Years	259	3. 00	3. 35	1. 26	0. 00	0. 00
	6-10 Years	110	3. 75	3. 91	1. 32	0. 00	
	More than 10 Years	72	3. 50	3. 49	1. 47	0. 00	
Friends	1-5 Years	259	3. 00	3. 31	1. 29	0. 00	0. 09
	6-10 Years	110	3. 50	3. 58	1. 20	0. 00	
	More than 10 Years	72	3. 50	3. 52	1. 32	0. 00	
Significant others	1-5 Years	259	2. 75	3. 01	1. 27	0. 00	0. 00
	6-10 Years	110	3. 25	3. 55	1. 30	0. 00	
	More than 10 Years	72	3. 50	3. 55	1. 31	0. 00	
Self distraction	1-5 Years	259	4. 00	4. 13	1. 35	0. 00	0. 12
	6-10 Years	110	4. 00	4. 46	1. 30	0. 00	
	More than 10 Years	72	4. 00	4. 29	1. 34	0. 00	
Active coping	1-5 Years	259	5. 00	4. 68	1. 25	0. 00	0. 46
	6-10 Years	110	5. 00	4. 77	1. 24	0. 00	
	More than 10 Years	72	5. 00	4. 78	1. 35	0. 00	
Denial	1-5 Years	259	5. 00	4. 63	1. 40	0. 00	0. 79
	6-10 Years	110	5. 00	4. 75	1. 36	0. 00	

Variables	Duration of infection	N	Median	Mean	SD	Normality	Mean test
	More than 10 Years	72	5. 00	4. 61	1. 39	0. 00	
Substance use	1-5 Years	259	4. 00	4. 51	1. 43	0. 00	0. 05
	6-10 Years	110	4. 00	4. 12	1. 46	0. 00	
	More than 10 Years	72	4. 50	4. 39	1. 58	0. 00	
Use of emotional support	1-5 Years	259	4. 00	4. 21	1. 40	0. 00	0. 72
	6-10 Years	110	4. 00	4. 30	1. 23	0. 00	
	More than 10 Years	72	4. 00	4. 25	1. 46	0. 00	
Use of instrumental support	1-5 Years	259	5. 00	4. 75	1. 43	0. 00	0. 39
	6-10 Years	110	5. 00	4. 83	1. 28	0. 00	
	More than 10 Years	72	5. 00	4. 54	1. 50	0. 00	
Behavioral disengagement	1-5 Years	259	4. 00	4. 43	1. 33	0. 00	0. 72
	6-10 Years	110	4. 00	4. 24	1. 46	0. 00	
	More than 10 Years	72	4. 00	4. 40	1. 32	0. 00	
Venting	1-5 Years	259	5. 00	4. 74	1. 38	0. 00	0. 33
	6-10 Years	110	5. 00	4. 95	1. 13	0. 00	
	More than 10 Years	72	5. 00	4. 86	1. 43	0. 00	
Positive reframing	1-5 Years	259	4. 00	4. 50	1. 31	0. 00	0. 43
	6-10 Years	110	5. 00	4. 68	1. 24	0. 00	
	More than 10 Years	72	5. 00	4. 68	1. 24	0. 00	
Planning	1-5 Years	259	5. 00	4. 79	1. 41	0. 00	0. 78
	6-10 Years	110	5. 00	4. 71	1. 42	0. 00	
	More than 10 Years	72	5. 00	4. 71	1. 36	0. 00	
Humor	1-5 Years	259	5. 00	4. 78	1. 32	0. 00	0. 70
	6-10 Years	110	5. 00	4. 67	1. 21	0. 00	
	More than 10 Years	72	5. 00	4. 81	1. 54	0. 00	
Acceptance	1-5 Years	259	5. 00	4. 88	1. 41	0. 00	0. 08
	6-10 Years	110	5. 00	5. 12	1. 35	0. 00	
	More than 10 Years	72	6. 00	5. 26	1. 60	0. 00	
Religion	1-5 Years	259	5. 00	4. 99	1. 46	0. 00	0. 09
	6-10 Years	110	5. 00	5. 30	1. 44	0. 00	
	More than 10 Years	72	6. 00	5. 35	1. 64	0. 00	
Self blame	1-5 Years	259	5. 00	4. 96	1. 38	0. 00	0. 80
	6-10 Years	110	5. 00	4. 89	1. 28	0. 00	
	More than 10 Years	72	5. 00	4. 89	1. 42	0. 00	
Domain 1 (Physical)	1-5 Years	259	12. 00	11. 44	1. 56	0. 00	0. 03
	6-10 Years	110	12. 00	11. 86	1. 88	0. 00	
	More than 10 Years	72	11. 00	11. 14	1. 58	0. 00	
Domain 2 (Psychological)	1-5 Years	259	9. 60	9. 95	2. 06	0. 00	0. 00
	6-10 Years	110	10. 40	10. 47	2. 29	0. 00	
	More than 10 Years	72	11. 20	10. 93	1. 85	0. 00	
Domain 3 (level of independence)	1-5 Years	259	11. 00	10. 80	1. 85	0. 00	0. 00
	6-10 Years	110	11. 00	11. 59	2. 09	0. 00	
	More than 10 Years	72	12. 00	11. 54	1. 95	0. 00	
Domain 4 (Social relationship)	1-5 Years	259	11. 00	10. 59	2. 84	0. 00	0. 24

Variables	Duration of infection	N	Median	Mean	SD	Normality	Mean test
	6-10 Years	110	11. 00	10. 74	2. 66	0. 00	
	More than 10 Years	72	11. 00	11. 24	2. 06	0. 00	
Domain 5 (Environment)	1-5 Years	259	40. 00	40. 63	9. 05	0. 00	0. 03
	6-10 Years	110	44. 00	42. 66	8. 81	0. 00	
	More than 10 Years	72	42. 00	43. 19	7. 20	0. 00	
Domain 6 (Spirituality)	1-5 Years	259	12. 00	12. 23	2. 10	0. 00	0. 03
	6-10 Years	110	12. 00	11. 68	2. 69	0. 00	
	More than 10 Years	259	12. 00	12. 23	2. 10	0. 00	

Table 12 shows significant differences in duration of infection of HIV in adults in related to their hardiness (control), perceived social support (Support from family, and significant others), and of all domains of quality of life of HIV infected adults except social relationship.

Duration of infection & hardiness: Adults living with HIV for over ten years tend to demonstrate stronger control in managing their condition. This suggests that with time, individuals with HIV can develop and refine their coping mechanisms, leading to better management of stress and the challenges associated with the infection. However, the duration of infection doesn't seem to significantly impact their level of commitment or the perception of challenges.

Duration of infection & perceived social support: Adults living with HIV for longer periods (6-10 or more than 10 years) report feeling greater support from family and significant others compared to those who have been diagnosed for 1-5 years. There's no difference in perceived friend support based on the duration of infection. This highlights the importance of social support for those living with HIV for a longer time, as it helps them manage the physical, emotional, and social challenges of the virus.

Duration of infection & quality of life*:* Physical quality of life is higher in those infected with HIV up to 6 years due to the availability of antiretroviral therapy (ART). This can help to improve physical health and quality of life for those living

with HIV. People living with HIV for over 10 years report the highest average score in psychological quality of life. This suggests that with time, individuals adjust to the diagnosis, develop coping mechanisms, and build support networks. These factors likely contribute to better mental health. Similar to psychological well-being, those with a longer diagnosis (6+ years) report greater independence. This is likely due to accumulated knowledge and strategies for managing the condition, leading to a greater sense of autonomy. Adult with HIV for more than ten years have more environmental quality of life. It is believed that people infected with HIV diagnosed less than five years ago have more spiritual quality of life because they are more likely to be more proactive in managing their condition, to look for support from friends and family, and to seek out spiritual guidance and direction. The referenced study by da Silva et al. (2013) likely investigated the quality of life in people recently diagnosed with HIV (within 5 years). Their findings suggest that this group experiences a lower quality of life in several aspects compared to those diagnosed for a longer period. These aspects include: physical health, level of independence, social environment, spirituality.

CD4 cell count: The quantity of CD4 cells in a blood sample is determined by a blood test called a CD4 count. They're also known as "helper T cells" or CD4 T lymphocytes. They help in the fight against infection by inducing immune system to eliminate bacteria, viruses, and other potentially harmful microorganisms. A CD4 count is primarily used to assess the condition of immune system, if the individual are infected with HIV (National Library of Medicine, 2022)

The CD4 cell count in individuals with HIV can exhibit significant variation, depending on the stage of infection. For this study, we categorize CD4 counts into three groups: between 201-350, 351-500, and over 500.

Table 13

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on CD4 cell count

Variables	CD4 cell count	N	Median	Mean	SD	Normality	Mean test
Commitment	201-300	30	34. 50	33. 87	5. 32	0. 00	0. 03
	301-400	221	34. 00	33. 97	4. 37	0. 00	
	More than 500	190	33. 00	32. 77	4. 80	0. 00	
Control	201-350	30	34. 00	33. 47	4. 81	0. 00	0. 17
	351-500	221	32. 00	31. 97	4. 06	0. 00	
	More than 500	190	33. 00	32. 44	4. 84	0. 00	
Challenge	201-350	30	33. 50	33. 43	5. 01	0. 00	0. 00
	351-500	221	32. 00	31. 91	4. 28	0. 00	
	More than 500	190	30. 00	30. 52	4. 88	0. 00	
Family	201-350	30	2. 75	3. 16	1. 39	0. 00	0. 01
	351-500	221	3. 00	3. 38	1. 24	0. 00	
	More than 500	190	3. 75	3. 71	1. 40	0. 00	
Friends	201-350	30	2. 75	3. 12	1. 38	0. 00	0. 02
	351-500	221	3. 00	3. 29	1. 22	0. 00	
	More than 500	190	3. 50	3. 59	1. 30	0. 00	
Significant others	201-350	30	2. 25	2. 67	1. 34	0. 00	0. 00
	351-500	221	2. 75	3. 00	1. 16	0. 00	
	More than 500	190	3. 38	3. 59	1. 38	0. 00	
Self distraction	201-350	30	4. 00	4. 27	1. 23	0. 00	0. 00
	351-500	221	4. 00	3. 94	1. 26	0. 00	
	More than 500	190	5. 00	4. 58	1. 36	0. 00	
Active coping	201-350	30	5. 00	5. 13	1. 38	0. 00	0. 07
	351-500	221	5. 00	4. 63	1. 24	0. 00	
	More than 500	190	5. 00	4. 76	1. 27	0. 00	
Denial	201-350	30	5. 00	5. 10	1. 52	0. 00	0. 10
	351-500	221	5. 00	4. 52	1. 34	0. 00	
	More than 500	190	5. 00	4. 74	1. 41	0. 00	
Substance use	201-350	30	4. 00	4. 27	1. 39	0. 00	0. 00
	351-500	221	5. 00	4. 66	1. 45	0. 00	
	More than 500	190	4. 00	4. 10	1. 45	0. 00	
Use of emotional support	201-350	30	4. 00	4. 27	1. 62	0. 00	0. 00
	351-500	221	4. 00	4. 03	1. 32	0. 00	
	More than 500	190	5. 00	4. 48	1. 34	0. 00	
Use of instrumental support	201-350	30	4. 00	4. 77	1. 61	0. 00	0. 39
	351-500	221	5. 00	4. 83	1. 40	0. 00	
	More than 500	190	5. 00	4. 62	1. 38	0. 00	
Behavioral disengagement	201-350	30	4. 00	4. 50	1. 01	0. 00	0. 66
	351-500	221	4. 00	4. 43	1. 35	0. 00	
	More than 500	190	4. 00	4. 29	1. 42	0. 00	
Venting	201-350	30	5. 00	4. 73	1. 20	0. 00	0. 04
	351-500	221	5. 00	4. 66	1. 42	0. 00	
	More than 500	190	5. 00	5. 00	1. 22	0. 00	
Positive reframing	201-350	30	5. 00	4. 73	1. 51	0. 00	0. 49
	351-500	221	4. 00	4. 51	1. 35	0. 00	
	More than 500	190	5. 00	4. 63	1. 16	0. 00	
Planning	201-350	30	5. 00	4. 50	1. 38	0. 00	0. 06
	351-500	221	5. 00	4. 91	1. 43	0. 00	
	More than 500	190	5. 00	4. 63	1. 36	0. 00	

Variables	CD4 cell count	N	Median	Mean	SD	Normality	Mean test
Humor	201-350	30	4. 00	4. 33	1. 35	0. 00	0. 11
	351-500	221	5. 00	4. 81	1. 35	0. 00	
	More than 500	190	5. 00	4. 77	1. 30	0. 00	
Acceptance	201-350	30	5. 00	5. 17	1. 44	0. 00	
	351-500	221	5. 00	4. 88	1. 53	0. 00	0. 27
	More than 500	190	5. 00	5. 12	1. 31	0. 00	
Religion	201-350	30	5. 00	5. 00	1. 60	0. 00	0. 53
	351-500	221	5. 00	5. 06	1. 48	0. 00	
	More than 500	190	5. 00	5. 22	1. 50	0. 00	
Self blame	201-350	30	5. 00	4. 53	1. 31	0. 00	0. 21
	351-500	221	5. 00	5. 01	1. 36	0. 00	
	More than 500	190	5. 00	4. 90	1. 36	0. 00	
Domain 1 (Physical)	201-350	30	11. 00	11. 20	1. 69	0. 00	0. 41
	351-500	221	12. 00	11. 55	1. 37	0. 00	
	More than 500	190	11. 00	11. 47	1. 95	0. 00	
Domain 2 (Psychological)	201-350	30	9. 60	9. 76	1. 96	0. 00	0. 13
	351-500	221	10. 40	10. 12	2. 05	0. 00	
	More than 500	190	10. 40	10. 46	2. 20	0. 00	
Domain 3 (level of independence)	201-350	259	11. 00	10. 80	1. 85	0. 00	0. 00
	351-500	110	11. 00	11. 59	2. 09	0. 00	
	More than 500	72	12. 00	11. 54	1. 95	0. 00	
Domain 4 (Social relationship)	201-350	30	10. 00	10. 53	2. 46	0. 00	0. 47
	351-500	221	11. 00	10. 87	2. 76	0. 00	
	More than 500	190	11. 00	10. 60	2. 65	0. 00	
Domain 5 (Environment)	201-350	30	42. 00	41. 87	8. 79	0. 00	0. 62
	351-500	221	40. 00	41. 25	8. 70	0. 00	
	More than 500	190	42. 00	41. 86	8. 88	0. 00	
Domain 6 (Spirituality)	201-350	30	12. 50	12. 40	2. 16	0. 00	0. 00
	351-500	221	13. 00	12. 68	1. 96	0. 00	
	More than 500	190	12. 00	11. 11	2. 33	0. 00	

Table 13 that there is a significant difference in commitment & challenge (hardiness), perceived social support (family, friends and significant others), self distraction, use of emotional support, venting & substance use coping styles, level of independence and spirituality domains of quality of life of HIV infected adults based on CD4 cell count.

CD4 cell count & hardiness: People living with HIV and a CD4 count between 201-500 seem to report the strongest sense of commitment (managing their condition) and facing challenges. Those with a CD4 count over 500 reported slightly lower scores in both areas. Commitment and challenges were not significantly

impacted by having a very high CD4 count (over 500). This might be related to the concept of hardiness, which suggests individuals with a strong sense of control and ability to cope may have better immune function (Pandey, 2018).

CD4 cell count & perceived social support: Those with the highest CD4 count (over 500) reported the greatest perceived support. People living with HIV who have a CD4 cell count greater than 500 are more likely to receive social support due to their improved health status. This is because their CD4 cell count indicates that their immune system is functioning more effectively and that the virus is being kept at bay. People with a higher CD4 cell a count tends to have fewer health-related complications and is less likely to transmit the virus to others. As a result, people in this group are more likely to receive social support from family, friends, and other members of their community. One of the study findings reveals a substantial positive impact of social support on immune response of HIV infected adults (Pandey & Shrivastava, 2017).

CD4 cell count & coping style: Those with the highest CD4 count (over 500) reported using self-distraction the most. People with HIV may use self-distraction coping methods to help manage their symptoms and reduce stress. Self-distraction can help to take the focus away from the physical and emotional symptoms of HIV, and can help to reduce anxiety and depression. Adults with CD4 counts between 351-500 scored highest in using substances to cope. They may be feeling more positive about their health and may be more likely to take risks. Substance use provides a way to cope with a wide range of emotions and can be used to escape from the reality of having a chronic infection. People with the highest CD4 count reported using emotional support the most, contradicting a previous study by Eisenberger et al. (2003). More research is needed to clarify this link.

Those with a higher count may feel more hopeful and empowered, which could lead to an increased utilization of emotional support services. The use of venting as a coping style showed a trend with the highest CD4 count group using it the most. Venting can help manage stress and anxiety, potentially benefiting those with stronger immune systems (higher CD4 count). Venting can help to reduce stress and anxiety, which can be beneficial for people with increased CD4 cell counts as it can help to improve their overall mental and physical health.

CD4 cell count & quality of life: Those with a higher CD4 count (across all ranges) reported a greater level of independence compared to those with lower counts. This aligns with previous research by Arjun et al. (2017) and likely reflects the benefits of antiretroviral therapy (ART) in improving health and enabling individuals to manage their lives more independently. The findings here seem to contradict Arjun et al. (2017). This study suggests that higher spirituality scores with lower CD4 count. This could be due to a heightened awareness of mortality among those with weaker immune systems, leading them to seek solace in spirituality. However, more research is needed to confirm this link. There is a positive association exists between higher CD4 cell counts and improved quality of life of HIV people within this demographic (Nunes et al., 1995). People with HIV who have lower CD4 counts may have a higher spirituality related quality of life because they may be more aware of their mortality, which can lead to a greater appreciation of spiritual aspects of life, such as faith, hope, and gratitude. Participants with higher CD4 counts had shown higher quality of life in spirituality domain scores (Arjun et al., 2017).

Duration of ART: Antiretroviral therapy (ART) is a type of treatment for HIV-positive people. ART involves taking a combination of antiretroviral drugs

(ARV) to prevent HIV from replicating in the body and to reduce the amount of virus in the blood. ART is the only way to keep HIV from progressing to AIDS, and it is the most effective way to keep HIV-positive people healthy and symptom-free (HIV Treatment: The Basics, 2021). The duration of antiretroviral therapy (ART) plays a vital role in treatment success. Prolonged ART aids in maintaining viral suppression, minimizing the risk of drug resistance, and enhancing the quality of life for individuals with HIV. In this study, researchers have included two categories for the duration of ART: 1 to 5 years and more than 5 years.

Table 14

Mean differences in dimensions of hardiness, perceived social support, coping style and quality of life based on duration of ART

Variables	HIV seroatatus	N	Median	Mean	SD	Normality	Mean test
Commitment	1-5 years	263	34. 00	33. 31	4. 75	0. 00	0. 48
	More than 5 Years	178	34. 00	33. 66	4. 53	0. 00	
Control	1-5 years	263	32. 00	31. 80	4. 27	0. 00	0. 01
	More than 5 Years	178	33. 00	32. 97	4. 68	0. 00	
Challenge	1-5 years	263	31. 00	31. 55	4. 46	0. 00	0. 45
	More than 5 Years	178	31. 00	31. 20	4. 97	0. 00	
Family	1-5 years	263	3. 00	3. 39	1. 26	0. 00	0. 03
	More than 5 Years	178	3. 50	3. 69	1. 42	0. 00	
Friends	1-5 years	263	3. 00	3. 32	1. 27	0. 00	0. 07
	More than 5 Years	178	3. 50	3. 54	1. 27	0. 00	
Significant others	1-5 years	263	2. 75	3. 05	1. 27	0. 00	0. 00
	More than 5 Years	178	3. 25	3. 50	1. 32	0. 00	
Self distraction	1-5 years	263	4. 00	4. 19	1. 39	0. 00	0. 38
	More than 5 Years	178	4. 00	4. 31	1. 27	0. 00	
Active coping	1-5 years	263	5. 00	4. 69	1. 25	0. 00	0. 34
	More than 5 Years	178	5. 00	4. 76	1. 29	0. 00	
Denial	1-5 years	263	5. 00	4. 64	1. 40	0. 00	1. 00
	More than 5 Years	178	5. 00	4. 67	1. 36	0. 00	
substance use	1-5 years	263	4. 00	4. 43	1. 44	0. 00	0. 50
	More than 5 Years	178	4. 00	4. 33	1. 51	0. 00	
Use of emotional support	1-5 years	263	4. 00	4. 24	1. 40	0. 00	0. 88
	More than 5 Years	178	4. 00	4. 24	1. 32	0. 00	
Use of instrumental support	1-5 years	263	5. 00	4. 74	1. 40	0. 00	0. 98
	More than 5 Years	178	5. 00	4. 72	1. 42	0. 00	
Behavioral disengagement	1-5 years	263	4. 00	4. 43	1. 35	0. 00	0. 42
	More than 5 Years	178	4. 00	4. 29	1. 36	0. 00	
Venting	1-5 years	263	5. 00	4. 76	1. 37	0. 00	0. 33

Variables	HIV seroatatus	N	Median	Mean	SD	Normality	Mean test
	More than 5 Years	178	5. 00	4. 88	1. 27	0. 00	
Positive reframing	1-5 years	263	4. 00	4. 55	1. 32	0. 00	0. 74
	More than 5 Years	178	5. 00	4. 61	1. 23	0. 00	
Planning	1-5 years	263	5. 00	4. 75	1. 38	0. 00	0. 96
	More than 5 Years	178	5. 00	4. 77	1. 43	0. 00	
Humor	1-5 years	263	5. 00	4. 75	1. 29	0. 00	0. 81
	More than 5 Years	178	5. 00	4. 78	1. 39	0. 00	
Acceptance	1-5 years	263	5. 00	4. 90	1. 42	0. 00	0. 06
	More than 5 Years	178	5. 00	5. 16	1. 45	0. 00	
Religion	1-5 years	263	5. 00	5. 03	1. 48	0. 00	0. 12
	More than 5 Years	178	5. 00	5. 27	1. 50	0. 00	
Self blame	1-5 years	263	5. 00	5. 00	1. 39	0. 00	0. 20
	More than 5 Years	178	5. 00	4. 83	1. 31	0. 00	
Domain 1 (Physical)	1-5 years	263	11. 00	11. 47	1. 57	0. 00	0. 90
	More than 5 Years	178	11. 00	11. 53	1. 79	0. 00	
Domain 2 (Psychological)	1-5 years	263	9. 60	9. 95	2. 16	0. 00	0. 00
	More than 5 Years	178	10. 40	10. 68	1. 98	0. 00	
Domain 3 (level of independence)	1-5 years	263	11. 00	10. 85	1. 89	0. 00	0. 00
	More than 5 Years	178	11. 00	11. 51	2. 00	0. 00	
Domain 4 (Social relationship)	1-5 years	263	11. 00	10. 61	2. 91	0. 00	0. 33
	More than 5 Years	178	11. 00	10. 91	2. 33	0. 00	
Domain 5 (Environment)	1-5 years	263	40. 00	40. 80	9. 25	0. 00	0. 02
	More than 5 Years	178	42. 00	42. 67	7. 90	0. 00	
Domain 6 (Spirituality)	1-5 years	263	12. 00	12. 06	2. 26	0. 00	0. 24
	More than 5 Years	178	12. 00	11. 87	2. 28	0. 00	

Table 14 shows a significant difference in duration of ART of HIV people in relation to their hardiness (control), perceived social support (family and signifiacant others), quality of life (psychological, level of independence, environment domains) of HIV infected adults.

Duration of ART & hardiness: The highest mean score were obtained by, duration of ART more than five years than other group. People with HIV who receive ART for more than five years have more control over their hardiness dimension because ART helps to reduce the amount of virus in the body, which can lead to improved health and well-being. There is no significant difference in commitment and challenge based on duration of ART.

Duration of ART & perceived social support: Those who have more duration of ART get more perceived social support from significant others. It is because they may have become more effective over time. People living with HIV may be more likely to feel comfortable discussing their diagnosis and needs with their family and significant others, leading to increased social support. Access to antiretroviral therapy is a significant factor in enhancing the quality of life (Mutabazi-Mwesigire, 2015)

Duration of ART & quality of life: HIV infected adults who receive ART for more than ten years (M=10. 68) are likely to have better psychological (domain 2), level of independence (domain 3), environment (domain 5) quality of life. Long-term ART treatment is associated with better physical health outcomes, which can also contribute to improve psychological quality of life. People who have been infected with HIV and have been taking ART for more than ten years have had time to build up their immune system and reduce the risk of developing serious infectiones. With the right treatment and support, people living with HIV can lead healthy and independent lives. Based on research by Arjun et al. (2017), people with HIV who receive antiretroviral therapy (ART) for a longer duration tend to report a better quality of life (QoL)in several aspects, including: they experience better mental health (psychological QoL), they feel more capable of managing their daily lives (level of independence QoL), they perceive stronger social support networks (environment QoL). It indicates that ART plays a crucial role in improving overall well-being for people living with HIV. Previous studies on the connection between antiretroviral therapy and quality of life have yielded mixed results (Cohen et al., 1998; Nieuwkerk et al., 2000). Despite the fact that many people have benefited from pharmacological therapies, the numerous adverse effects might impair physical

performance and energy levels. All of these have a significant detrimental impact on how well persons with HIV are able to function physically, mentally, and in general.

Section 3

The section provides the result and discussion of the relationship obtained among the variables such as hardiness, perceived social support, coping style and domain 1 (physical), domain 2 (psychological), domain 3 (level of independence), domain 4 (social relationship), domain 5 (environment) and domain 6 (spirituality) of quality of life of HIV infected adults. The correlation between study variables were examined using Spearman's rank correlation rho analysis. The instruments used to measure the study variables are interpreted that a high score in each variable indicates a higher level of functioning in the respective areas. Precisely the high score obtained in hardiness, perceived social support, coping style, and quality of life reveals that people have a high level of functioning in the above mentioned variables.

Hardiness and perceived social support

Table 15

Result of Spearman's rank correlation rho for hardiness and perceived social support

Test statistic	df	*P* value	rho
15437440	439	. 09	-. 08

Table 15 displays the relationship between hardiness and perceived social support among HIV-infected adults. The results revealed that there is no relationship between the study variables. There are so many previous studies that highlight the significant relationship between hardiness and perceived social support. But the current results are contrary to the existing notions. Nicholas & Leuner's (1999) study

found a significant positive correlation between hardiness and social support. Pandey & Shrivastava (2017) also pointed out a positive association between hardiness and social support, indicating that individuals with greater hardiness tend to have higher levels of social support.

Hardiness and coping style

Table 16

Result of Spearman's rank correlation rho for hardiness and coping style

Test statistic	df	*P* value	rho
16377316	439	<. 01	-. 15

Table 16 displays the correlation coefficient between hardiness and coping style among HIV-infected adults. The results indicate a significant negative correlation (rho = -. 15, p < . 01) between the variables. The negative correlation between hardiness and coping style among HIV-infected adults suggests that individuals with higher levels of hardiness may employ more adaptive coping strategies, while those with lower levels of hardiness may struggle to effectively cope with the stressors associated with HIV infection. This negative correlation can be attributed to the nature of hardiness as a personality trait associated with individuals' capacity to effectively manage stress and adversity. HIV-infected adults with higher levels of hardiness are more inclined towards proactive coping styles, characterized by taking active measures to address stressors. Hardiness, as described by Sadaghiani (2011), encompasses cognitive, behavioural, and interpersonal skills that enable individuals to confront challenges as opportunities for personal growth. Those with lower levels of hardiness may resort to passive coping strategies, such as avoidance or denial of stressors. Therefore, individuals with lower hardiness levels among HIV-infected adults are more likely to adopt passive coping styles,

contributing to the observed negative correlation between hardiness and coping style. Those with higher hardiness levels perceive stressful situations as more manageable and less daunting, thereby employing more effective coping mechanisms. The findings of Adamu et al. (2021) further support the notion that higher hardiness levels are associated with reduced perceived stress, suggesting the potential utility of this personality trait in assisting women living with HIV in coping with their condition.

Perceived social support and coping style

Table 17

Result of Spearman's rank correlation rho for perceived social support and coping style

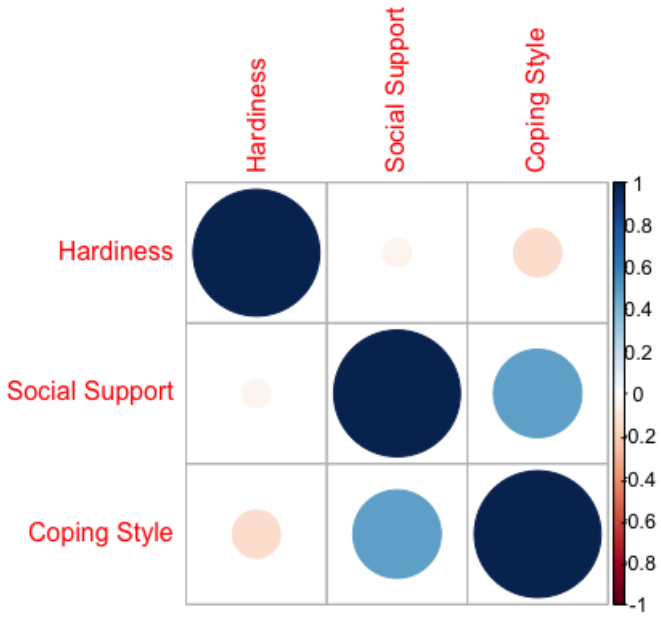
Test statistic	df	*P* value	rho
7331602	439	<. 001	. 49

In Table 17, a significant positive correlation is observed between perceived social support and coping style (rho = . 49, p = . 001). Perceived social support, derived from various sources such as family, friends, and significant others, plays a pivotal role in shaping an individual's coping style, particularly among adults living with HIV. Social support serves as a crucial resource offering emotional, informational, and instrumental assistance, facilitating better stress management and resilience in challenging circumstances. The provision of such support equips individuals with the necessary resources to develop more adaptive coping strategies, enhancing their ability to navigate through stressors effectively. Hence, the significant relationship between social support and coping style underscores the vital role of social support in bolstering individuals' coping mechanisms and facilitating their ability to handle stressors. It is worth noting that emotional support,

characterized by the presence of individuals within one's network with whom to discuss unpleasant emotions, is particularly salient in this context. Moreover, studies, such as that by Faraji et al. (2015), suggest that individuals utilizing coping strategies for managing HIV tend to experience heightened levels of social support.

Figure 1

Depicts the correlation between hardiness, perceived social support, and coping style



Hardiness and quality of life

Table 18

Result of correlation of dimensions of hardiness (commitment, control, and challenge) with domains of quality of life

	Domain 1	**Domain 2**	**Domain 3**	**Domain 4**	**Domain 5**	**Domain 6**
Commitment	. 13***	. 03	. 09*	. 08*	. 01	. 19***
Control	. 73	. 12*	. 14***	. 06	. 03	. 04
Challenge	. 79*	. 07	. 06	. 05	. 02	. 25***

***p<. 001, *p<. 05

Figure 2

Depicts the correlation of dimensions of hardiness (commitment, control, and challenge) with domains of quality of life

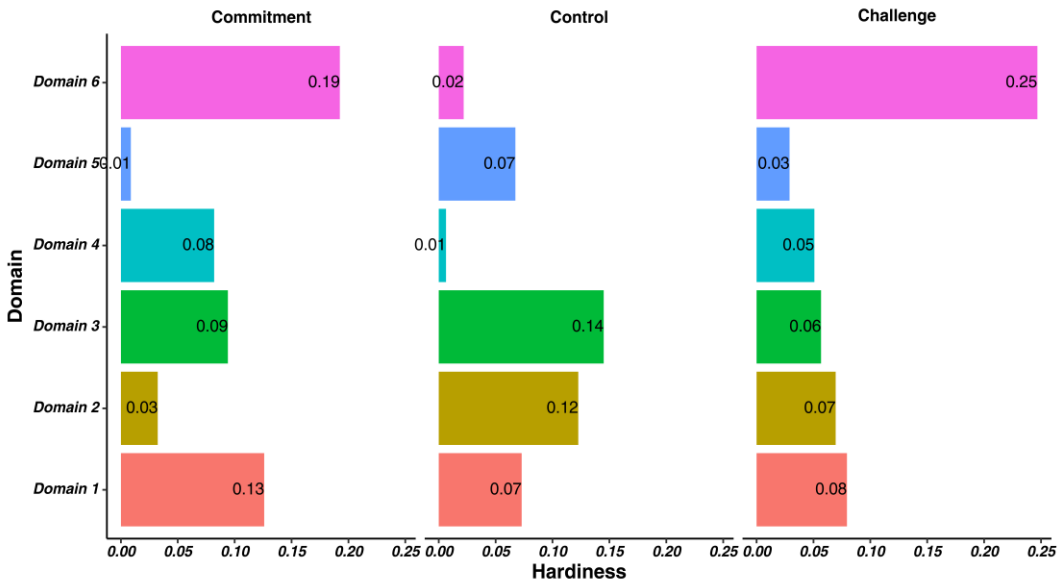


Table 18 and figure 2demonstrates the relationship between commitments, control, challenges, (dimensions of hardiness) and six domains of quality of life among HIV-infected adults. Since the HIV infection is chronic in nature, the personality variable hardiness moderate the stress related to infection, and it helps to improve quality of life of individual. Individuals having greater health hardiness exhibited an elevated quality of life (Mirzaian, 2021). A significant positive correlation is observed between commitment and four domains of quality of life among HIV-infected adults: physical (domain 1), level of independence (domain 3), social relationship (domain 3), and spirituality (domain 6). Commitment to treatment regimens directly impacts the physical quality of life, as it increases adherence to medication and healthcare appointments by reducing the risk of HIV-related complications. Commitment has been identified as a critical determinant, as it entails a sense of control and resilience in adverse situations. The association between

commitment and spirituality underscores the role of commitment in nurturing a strong spiritual foundation, providing meaning and purpose amidst life's challenges. Spiritual well-being and psychological hardiness are observed to have a positive correlation between them (Yavuz & Dilmaç, 2020).

The control dimension of hardiness exhibits a significant positive correlation with the physical (domain 1), psychological (domain 2) and level of independence (domain 3), domains of quality of life among HIV-infected adults. This dimension reflects individuals' ability to proactively manage their lives, make informed decisions, and take charge of their well-being. High levels of control empower individuals to maintain a positive outlook and assert independence, contributing to enhanced psychological and overall quality of life.

Challenges and spirituality aspects of quality of life among HIV-infected adults are positively correlated. Both components involve coping with the disease and its challenges, indicating their intertwined nature in facilitating adaptation and coping mechanisms. This correlation suggests that embracing challenges and nurturing spirituality can aid individuals in coping with their diagnosis and associated difficulties. Also greater hardiness is significantly associated with an elevated perception of quality of life across various domains, including physical and mental health (Farber et al., 2000). These findings highlight the interplay of personality traits, coping mechanisms, and quality of life among HIV-infected adults. It also emphasizes the importance of resilience and proactive coping strategies for enhancing well-being despite the challenges posed by the disease Psychological resilience was associated with positive coping styles. (Wu et al., 2020)

Perceived social support and quality of life

Table 19

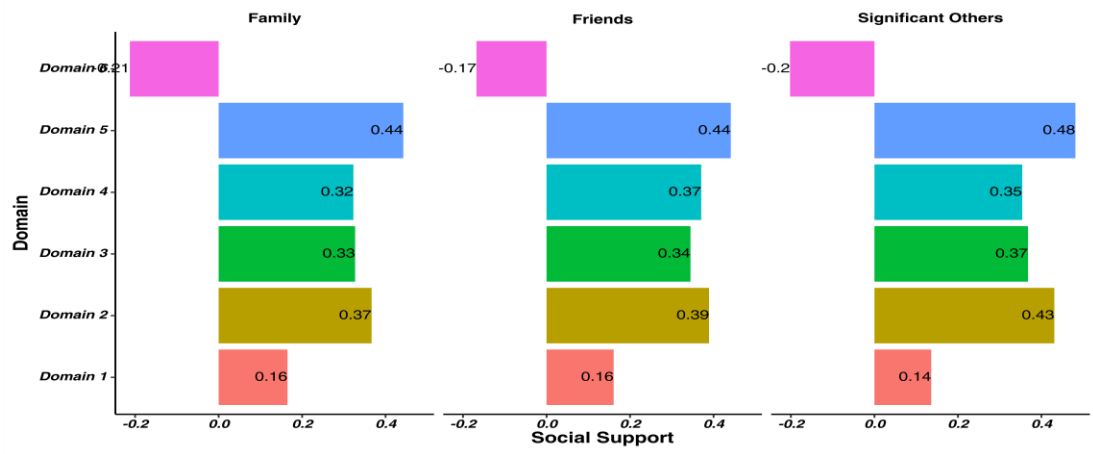
Result of correlation of dimension of perceived social support (family, friends, and significant others) with domains of quality of life

	Domain 1	**Domain 2**	**Domain 3**	**Domain 4**	**Domain 5**	**Domain 6**
Family	. 16***	. 37***	. 33***	. 32***	. 44***	-. 21***
Friends	. 16***	. 39***	. 34***	. 37***	. 44***	-. 16***
Significant Others	. 14***	. 43***	. 37***	. 35***	. 48***	-. 20***

***p<. 001

Figure 3

Depicts the correlation of dimension of perceived social support (family, friends, and significant others) with domains of quality of life



In Table 19 and Figure 3, highlighted significant positive correlations between perceived social support from family, friends, and significant others, and various domains of quality of life among HIV-infected individuals. Specifically, family support exhibits a significant positive correlation with domains 1, 2, 3, 4, and 5 of quality of life ($p < 0.001$), while friends and significant others show similar

significant positive correlations across these domains. Moreover, there is a negative correlation between family, friends, and significant others with domain 6 ($p < 0.001$). It indicates that the presence of support from family, friends, and significant others increases, as the spirituality domain of quality of life decreases. The findings highlight the integral relationship between perceived social support and the quality of life of adults living with HIV. Social support from various sources fosters a sense of belonging, connection, security, and stability within the community. This heightened sense of self-worth is associated with improved physical and psychological health, greater independence, enhanced social relationships and an overall better quality of life for HIV-infected adults. . It directly impacts mental and physical health domains and provides individuals with essential resources such as access to medical care and support networks for daily tasks, ultimately creating an environment for better health-related quality of life. Notably, friends and significant others found to have a greater impact on domains of quality of life than family support. Social support has been consistently linked to improved quality of life in previous studies. Nunes et al. (1995) found a correlation between social support and quality of life. Numerous studies have demonstrated the direct influence of social support on quality of life. For instance, Bekele et al. (2013), Charkhian et al. (2014), and Jia et al. (2005) have shown that social support directly impacts quality of life. Yadav (2010) conducted a study and revealed that overall satisfaction derived from social support significantly correlates with quality of life. Charkhian et al. (2014) found that social support is significantly associated with both the mental and physical domains of quality of life.

Coping style and quality of life

Table 20

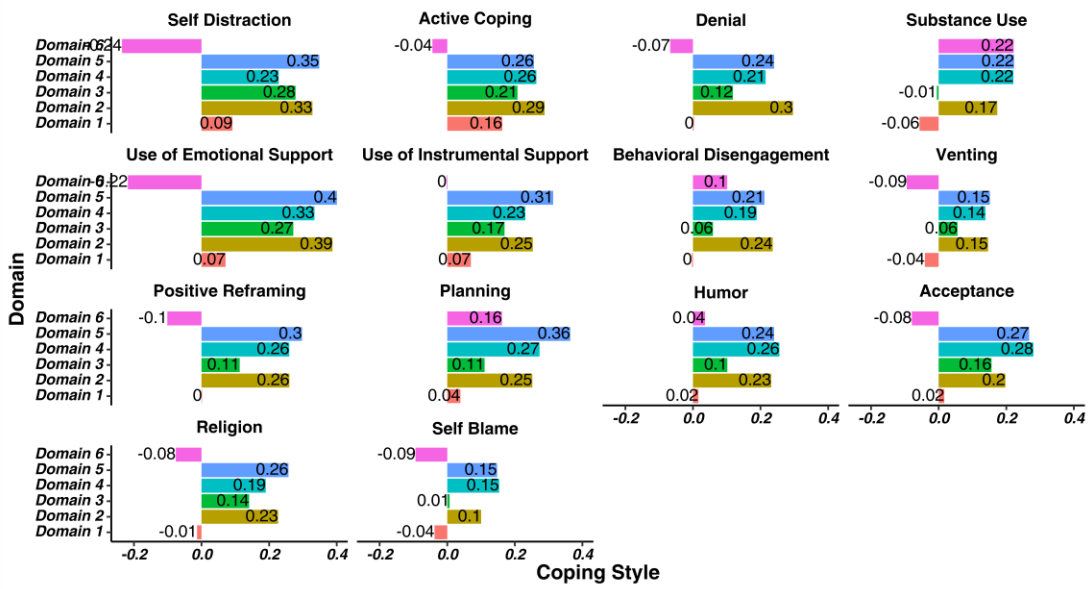
Result of correlation of dimensions of coping style with domains of quality of life.

	Domain 1	**Domain 2**	**Domain 3**	**Domain 4**	**Domain 5**	**Domain 6**
Self Distraction	. 09*	. 33***	. 28***	. 23***	. 35***	-. 23***
Active Coping	. 16***	. 29***	. 21***	. 26***	. 26***	-. 04
Denial	. 003	. 3***	. 12*	. 21***	. 24***	-. 07
Substance Use	-. 06	. 17***	-. 01	. 22***	. 22***	. 22***
Use of Emotional Support	. 07	. 39***	. 27***	. 33***	. 40***	-. 22***
Use of Instrumental Support	. 07	. 25***	. 17***	. 23***	. 31***	. 002
Behavioral disengagement	-. 003	. 24***	. 06	. 19***	. 21***	. 10*
Venting	-. 04	. 15***	. 06	. 14***	. 15***	-. 09*
Positive Reframing	-. 001	. 26***	. 11*	. 26***	. 3***	-. 10***
Planning	. 04	. 25***	. 11	. 27***	. 36***	. 16***
Humor	. 02	. 23***	. 10*	. 26***	. 24***	. 04
Acceptance	. 02	. 2***	. 16*	. 28***	. 27***	-. 08*
Religion	-. 01	. 23***	. 14***	. 19***	. 26***	-. 08
Self Blame	-. 04	. 1*	. 01	. 15***	. 15***	-. 09***

***p<. 001, *p<. 05

Figure 4

Depicts the correlation of self distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, self blame with domains of quality of life.



The impact of coping styles on quality of life among people with HIV-infection is always multifaceted. Friedland et al. (1996) highlighted self-distraction coping as a maladaptive tactic potentially associated with diminished quality of life among HIV-positive individuals. In the current study, Table 20 reveals significant positive correlations between self-distraction and different domains of quality of life ($p < .001$), and also found a significant negative correlation with spirituality domain. Self-distraction coping involves engaging in activities to divert attention from stressors, potentially improving quality of life by alleviating depression, anxiety, and other negative mental health outcomes associated with HIV diagnosis. Active coping styles exhibit significant positive correlations with multiple domains

of quality of life ($p < .001$). Many studies reported that, it enhances problem solving skills and associated with improved mental and physical health outcomes among HIV-positive patients (Coetzee et al., 2003; Leiberich et al., 1997; Lutgendorf et al., 1994; Vosvicket et al., 2002). Active coping also fosters self-efficacy by enhancing overall quality of life to deal with the disease related adversities.

Although Weaver et al. (2004) demonstrated the negative impact of denial coping on quality of life, the present study shows significant positive correlations between denial coping and multiple domains of quality of life ($p < .001$). Denial coping, however, may delay treatment-seeking behaviors and lead to transmission risks, contributing to decreased quality of life among HIV-infected individuals. Similarly, people who engage in denial also get some level of satisfaction and it may enhance their psychological wellness. Kamen et al. (2012) also had similar findings and reported that participants who adopted denial as a coping mechanism displayed the fastest improvement in quality of life over some time. Substance use as a coping strategy, widely recognized for its detrimental effects on HIV-positive individuals' quality of life (Korthuis et al., 2008; Millar et al., 2017; Vaarwerk et al., 2001). The current findings demonstrated a significant positive correlation with different domains of quality of life domains ($p < .001$). However, substance use may exacerbate stress, depression, and anxiety, reduce treatment adherence, and increase transmission risks, ultimately diminishing quality of life.

Emotional support coping exhibits significant positive correlations with multiple quality of life domains ($p < .001$). The results align with the previous research findings and indicate its effectiveness in reducing feelings of isolation and improving emotional well-being among HIV-positive individuals (Nunes et al., 1995; Yadav, 2010; McCain & Cella, 1995; Friedland et al., 1996). It indicates that

improved emotional well-being promotes better self-care behaviors and ultimately enhancing quality of life. Instrumental support coping demonstrates significant positive correlations with multiple quality of life ($p < .001$). It facilitates and helps in the management of day-to-day challenges associated with HIV and also improves physical and mental health. Access to potential resources and support from people successfully addresses the illness related concerns and also enhances quality of life. It acts as a protective mechanism against distress and alleviating isolation and stigma. Behavioral disengagement coping, despite its association with lower quality of life among HIV-infected individuals (Turner-Cobb et al., 2002), shows significant positive correlations with multiple quality of life domains ($p < .001$) in this study. However, it may exacerbate distress, helplessness, and social isolation, negatively impacting quality of life

Venting coping, positively correlated with several quality of life domains ($p < .001$), serves as an effective outlet for expressing emotions, thereby reducing stress and anxiety among HIV-infected individuals and improving quality of life. Positive framing coping demonstrates significant positive correlations with multiple quality of life domains ($p < .001$), fostering an optimistic outlook and promoting mental well-being among HIV-positive individuals. Planning coping exhibits significant positive correlations with multiple quality of life domains ($p < .001$), enabling effective management of physical, psychological, and social challenges associated with HIV. Humor coping, positively correlated with multiple quality of life domains ($p < .001$), aids in reducing stigma, stress, and anxiety, thereby improving quality of life among HIV-infected individuals. Acceptance coping, positively correlated with multiple quality of life domains ($p < .001$) and negatively correlated with one domain, facilitates effective management of psychological stress

associated with HIV, promoting overall improved quality of life. Religion coping demonstrates significant positive correlations with multiple quality of life domains ($p < .001$), providing comfort, reassurance, and social support, which contribute to improved mental health and quality of life among HIV-infected individuals. Self-blame coping, positively correlated with several quality of life domains ($p < .001$) and negatively correlated with one domain, empowers individuals to take control of their health, potentially enhancing overall quality of life. In summary, while certain coping styles may appear beneficial in improving quality of life among HIV-infected individuals, the effectiveness of coping strategies is contingent upon individual circumstances and proper utilization. Maladaptive coping strategies may contribute to poorer quality of life outcomes, emphasizing the need for tailored interventions addressing coping mechanisms in HIV care.

Self-distraction, substance use, use of emotional support, behavioral disengagement, venting, positive reframing, acceptance, and self-blame coping styles are negatively correlated with spiritual domains of quality of life of HIV infected adults. It implies that certain coping strategies may diminish from individuals' engagement with spirituality, thereby lessen its perceived impact on their overall well-being. It's possible that individuals who report strong social support from family, friends, and significant others may also experience conflicts related to spirituality. It may be due to they face pressure to conform to certain religious or spiritual beliefs from their social circle that may not align with their personal beliefs or values. This conflict individual leads to a lower perception of quality of life in the spiritual domain.

Section 4

The third and fourth objective of the present study is to examine the predictive role of sociodemographic & infection related factors, hardiness, social support, coping style on quality of life of HIV infected adults. It was examined by using multiple linear regression. ANOVA is done to assess the feasibility of regression and to know whether it is statistically significant in the given scenario. All the ANOVA tables are given in appendix.

Section 4 provides the result and discussion of the predictive role obtained among the sociodemographic and infection related factors, and dimensions of main variables such as hardiness, perceived social support, coping style on quality of life of HIV infected adults.

Multiple linear regression for socio-demographic & infection related factors and quality of life

Table 21

Multiple linear regression for domain 1 (physical) quality of life using socio-demographic & infection related factors

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	11. 67	0. 59	19. 63	0***
Age middle adulthood	-0. 07	0. 19	-0. 34	0. 73
Gender female	-0. 05	0. 18	-0. 29	0. 77
Education plus two	-0. 12	0. 19	-0. 62	0. 53
Education degree and above	-0. 07	0. 37	-0. 19	0. 84
Occupation without job	-0. 21	0. 19	-1. 08	0. 28
Marital status unmarried	-0. 01	0. 31	-0. 04	0. 96
Marital status widow/ divorced	-0. 10	0. 22	-0. 48	0. 63

	Estimate	Std. Error	t value	Pr(>|t|)
Residential background urban	-0. 15	0. 23	-0. 67	0. 50
Type of family joined	0. 17	0. 19	0. 88	0. 38
HIV serostatus symptomatic	-0. 43	0. 25	-1. 69	0. 09
Mode of transmission injection	-0. 05	0. 53	-0. 09	0. 92
Mode of transmission sex	0. 09	0. 34	0. 29	0. 77
Mode of transmission others	0. 19	0. 40	0. 49	0. 62
Duration of infection 6-10 years	0. 29	0. 27	1. 09	0. 27
Duration of infection more than 10 years	-0. 39	0. 34	-1. 17	0. 24
CD4 cell count 351-500	0. 41	0. 33	1. 22	0. 22
CD4 cell count more than 500	0. 27	0. 35	0. 78	0. 43
Duration of ART more than 5 years	0. 06	0. 25	0. 23	0. 81

R^2 = . 04, *Adj* R^2 = -. 002, F (18,422) = 0. 9436, ***p<. 001

From the table 21 it was found that the R^2 value of 0. 04 indicates that approximately 4% of the variance in the dependent variable (physical quality of life) is explained by the independent variables (socio-demographic & infection related factors) included in the model. The regression results indicate that none of the predictor variables are statistically significant at the conventional level (p < . 05). The Adjusted R-squared value is negative, indicating that the model does not fit the data well. Therefore, based on these results, we cannot draw any meaningful conclusions about the relationship between the variables included in the model and the outcome variable. The model is not statistically significant, and none of the individual predictors appear to have a significant impact on the outcome. It indicates that the socio-demographic & infection related factors in the model are not very effective in explaining the variation in the physical quality of life (domain 1) of HIV infected adults.

Table 22

Multiple linear regression for domain 2 (psychological) quality of life using socio-demographic & infection related factors

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	11. 57	0. 72	15. 98	0***
Age middle adulthood	0. 22	0. 24	0. 91	0. 36
Gender female	0. 02	0. 22	0. 08	0. 93
Education plus two	-0. 53	0. 24	-2. 26	0. 02*
Education degree and above	-0. 95	0. 46	-2. 08	0. 04*
Occupation without job	-0. 25	0. 23	-1. 07	0. 29
Marital status unmarried	-0. 29	0. 38	-0. 75	0. 45
Marital status widow/ divorced	-0. 28	0. 26	-1. 07	0. 28
Residential background urban	-0. 35	0. 28	-1. 25	0. 21
Type of family joined	-0. 12	0. 23	-0. 50	0. 61
HIV serostatus symptomatic	-0. 39	0. 31	-1. 27	0. 20
Mode of transmission injection	-0. 93	0. 64	-1. 45	0. 15
Mode of transmission sex	-0. 64	0. 42	-1. 53	0. 13
Mode of transmission others	-0. 99	0. 49	-2. 04	0. 04*
Duration of infection 6-10 years	-0. 15	0. 33	-0. 45	0. 65
Duration of infection more than 10 years	0. 25	0. 41	0. 59	0. 55
CD4 cell count 351-500	0. 33	0. 41	0. 80	0. 42
CD4 cell count more than 500	0. 08	0. 42	0. 18	0. 86
Duration of ART more than 5 years	0. 32	0. 31	1. 03	0. 30

R^2 = 0. 12, *Adj* R^2 = . 08, F (18,422) = 3. 115, ***p<. 001, *p<. 05

In this (table 22) regression analysis, several predictor variables show statistically significant associations with the outcome variable at the p < . 05 level.

Education plus two (p = 0. 02) and Education degree and above (p = 0. 04) are both negatively associated with the outcome. This suggests that individuals with higher levels of education are associated with lower values of the outcome variable. Mode of transmission others (p = 0. 04) also shows a significant negative association, implying that this mode of transmission is linked to lower values of the outcome variable compared to other modes. R^2 value of 0. 12 for the multiple linear regression model predicting domain 2 (psychological) quality of life using socio-demographic and infection-related factors, it indicates that approximately 12% of the variability observed in the psychological quality of life of HIV infected adults can be explained by the independent variables included in the model. However, it's important to note that the Adjusted R-squared value is relatively low (0. 08). Additionally, several predictor variables do not show significant associations with the outcome. In summary, while education level and mode of transmission (others) appear to be associated with the outcome variable, the overall model has limited explanatory power.

Those who had primary education negatively predicted the quality of life of HIV people (Shriharsha & Rentala, 2019). The negative coefficient suggests that having an education plus two, degree and above HIV infected adults is associated with a decrease in psychological quality of life compared to not having an education degree. HIV infected adults possessing higher levels of education may experience elevated stress or dissatisfaction due to heightened expectations for their lives if these expectations remain unmet. Their attainment of advanced education may result in more demanding professional roles or responsibilities, thereby increasing stress levels and potentially diminishing psychological well-being. They may engage in heightened social comparison, which could foster feelings of inadequacy or

dissatisfaction if they perceive themselves to be lagging behind others, further impacting their psychological well-being adversely. The negative coefficient estimate shows that individuals whose mode of transmission of HIV falls into the 'others' category tend to have a lower psychological quality of life compared to individuals with other modes of transmission. Individuals with HIV acquired through less common modes of transmission ('others') may experience heightened stigma and social isolation, which can negatively impact their psychological well-being. They have unique circumstances or challenges in accepting their diagnosis, accessing support services, or disclosing HIV status to others, which can contribute to psychological distress. Previous study reported that the method of HIV transmission, particularly through sexual contact, has been identified as a significant factor affecting the quality of life in individuals with the infection (Sun, 2013).

In table 23, several predictor variables demonstrate statistically significant associations with the domain 3 (level of independence) quality of life at the $p < .01$ and $p < .05$ levels. Education plus two and education degree and above, both exhibit significant negative associations with the quality of life in domain 3. This suggests that individuals with greater educational attainment tend to have reduced levels of quality of life in terms of independence. Individuals with lower education levels may develop stronger coping mechanisms and adaptability in response to challenges. They may have learned to rely on their resources and problem-solving skills to maintain their independence despite their HIV status.

HIV serostatus symptomatic also shows a significant negative association, suggesting that individuals with symptomatic HIV status have lower levels of independence quality of life compared to those without symptoms.

Table 23

Multiple linear regression for domain 3 (level of independence) quality of life using socio-demographic & infection related factors

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	12. 37	0. 66	18. 6	0***
Age middle adulthood	0. 12	0. 22	0. 52	0. 60
Gender female	-0. 22	0. 20	-1. 06	0. 29
Education plus two	-0. 57	0. 22	-2. 64	0. 008**
Education degree and above	-1. 55	0. 42	-3. 69	0. 00***
Occupation without job	-0. 19	0. 21	-0. 89	0. 37
Marital status unmarried	0. 27	0. 35	0. 77	0. 44
Marital status widow/ divorced	0. 08	0. 24	0. 36	0. 72
Residential background urban	-0. 22	0. 25	-0. 88	0. 38
Type of family joined	0. 20	0. 21	0. 95	0. 34
HIV serostatus symptomatic	-0. 88	0. 28	-3. 12	0. 001**
Mode of transmission injection	0. 06	0. 59	0. 09	0. 92
Mode of transmission sex	0. 19	0. 38	0. 51	0. 61
Mode of transmission others	0. 37	0. 45	0. 82	0. 41
Duration of infection 6-10 years	0. 17	0. 29	0. 59	0. 56
Duration of infection more than 10 years	0. 02	0. 38	0. 06	0. 95
CD4 cell count 351-500	-0. 18	0. 37	-0. 49	0. 62
CD4 cell count more than 500	-0. 11	0. 39	-0. 27	0. 78
Duration of ART more than 5 years	0. 05	0. 28	0. 19	0. 85

R^2 = 0. 13, *Adj* R^2 = . 09, F (18,422) = 3. 596, ***p<. 001, **p<. 01

This indicates that various factors such as potential stress associated with managing their health condition alongside educational pursuits, or socioeconomic factors influencing access to resources and support. HIV-infected adults who are symptomatic tend to have a physical and emotional burden associated with

experiencing symptoms of HIV, as well as potential limitations in daily activities and independence.

However, it's crucial to note that the Adjusted R-squared value is relatively low (0. 09). As well several predictor variables do not show significant associations with the outcome. The R^2 value for this model is 0. 13, indicating that approximately 13% of the variability observed in domain 3 quality of life can be explained by the socio-demographic and infection-related factors of HIV infected adults included in the model.

Table 24 shows that the, some predictor variables demonstrate statistically significant associations with domain 4 (social relationships) quality of life of HIV infected adults. However, the Adjusted R-squared value is relatively low (0. 08). As well, several predictor variables do not show significant associations with the outcome. The R^2 value for this model is 0. 12, indicating that approximately 12% of the variability observed in domain 4 quality of life can be explained by the socio-demographic and infection-related factors included in the model.

Gender female ($p = 0. 03$) shows a significant negative association with social relationship quality of life, indicating that females tend to report lower levels of quality of life in social relationships compared to males. Societal norms and gender roles may impose different expectations and pressures on males and females in social relationships. These expectations influence individual's perceive and experience their social interactions, leading to differences in reported quality of life. HIV infected females may face unique challenges in maintaining fulfilling social relationships, which could impact their reported quality of life. Socioeconomic disparities between genders, such as differences in income, education, and employment opportunities, may also contribute to variations in social relationship

quality. Economic factors can influence access to social resources, opportunities for social participation, and overall well-being. Cultural expectations regarding family roles, marriage, and interpersonal dynamics can impact how individuals perceive and navigate social relationships.

Table 24

Multiple linear regression for domain 4 (social relationship) quality of life using socio-demographic & infection related factors

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	11. 95	0. 92	13. 03	0***
Age middle adulthood	0. 46	0. 30	1. 51	0. 13
Gender female	-0. 60	0. 28	-2. 13	0. 03*
Education plus two	-0. 27	0. 29	-0. 91	0. 36
Education degree and above	-1. 15	0. 58	-1. 99	0. 04*
Occupation without job	-0. 08	0. 29	-0. 26	0. 79
Marital status unmarried	-0. 36	0. 49	-0. 75	0. 45
Marital status widow/ divorced	-0. 45	0. 33	-1. 36	0. 17
Residential background urban	-0. 61	0. 35	-1. 74	0. 08
Type of family Joined	-0. 37	0. 29	-1. 24	0. 22
HIV serostatus symptomatic	-0. 19	0. 39	-0. 51	0. 61
Mode of transmission Injection	-0. 50	0. 81	-0. 62	0. 54
Mode of transmission sex	0. 05	0. 53	0. 09	0. 92
Mode of transmission others	0. 07	0. 62	0. 12	0. 90
Duration of infection 6-10 years	-0. 09	0. 41	-0. 22	0. 82
Duration of infection more than 10 years	0. 70	0. 52	1. 34	0. 18
CD4 cell count351-500	0. 18	0. 51	0. 34	0. 73
CD4 cell count more than 500	-0. 77	0. 54	-1. 43	0. 15
Duration of ART more than 5 years	-0. 22	0. 39	-0. 57	0. 57

R^2 = 0. 12, *Adj* R^2 = . 08, F (18,422) = 3. 37, ***p<. 001, *p<. 05

Education degree and above (p = 0. 04) exhibits a significant negative association with social relationship quality of life. This suggests that individuals with higher education levels tend to report lower levels of quality of life in social relationships. Education often correlates with various positive outcomes, its relationship with social relationship quality of life in the context of HIV may be more complex, influenced by a range of psychosocial and structural factors. Despite advancements in awareness and education, stigma and discrimination against people living with HIV still exist. Individuals with higher education levels may face additional pressure or judgment from peers, colleagues, or even family members due to their status, leading to strained social relationships. People with higher education levels might struggle with disclosing their HIV status due to concerns about how it could affect their professional or personal relationships. This secrecy or fear of disclosure can strain social connections and lead to feelings of alienation.

A result of table 25 indicates that socio-demographic and infection-related factor except residential background does not appear to have a significant effect on domain 5 (environment) quality of life of HIV infected adults. In this multiple linear regression analysis, one predictor variable demonstrates a statistically significant association with domain 5 (environment) quality of life at the $p < .01$ level. The Adjusted R-squared value is relatively low (0. 08). While the residential background appears to be associated with environment quality of life, the overall model has limited explanatory power. The R^2 value for this model is 0. 12, indicating that approximately 12% of the variability observed in domain 5 quality of life can be explained by the socio-demographic and infection-related factors included in the model.

Table 25

Multiple linear regression for domain 5 (environment) quality of life using socio-demographic & infection related factors

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	12. 1	0. 75	16. 22	0***
Age middle adulthood	0. 21	0. 25	0. 86	0. 39
Gender female	-0. 31	0. 23	-1. 35	0. 17
Education plus two	-0. 32	0. 24	-1. 33	0. 18
Education degree and above	-0. 60	0. 47	-1. 29	0. 19
Occupation without job	-0. 42	0. 24	-1. 74	0. 08
Marital status unmarried	-0. 52	0. 39	-1. 31	0. 19
Marital status widow/ divorced	-0. 30	0. 27	-1. 12	0. 26
Residential background urban	-0. 84	0. 28	-2. 95	0. 003**
Type of family joined	-0. 28	0. 24	-1. 19	0. 23
HIV serostatus symptomatic	-0. 24	0. 32	-0. 75	0. 45
Mode of transmission injection	-0. 45	0. 66	-0. 68	0. 49
Mode of transmission sex	-0. 18	0. 43	-0. 41	0. 68
Mode of transmission others	0. 34	0. 50	0. 67	0. 50
Duration of infection 6-10 years	0. 13	0. 34	0. 39	0. 69
Duration of infection more than 10 years	0. 36	0. 43	0. 84	0. 40
CD4 cell count 351-500	-0. 33	0. 42	-0. 79	0. 43
CD4 cell count more than 500	-0. 71	0. 44	-1. 62	0. 10
Duration of ART more than 5 years	-0. 15	0. 32	-0. 47	0. 64

R^2 = . 12, *Adj* R^2 = . 08, F (18,422) = 3. 407, ***p<. 001, **p<. 01

Residential background urban (p = 0. 003) exhibits a significant negative association with environment quality of life. This suggests that individuals living in urban areas tend to report lower levels of quality of life in their environment compared to those in rural areas. Urban areas often have higher levels of pollution, noise, and congestion compared to rural areas. Exposure to these environmental stressors can negatively impact individuals' perceptions of their living environment and contribute to lower quality of life. HIV-infected adults living in rural areas may

benefit from the positive effects of nature on their environmental quality of life. HIV-infected adults in rural areas may experience greater social support and connectedness, which positively influence their environmental quality of life. Despite the perception of urban areas as bustling with activity, individuals living in cities can experience feelings of social disconnection and loneliness due to the fast-paced nature of urban life. Limited social support networks and feelings of anonymity in urban environments can contribute to a sense of isolation and negatively impact overall well-being.

Table 26

Multiple linear regression for domain 6 (spirituality) quality of life using socio-demographic & infection related factors

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	10. 92	0. 74	14. 78	0***
Age middle adulthood	-0. 07	0. 24	-0. 27	0. 78
Gender female	-0. 24	0. 23	-1. 07	0. 29
Education plus two	-0. 01	0. 24	-0. 03	0. 97
Education degree and above	0. 68	0. 46	1. 46	0. 14
Occupation without job	0. 02	0. 24	0. 09	0. 93
Marital status unmarried	0. 40	0. 39	1. 03	0. 30
Marital status widow/ divorced	0. 26	0. 27	0. 95	0. 34
Residential background urban	0. 40	0. 23	1. 42	0. 16
Type of family joined	-0. 33	0. 24	-1. 4	0. 16
HIV serostatus symptomatic	1. 38	0. 31	4. 39	0. 00***
Mode of transmission injection	-0. 52	0. 66	-0. 78	0. 43
Mode of transmission sex	-0. 33	0. 43	-0. 78	0. 44
Mode of transmission others	-0. 13	0. 49	-0. 25	0. 79
Duration of infection 6-10 years	-0. 06	0. 33	-0. 18	0. 86
Duration of infection more than 10 years	-0. 03	0. 42	-0. 08	0. 94
CD4 cell count 351-500	0. 43	0. 41	1. 03	0. 30
CD4 cell count more than 500	-0. 77	0. 43	-1. 78	0. 07
Duration of ART more than 5 years	0. 61	0. 31	1. 95	0. 05

R^2 = . 20, *Adj* R^2 = . 17, F (18,422) = 5. 96, ***p<. 001

Table 26 suggests that only one predictor variables demonstrate statistically significant associations with domain 6 (spirituality) quality of life at the $p < .001$ level. The R^2 value for this model is 0. 20, indicating that approximately 20% of the variability observed in domain 6 quality of life can be explained by the socio-demographic and infection-related factors included in the model. The Adjusted R-squared value is relatively moderate (0. 17), indicating that the model explains a reasonable proportion of the variance in spirituality quality of life.

HIV serostatus symptomatic exhibits a significant positive association with spirituality quality of life. This indicates that individuals with symptomatic HIV status tend to report higher levels of quality of life in spirituality compared to those asymptomatic. Symptomatic individuals may be more acutely aware of their mortality and health challenges, leading them to engage in deeper reflection and introspection about the meaning and purpose of life. This heightened awareness can prompt individuals to seek spiritual fulfillment and find solace in their beliefs and practices, thereby enhancing their spirituality quality of life. When facing the physical and emotional challenges associated with symptomatic HIV infection, individuals may turn to spirituality as a coping mechanism. Spiritual beliefs and practices can provide a sense of comfort, hope, and resilience in times of adversity, helping individuals navigate the complexities of living with HIV. Engaging with spirituality can provide a framework for understanding suffering and finding meaning in the midst of illness, offering a sense of purpose and direction during difficult times.

Multiple linear regression for hardiness and quality of life

Table 27

Multiple linear regression for domain 1 (physical) quality of life using hardiness

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	9. 60	0. 67	14. 22	0***
Commitment	0. 05	0. 02	2. 44	0. 01*
Control	0. 01	0. 02	0. 25	0. 79
Challenge	-0. 001	0. 02	-0. 07	0. 94

R^2 = . 023, *Adj R2* = . 02, *F* (3,437) = 3. 466, ***p<. 001, *p<. 05

Table 27 presents the results of a multiple linear regression analysis examining the relationship between domain 1 (physical) quality of life and three predictor variables: commitment, control, and challenge (dimensions of hardiness). In this multiple linear regression analysis, the predictor variable "commitment" demonstrates a statistically significant association with domain 1 (physical) quality of life at the p < . 05 level. Commitment (p = 0. 01) exhibits a significant positive association with physical quality of life. This suggests that individuals with higher levels of commitment, as a component of hardiness, tend to report higher levels of physical quality of life. However, the other components of hardiness, "control" and "challenge," do not show significant associations with physical quality of life. R^2 = 0. 023, indicating that only about 2. 3% of the variance in physical quality of life of HIV infected adults is explained by the independent variable hardiness. The Adjusted R-squared value is relatively low (0. 02).

Hardiness have some influence on physical quality of life of HIV infected adults, the low R-squared value suggests that it is not the dominant factor explaining variability in this outcome. Commitment has significantly predicted physical quality of life because they are more adhered to treatment. Research consistently shows that

hardiness, particularly the dimension of commitment, plays a significant role in the quality of life of HIV infected individuals (Farber et al., 2000).

Table 28

Multiple linear regression for domain 2 (psychological) quality of life using hardiness

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	8. 47	0. 86	9. 81	0***
Commitment	-0. 004	0. 02	-0. 16	0. 87
Control	0. 06	0. 03	2. 18	0. 03*
Challenge	-0. 0005	0. 02	-0. 02	0. 98

R^2 = . 014, *Adj* R^2 = . 008, F (3,437) = 2. 192, ***p<. 001, *p<. 05

The table 28 represents the multiple linear regression analysis, examined the relationship between hardiness and domain 2 (psychological) quality of life, considering three dimensions of hardiness: Commitment, Control, and Challenge. The analysis suggests that Control, one of the dimensions of hardiness, is significantly positively associated with psychological quality of life. However, Commitment and Challenge do not appear to have a significant impact. The model's R-squared value is . 014, indicating that only approximately 1. 4% of the variance in psychological quality of life can be explained by the three dimensions of hardiness. The adjusted R-squared is 0. 008, adjusting for the number of predictors in the model. The F-statistic is 2. 192 with 3 and 437 degrees of freedom, indicating that the overall model is significant. The model as a whole explains only a small proportion of the variance in psychological quality of life, indicating that other factors beyond hardiness may play a more substantial role.

Individuals who possess a strong sense of control may feel empowered to cope with psychological stressors related to HIV infection, leading to better

psychological quality of life. They may utilize adaptive coping strategies such as problem-solving and seeking social support to manage the psychological impact of living with HIV. These coping mechanisms may contribute to a better psychological quality of life compared to individuals with lower levels of perceived control. Conversely, Commitment and Challenge may be less directly related to coping strategies focused on managing psychological distress. Even in the face of challenging circumstances associated with HIV infection, individuals who feel in control of their lives may experience lower levels of psychological distress and higher psychological quality of life. Cultural, demographic, or clinical factors specific to the sample may influence the relationship between hardiness and psychological quality of life of HIV infected adults. Psychological quality of life of HIV infected adults influenced by various psychological, social, and environmental factors beyond hardiness alone. While the components of hardiness may have some influence on psychological quality of life of HIV infected adults, the low R-squared value suggests that they are not the primary determinants of this outcome.

Table 29

Multiple linear regression for domain 3 (level of independence) quality of life using hardiness

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	8. 56	0. 79	10. 78	0***
Commitment	0. 02	0. 02	1. 15	0. 25
Control	0. 05	0. 02	2. 30	0. 02*
Challenge	-0. 009	0. 02	-0. 39	0. 69

R^2 = . 027, *Adj* R^2 = . 02, F (3,437) = 4. 112, ***p<. 001, *p<. 05

From the table 29, R^2 = 0. 027, indicating that the three components of hardiness (commitment, control, and challenge) explain only a small proportion (2. 7%) of the variance in level of independence quality of life of HIV infected adults. The *p*-value for control is . 02, suggesting that control dimension of hardiness indicate that the predictor variable is statistically significant in predicting the outcome variable (level of independence). In this model, commitment and challenge do not appear to have statistically significant effects on level of independence quality of life. This means that these variables may not be relevant predictors of independence in this context. Level of Independence quality of life of HIV infected adults is influenced by various factors beyond hardiness alone, such as physical health, social support, and environmental factors. However the control components of hardiness of HIV infected adults may have some influence on level of independence quality of life; the low R^2 value suggests that they are not the primary determinants of this outcome.

Researches consistently demonstrate a positive correlation between hardiness and the quality of life among adults living with HIV (Mirzaian, 2021). HIV-infected adults who perceive themselves as having greater control over their lives may also feel more confident in their ability to maintain independence despite the challenges posed by their condition. This sense of control can positively influence their level of independence quality of life. Perceived control over one's circumstances is closely linked to psychological well-being. HIV-infected adults who feel in control of their lives may experience lower levels of stress, anxiety, and depression, which can positively impact their level of independence quality of life. A sense of control can provide a psychological buffer against the negative effects of HIV-related challenges on independence. HIV-infected adults who feel empowered to make choices and

decisions about their lives, including how they manage their condition and maintain their independence, are likely to experience higher levels of independence quality of life.

Table 30

Multiple linear regression for domain 4 (social relationship) quality of life using hardiness

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	9. 29	1. 09	8. 46	0***
Commitment	0. 06	0. 03	1. 81	0. 07
Control	-0. 03	0. 03	-1. 13	0. 25
Challenge	0. 02	0. 03	0. 54	0. 59

R^2 = . 012, *Adj* R^2 = . 005, *F* (3,437) = 1. 771, ****p*<. 001

Table 30 presents the results of a multiple linear regression analysis examining the the predictive role of hardiness and domain 4 (social relationship) quality of life. The R-squared value (R^2= 0. 012) suggests that the three components of hardiness (commitment, control, and challenge) explain only a small proportion (1. 2%) of the variance in social relationship quality of life. The low R-squared value of hardiness implies that there is a week influence on social relationship quality of life of HIV infected adults. Dimensions of hardiness do not appear to have statistically significant effects on social relationship quality of life. Social relationships are influenced by a multitude of factors beyond individual traits such as hardiness. While hardiness dimensions like Control, Commitment, and Challenge may contribute to an individual's overall resilience and coping abilities, they may not have direct or significant effects on the quality of social relationships. Other factors such as social support networks, stigma, discrimination, and interpersonal dynamics may play larger roles in shaping social relationship quality of life for HIV-

infected adults. These may be the reasons for not having a relationship between them.

Table 31

Multiple linear regression for domain 5 (environment) quality of life using hardiness

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	9. 76	0. 90	10. 84	0***
Commitment	0. 01	0. 03	0. 35	0. 72
Control	0. 01	0. 03	0. 43	0. 67
Challenge	-0. 003	0. 03	-0. 11	0. 91

R^2 = . 0013, *Adj* R^2 =- . 005, *F* (3,437) = 0. 195, ****p*<. 001

This table 31 presents the results of a multiple linear regression analysis examining the predictive role of hardiness and domain 5 (environment) quality of life. R^2 = 0. 0013, indicating that only about 0. 13% of the variance in environmental quality of life is accounted for by the three predictor variables included in the model. The results show that none of the components of hardiness (Commitment, Control, and Challenge) have statistically significant effects on environmental quality of life among the studied population. The components of hardiness do not seem to be significant predictors of environmental quality of life in this analysis. Environmental quality of life encompasses a wide range of factors, including physical, social, and psychological aspects of the environment. While individual traits like hardiness may play a role in how individuals adapt to environmental stressors, they may not have direct or significant effects on overall environmental quality of life, which is influenced by a complex interplay of socioeconomic, environmental, and policy-related factors.

Table 32

Multiple linear regression for domain 6 (spirituality) quality of life using hardiness

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	7. 84	0. 87	8. 97	0***
Commitment	0. 08	0. 03	3. 05	0. 002**
Control	-0. 10	0. 03	-3. 61	0. 00***
Challenge	0. 14	0. 03	5. 20	0. 00***

R^2 = . 12, *Adj* R^2 = . 11, *F* (3,437) = 20. 04, ****p*<. 001, ***p*<. 01

From the table 32 it was found that all dimension of hardiness appears to be a significant predictor of domain 6 (spirituality) quality of life of HIV infected adults. The R-squared value (R^2 = 0. 12) is relatively high compared to the previous regression analyses, indicating that approximately 12% of the variance in spirituality quality of life is explained by the three components of hardiness included in the model. Commitment, control, and challenge all have statistically significant effects on spirituality quality of life. Commitment and challenge have positive coefficients, indicating that higher levels of commitment and challenge are associated with higher spirituality quality of life scores. Conversely, control has a negative coefficient, suggesting that higher levels of Control are associated with lower spirituality quality of life scores of the participants. Spirituality has been identified as a significant factor influencing the quality of life for individuals living with HIV (Pirasteh Motlagh & Nikmanesh, 2013). The positive association between spiritual well-being and hardiness, a trait linked to improved physical, emotional, and spiritual health in individuals with HIV, provides additional support for this relationship (Carson & Green, 1992). Commitment and challenge personality traits can play an important role in predicting the spiritual aspect of the quality of life for adults living with HIV.

People with strong commitment traits may be more likely to pursue spiritual practices such as prayer or meditation, and use those practices to help them cope with the physical and emotional effects of HIV. People with a strong challenge personality trait may be more likely to engage in new spiritual practices or explore different faith traditions, which can help them to find a sense of purpose and peace. Together, commitment and challenge personality traits can help to create a strong spiritual foundation in the lives of adults living with HIV, providing them with a sense of hope and positivity in the face of a difficult situation. It was found that there is a significant relationship between hardiness and the religious dimension of quality of life (Shahbazirad, 2015).

Multiple linear regression for perceived social support and quality of life

Table 33

Multiple linear regression for domain 1 (physical) quality of life using perceived social support

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	10. 6	0. 23	45. 09	0***
Family	0. 12	0. 11	1. 12	0. 26
Friends	0. 11	0. 10	1. 08	0. 28
Significant_others	0. 03	0. 11	0. 25	0. 80

R^2 = . 036, *Adj* R^2 = . 03, *F* (3,437) = 5. 456, ***p<. 001

Table 33 shows that perceived social support has no statistically significant effect on the physical (domain 1) quality of life of the participants. This suggests that perceived social support from these sources may not be significant predictors of physical quality of life in this context. The R-squared value (R^2 = 0. 036) is

relatively low, indicating that only about 3. 6 % of the variance in physical quality of life is explained by perceived social support from family, friends, and significant others. The characteristics of the sample used in the analysis may influence the relationship between perceived social support and physical quality of life. Perceived social support from family, friends, and significant others may be important for overall well-being, this analysis suggests that they may not have a significant influence on physical quality of life specifically in this context. There is no change in HIV infection-related physical ailments, whether there is any social support or not. This may be the reason for the lack of a significant difference.

Table 34

Multiple linear regression for domain 2 (psychological) quality of life using perceived social support

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	7. 81	0. 27	28. 35	0***
Family	-0. 03	0. 13	-0. 26	0. 79
Friends	0. 30	0. 11	2. 56	0. 01*
Significant_others	0. 47	0. 12	3. 69	0. 00***

R^2 = . 18, *Adj* R^2 = . 18, *F* (3,437) = 32. 44, ****p*<. 001, **p*<. 05

The provided table 34 explores the predictive role of domain 2 (psychological) quality of life and perceived social support. The effect of perceived social support from friends and significant others is statistically significant. While perceived social support from family does not have a significant effect in this context. It indicates that perceived social support from friends and significant others has a positive impact on psychological quality of life of HIV infected adults. R^2 value indicating that approximately 18% of the variance in psychological quality of

life is explained by the perceived social support variables included in the model. Support interventions to enhance the quality and availability of social support can contribute significantly to the mental well-being of individuals living with HIV.

Social support from friends and significant others often involves emotional support, such as empathy, understanding, and validation of feelings. Knowing that one has friends and loved ones, who are there to listen, provide comfort, and offer encouragement can buffer against the psychological distress associated with living with HIV. This emotional support contributes to a greater sense of psychological well-being and overall quality of life. For HIV-infected adults, who may face stigma, discrimination, and social isolation, having supportive relationships with friends and significant others can counteract feelings of loneliness and enhance feelings of acceptance and belonging, thereby improving psychological quality of life. Perceived social support serves as a coping resource for individuals facing stressful life events, including HIV diagnosis and management. Having supportive relationships provides individuals with coping strategies, problem-solving skills, and adaptive responses to stress, which are essential for maintaining psychological well-being in the face of adversity. The consensus is that social support significantly influences the quality of life for people living with HIV (Subramanian et al., 2021).

Table 35 shows the result of predictive role of domain 3 (level of independence) quality of life and perceived social support. The coefficient for family is not statistically significant, as indicated by the *p*-value of 0. 96. The effect of perceived social support from friends and significant others are statistically significant, propose that both of them has a positive impact on level of independence quality of life of HIV infected adults. The coefficient of determination (R2) stands at

0. 14, suggesting that roughly 14% of the variability in level of independence quality of life is explained by the perceived social support variables included in the model.

Table 35

Multiple linear regression for domain 3 (level of independence) quality of life using perceived social support

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	9. 1	0. 26	34. 87	0***
Family	-0. 005	0. 12	-0. 04	0. 96
Friends	0. 23	0. 11	2. 05	0. 04*
Significant_others	0. 39	0. 12	3. 20	0. 001**

R^2 = . 14, *Adj* R^2 = . 14, F (3,437) = 24. 66, ***p<. 001, **p<. 01, *p<. 05

A strong support system can act as a buffer against stigma, promoting self-esteem and a sense of empowerment, which can significantly improve a person's ability to live independently. Perceived social support strengthens individuals' emotional resilience, provides practical help, and fosters a sense of self-worth. This combination significantly contributes to a better quality of independent living for adults with HIV. Social support from friends and significant others often involves emotional encouragement, understanding, and validation. Knowing that one has friends and loved ones who are supportive and caring can boost confidence and self-esteem, empowering HIV-infected adults to maintain their independence despite the challenges they face. Feeling connected to friends and loved ones fosters a sense of social identity and belonging, reinforcing one's sense of autonomy and agency in decision-making and self-care. This sense of security enables individuals to find their way through the complexities of living with HIV with confidence and resilience, enhancing their overall sense of independence and well-being.

Table 36

Multiple linear regression for domain 4 (social relationship) quality of life using perceived social support

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	8. 00	0. 35	22. 24	0***
Family	-0. 01	0. 17	-0. 10	0. 91
Friends	0. 59	0. 15	3. 77	0. 00***
Significant_others	0. 24	0. 17	1. 46	0. 14

R^2 = . 13, *Adj* R^2 = . 13, *F* (3,437) = 22. 83, ***p<. 001

Table 36 reported that the coefficient for friends perceived social support is 0. 59. This is statistically significant; with a *p*-value less than 0. 001, advocate that perceived social support from friends has a positive impact on social relationship (domain 4) quality of life of the HIV infected adults. R^2 value is 0. 13, indicating that approximately 13% of the variance in social relationship quality of life is explained by the perceived social support variables included in the model. It implies that perceived social support from family, friends, and significant others accounts for a moderate portion of the variability in social relationship quality of life scores. Friends often serve as a primary source of emotional support, providing empathy, encouragement, and companionship. Having friends who are understanding and accepting of their HIV status allows individuals to engage in meaningful social interactions, participate in social activities, and maintain fulfilling relationships, which are essential components of social relationship quality of life. Ansah (2017) found that among the various social support systems examined, only friends' support emerged as a positive influence on quality of life. Having supportive friends can positively impact the quality of life of people living with HIV, as social relationships

are an important factor in overall well-being. Close friends provided most types of support it were positively related to quality of life (Friedland et al., 1996). Ultimately, having supportive friends can make living with HIV more manageable, and can help to improve the quality of life for people living with HIV.

Table 37

Multiple linear regression for domain 5 (environment) quality of life using perceived social support

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	7. 51	0. 28	27	0***
Family	0. 21	0. 13	1. 59	0. 11
Friends	0. 27	0. 12	2. 25	0. 02*
Significant_others	0. 38	0. 13	2. 95	0. 003**

R^2 = . 22, *Adj* R^2 = . 21, *F* (3,437) = 4. 46, ***p<. 001, **p<. 01, *p<. 05

Table 37 shows that the effect of perceived social support from friends and significant others is statistically significant, indicating that perceived social support from friends and significant others has a positive impact on environment quality of life of HIV-infected adults. R^2 value is 0. 22, indicating that approximately 22% of the difference in environment quality of life is explained by the perceived social support dimensions included in the model. These propose that perceived social support accounts for a substantial portion of the variability in environment quality of life scores. Perceived social support help to reduce the isolation and stigma associated with HIV, which can be a major source of stress for many people living with HIV. Knowing that one has friends and loved ones who are supportive and caring can create a positive atmosphere within the living environment, contributing to a greater sense of overall satisfaction and quality of life. Having supportive

relationships with friends and significant others fosters a sense of connectedness and mutual support within the community, promoting a positive social climate and enhancing the overall environment quality of life. Social support system work as a predictor of quality of life of HIV infected people (Douaihy & Singh 2001; Basavaraj & Rashmi, 2010). Thus, social support from significant others is an important predictor of the environment aspect of the quality of life of people living with HIV. One of the study shows that the greatest effect of social support was on environmental functioning, (Yadav, S. 2010). Living with HIV can be a difficult experience, and it can have a significant impact on an individual's overall quality of life.

Table 38

Multiple linear regression for domain 6 (spirituality) quality of life using perceived social support

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	13. 3	0. 32	41. 73	0***
Family	-0. 26	0. 15	-1. 76	0. 08
Friends	0. 05	0. 14	0. 37	0. 70
Significant_others	-0. 17	0. 15	-1. 19	0. 23

R^2 = . 048, *Adj* R^2 = . 042, *F* (3,437) = 7. 473, ****p*<. 001

Table 38 shows that none of the perceived social support variables significantly predict spirituality quality of life in this context. The model explains only a small portion of the variance in spirituality quality of life, indicating that other factors not included in the model may have a stronger influence on spirituality-related well-being of HIV infected adults. The coefficient of determination (R^2) is 0. 048, indicating that approximately 4. 8% of the variance in spirituality quality of life

is explained by the perceived social support variables included in the model. Spirituality and quality of life represent a distinct domain of well-being that may be influenced by factors beyond social support. While social support is important for overall well-being, spiritual quality of life may be more closely linked to existential, existential, and existential aspects of life, such as meaning, purpose, and connection to something greater than oneself. Therefore, perceived social support may not directly predict spirituality quality of life as it does with other domains of well-being.

From Table 39, it was clear that self-distraction, active coping, and planning (coping styles) are statistically significant. Other coping styles do not have a significant impact on the physical (domain 1) quality of life of HIV-infected adults. R^2 indicating that approximately 7. 6% of the variance in physical quality of life is explained by the coping style variables included in the model. It indicates that coping styles, including self-distraction, active coping, and planning, collectively account for a relatively small portion of the variability in physical quality of life scores of the participants. These coping styles focus on managing emotional responses to infection rather than directly addressing the physical aspects. While they can help reduce stress and improve emotional well-being, they may not significantly impact physical symptoms or limitations. Self-distraction, active coping, and planning might be more effective in managing emotional distress than physical symptoms. These coping mechanisms might improve a person's emotional well-being in the face of infection but not necessarily translate into better physical functioning. While these coping styles are important for emotional management, they likely play a secondary role in explaining variations in physical quality of life of HIV infected adults. There is consistent research evidences indicating that

employing active coping strategies is linked to an enhanced quality of life in individuals living with HIV (Weaver,2004; Osamika, 2019)

Multiple linear regression for coping style and quality of life

Table 39

Multiple linear regression for domain 1 (physical) quality of life using coping style

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	11. 09	0. 49	22. 31	0***
Self distraction	0. 15	0. 07	2. 04	0. 04*
Active coping	0. 29	0. 07	3. 71	0. 00***
Denial	-0. 01	0. 06	-0. 14	0. 88
Substance use	-0. 12	0. 06	-1. 79	0. 07
Use of emotional support	-0. 03	0. 07	-0. 44	0. 65
Use of instrumental support	0. 03	0. 07	0. 54	0. 59
Behavioral disengagement	-0. 08	0. 06	-1. 27	0. 21
Venting	-0. 08	0. 06	-1. 22	0. 22
Positive reframing	-0. 09	0. 07	-1. 33	0. 18
Planning	0. 16	0. 08	2. 03	0. 04*
Humor	0. 00	0. 07	0. 10	0. 91
Acceptance	0. 02	0. 06	0. 35	0. 72
Religion	-0. 05	0. 06	-0. 83	0. 40
Self blame	-0. 07	0. 06	-1. 14	0. 25

R^2 = . 076, *Adj* R^2 = . 045, F (14,426) = 2. 507, ***p<. 001, *p<. 05

Table 40

Multiple linear regression for domain 2 (psychological) quality of life using coping style

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	5. 12	0. 58	8. 89	0***
Self distraction	0. 13	0. 09	1. 49	0. 13
Active coping	0. 19	0. 08	2. 39	0. 01*
Denial	0. 14	0. 08	1. 82	0. 07
Substance use	-0. 01	0. 08	-0. 11	0. 91
Use of emotional support	0. 34	0. 08	4. 18	0. 00***
Use of instrumental support	-0. 01	0. 08	-0. 16	0. 87
Behavioral disengagement	0. 03	0. 08	0. 47	0. 64
Venting	-0. 0006	0. 07	-0. 01	0. 99
Positive reframing	0. 06	0. 08	0. 77	0. 43
Planning	0. 20	0. 08	2. 30	0. 02*
Humor	0. 07	0. 08	0. 86	0. 39
Acceptance	-0. 002	0. 07	-0. 03	0. 97
Religion	0. 07	0. 06	0. 97	0. 33
Self blame	-0. 09	0. 07	-1. 25	0. 21

R^2 = . 23, *Adj* R^2 = . 207, F (14,426) = 9. 205, ***p<. 001, *p<. 05

Table 40 indicates that coping styles such as active coping, use of emotional support, planning are statistically significant. It shows that the above mentioned coping styles have an impact on psychological (domain 2) quality of life of HIV infected adults. R^2 is 0. 23, indicating that approximately 23% of the variance in psychological quality of life is explained by the coping style variables included in the model. This suggests that coping styles account for a moderate portion of the variability in psychological quality of life scores. These findings underscore the importance of considering coping strategies in understanding and improving quality

of life outcomes, particularly in the psychological domain. Combining problem-solving strategies with a supportive social network can create a more comprehensive approach to coping with the challenges of HIV, fostering a positive psychological environment. Another research finding indicates that coping strategies emerge as a predictor of the quality of life of HIV-infected people (Douaihy & Singh, 2001; Basavaraj & Rashmi, 2010). Individuals who engage in active coping strategies are more likely to feel empowered and in control of their circumstances, which can enhance their psychological well-being and quality of life. Sharing one's feelings and experiences with supportive individuals can provide validation, reassurance, and a sense of connection, which can help regulate emotions and reduce psychological distress among HIV-infected adults. HIV-infected adults who engage in active coping, seek emotional support, and engage in planning are better equipped to cope with the stressors associated with their condition, leading to greater psychological resilience and well-being. This coping styles is often associated with a more positive cognitive appraisal of stressful situations, wherein individuals perceive challenges as manageable and believe in their ability to cope effectively.

Table 41 gives the results of multiple linear regression analysis predicting the quality of life in domain 3 (level of independence) using coping styles. The low p-value of self-distraction, use of emotional support coping styles indicates that these are statistically significant. The results suggest that both self-distraction and use of emotional support coping styles are significantly associated with the quality of life in domain 3 (level of independence). Nevertheless, it is crucial to acknowledge that the model only provides a concise explanation. proportion (12%) of the variance in this aspect of quality of life, indicating that there may be other factors not included in the model that also influence level of independence.

Table 41

Multiple linear regression for domain 3 (level of independence) quality of life using coping style

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	9. 13	0. 57	16. 01	0***
Self distraction	0. 29	0. 09	3. 33	0. 00***
Active coping	0. 15	0. 07	1. 94	0. 05
Denial	0. 01	0. 08	0. 18	0. 86
Substance use	-0. 12	0. 08	-1. 58	0. 11
Use of emotional support	0. 17	0. 08	2. 15	0. 03*
Use of instrumental support	0. 01	0. 08	0. 14	0. 88
Behavioral disengagement	-0. 14	0. 07	-1. 84	0. 07
Venting	-0. 05	0. 07	-0. 62	0. 53
Positive reframing	-0. 09	0. 08	-1. 09	0. 28
Planning	0. 15	0. 09	1. 71	0. 09
Humor	0. 03	0. 08	0. 36	0. 71
Acceptance	0. 06	0. 07	0. 87	0. 39
Religion	0. 06	0. 07	0. 92	0. 35
Self blame	-0. 10	0. 07	-1. 47	0. 14

R^2 = . 12, *Adj* R^2 = . 096, F (14,426) = 4. 341, ***p<. 001

Self-distraction techniques like engaging in hobbies or activities they enjoy can help people living with HIV temporarily shift their focus away from the challenges of their condition. This can be beneficial for maintaining a sense of normalcy and control in their lives, leading to greater independence. Engaging in enjoyable activities can boost mood and reduce stress, which can have a positive impact on energy levels and motivation. This can translate into an increased ability to manage daily tasks and activities independently. Social support can offer an outlet for expressing emotions and concerns. Talking to trusted friends, family, or

therapists can help individuals' process challenges and develop coping mechanisms, leading to better emotional well-being and potentially greater independence. Self-distraction and emotional support seem to be beneficial coping mechanisms because they can help individuals with HIV maintain a positive outlook, manage stress, and feel more capable, which can contribute to a greater level of independence in daily life.

Table 42

Multiple linear regression for domain 4 (social relationship) quality of life using coping style

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	4. 00	0. 74	5. 40	0***
Self distraction	-0. 06	0. 11	-0. 56	0. 57
Active coping	0. 22	0. 10	2. 15	0. 03*
Denial	-0. 02	0. 10	-0. 18	0. 85
Substance use	0. 15	0. 10	1. 44	0. 15
Use of emotional support	0. 45	0. 10	4. 33	0***
Use of instrumental support	-0. 001	0. 09	-0. 01	0. 99
Behavioral disengagement	0. 06	0. 09	0. 61	0. 54
Venting	0. 01	0. 09	0. 08	0. 93
Positive reframing	0. 12	0. 11	1. 12	0. 26
Planning	0. 28	0. 11	2. 43	0. 01*
Humor	0. 05	0. 10	0. 52	0. 60
Acceptance	0. 21	0. 09	2. 19	0. 03*
Religion	0. 03	0. 09	0. 29	0. 77
Self blame	-0. 04	0. 09	-0. 41	0. 68

R^2 = . 21, *Adj* R^2 = . 187, F (14,426) = 8. 266, ***p<. 001, *p<. 05

From the table 42 the p-value shows that active coping, use of emotional support, planning and acceptance coping styles are statistically significant. An R^2

value of 0. 21 means that approximately 21% of the variance in quality of life in domain 4 (social relationship) can be explained by the coping styles included in the model. The results indicates that active coping, use of emotional support, planning, and acceptance coping styles are significantly associated with the quality of life in domain 4 (social relationship). Adults living with HIV who use coping strategies such as active coping, the use of emotional support, planning, and acceptance can help them to maintain and improve their social relationships. Active coping strategies involve taking direct action to address and manage stressors or challenges. It often involves problem-solving and seeking solutions to challenges. Individuals who use active coping style may be better equipped to communicate openly and honestly with their loved ones about their HIV status, treatment needs, and emotional experiences. Emotional support can help individuals to feel connected and accepted, which is essential for any relationship. Planning can help individuals to manage their time and resources so that they can continue to be involved in social activities. Acceptance can help individuals to cope with any negative emotions they may have relating to their HIV status and can help them to stay positive in their social relationships. Therefore, using these coping strategies can help people living with HIV to maintain and improve the social relationship aspect of their quality of life. The research revealed that coping strategies significantly predict the social relationship domain of quality of life of HIV infected individuals (Osamika, 2019).

Table 43 reveals that use of emotional support, planning and acceptance coping styles are statistically significant. An R-squared of 0. 28 means that approximately 28% of the variance in quality of life in domain 5 (environment) can be explained by the coping styles included in the model.

Table 43

Multiple linear regression for domain 5 (environment) quality of life using coping style

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	4. 70	0. 57	8. 17	0***
Self distraction	0. 19	0. 09	2. 19	0. 02*
Active coping	0. 05	0. 08	0. 65	0. 51
Denial	-0. 04	0. 08	-0. 53	0. 59
Substance use	0. 03	0. 08	0. 35	0. 73
Use of emotional support	0. 40	0. 08	4. 92	0***
Use of instrumental support	0. 09	0. 08	1. 23	0. 22
Behavioral disengagement	0. 05	0. 08	0. 68	0. 49
Venting	-0. 08	0. 07	-1. 09	0. 28
Positive reframing	0. 08	0. 08	0. 99	0. 32
Planning	0. 39	0. 09	4. 44	0***
Humor	-0. 03	0. 08	-0. 39	0. 69
Acceptance	0. 09	0. 07	1. 24	0. 21
Religion	0. 05	0. 07	0. 78	0. 43
Self blame	-0. 02	0. 07	-0. 39	0. 69

R^2 = . 28, *Adj* R^2 = . 26, F (14,426) = 12. 18, ***p<. 001, *p<. 05

Based on these results, it appears that the use of coping strategies such as self-distraction, use of emotional support, and planning significantly contribute to the improvement of quality of life HIV infected adults in domain 5, which pertains to the environment. These coping strategies may help individuals better direct their environmental challenges, leading to a higher quality of life in this domain. These coping styles help individuals to manage the physical, psychological, and environmental aspects of living with HIV. Self-distraction techniques can help individuals temporarily take their mind off the infection, fostering a more positive

outlook on their environment. Emotional support can help individuals cope with the psychological stressors associated with living with HIV; while planning can help individuals anticipate and manage potential environmental stressors. Planning can also help individuals manage their medical appointments and treatments, as well as plan for potential changes in their physical health. By utilizing these coping styles, adults living with HIV can better prepare for and manage the environmental aspects of their quality of life. These findings suggest that having self distraction coping style, utilizing emotional support, and engaging in effective planning strategies can significantly improve the quality of life in this specific domain. The research indicated that coping strategies significantly predict the environment domain of quality of life in individuals infected with HIV (Osamika, 2019).

Table 44 gives the results of multiple linear regression analysis predicting the quality of life in domain 6 (spirituality) using coping styles. These results suggest that various coping styles significantly influence the quality of life in domain 6 (spirituality) of HIV infected adults. Specifically, higher levels of substance use, behavioral disengagement, and planning are associated with higher levels of spirituality, while higher levels of self-distraction, use of emotional support, positive reframing and self-blame are associated with lower levels of spirituality. The negative predictions suggest that these variables may have adverse effect on spirituality quality of life of HIV infected adults. The R-squared (0. 20) value indicates the proportion (20%) of variance in the dependent variable (quality of life in domain 6) explained by the independent variables (coping styles) included in the model.

Table 44

Multiple linear regression for domain 6 (spirituality) quality of life using coping style

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**
(Intercept)	12. 56	0. 63	19. 99	0***
Self distraction	-0. 32	0. 09	-3. 33	0. 00***
Active coping	0. 16	0. 08	1. 88	0. 06
Denial	-0. 05	0. 08	-0. 55	0. 58
Substance use	0. 21	0. 09	2. 38	0. 02*
Use of emotional support	-0. 27	0. 09	-3. 04	0. 002**
Use of instrumental support	0. 12	0. 08	1. 46	0. 14
Behavioral disengagement	0. 32	0. 08	3. 88	0. 00***
Venting	-0. 09	0. 08	-1. 16	0. 24
Positive reframing	-0. 22	0. 09	-2. 39	0. 01*
Planning	0. 29	0. 09	2. 99	0. 002**
Humor	0. 07	0. 09	0. 85	0. 39
Acceptance	-0. 09	0. 08	-1. 19	0. 23
Religion	-0. 04	0. 08	-0. 49	0. 62
Self blame	-0. 24	0. 08	-2. 99	0. 002**

R^2 = . 20, *Adj* R^2 = . 18, F (14,426) = 8. 001, ***p<. 001, **p<. 01, *p<. 05

The association between coping styles and spirituality among HIV-infected adults can be understood through psychological and sociological perspectives. Coping through substance use and behavioral disengagement might be indicative of avoidance coping strategies. Individuals who rely on substances or disengage from their problems may be attempting to escape distressing thoughts or emotions related to their HIV diagnosis or its implications. In doing so, they may turn towards spiritual beliefs or practices as a form of solace or guidance, leading to a higher reported level of spirituality. Planning as a coping strategy reflects a proactive

approach to problem-solving and adapting to stressors. HIV-infected adults who engage in planning coping behaviors may actively seek out sources of support, both practical and spiritual, and develop strategies to manage their condition. This proactive stance towards their infection and life circumstances may foster a sense of purpose and meaning, contributing to higher levels of spirituality. These coping styles are often associated with emotion-focused coping strategies. Emotion-oriented coping styles were negatively related quality of life (Friedland, Renwick & McColl,1996). Self-distraction involves diverting attention away from stressors, while use of emotional support seeks comfort and understanding from others. Positive reframing involves finding positive meaning in adverse situations, while self-blame entails attributing fault or responsibility to oneself for negative outcomes. HIV-infected adults who rely more on these coping styles may struggle with feelings of distress, guilt, or hopelessness related to their infection. Instead of turning towards spirituality as a source of comfort or guidance, they may experience conflict or disillusionment with their spiritual beliefs or practices, leading to lower reported levels of spirituality. Better quality of life associated with problem focused coping and active coping styles (Coetzee & Spangenberg, 2003). The research indicated that coping strategies significantly predict the spirituality domain of quality of life in individuals infected with HIV (Osamika, 2019).

Chapter 4

SUMMARY AND CONCLUSION

Resume of the study

Objectives

Participants

Instruments for the study

Procedure

Statistical analysis

Major findings

Tenability of hypothesis

Conclusion

This chapter provides a summary of the study, highlights the main discoveries, evaluates the validity of the hypotheses, discusses the implications of the study, addresses its limitations, and offers recommendations for future research.

Resume of the study

HIV infection can have a significant impact on the quality of life of those living with the virus. Some ways HIV affects quality of life include: physical health, mental health, social isolation, financial difficulties, relationship challenges, work life. In summary, while HIV treatment has improved significantly, HIV still profoundly affects the physical, mental, social, and financial wellbeing of those living with the virus - negatively impacting their overall quality of life. With proper medical care, social support, hardy personality, use of appropriate coping strategies and self-care, however, numerous individuals can effectively handle their condition and sustain a high quality of life. Advances in medicine have greatly improved the prognosis for those with HIV, allowing many to live long and fulfilling lives. Some key factors that can help improve quality of life for people living with HIV are: taking antiretroviral drugs as prescribed. These medications suppress the virus and strengthen the immune system, reducing the risk of infection. Practicing self-care like eating nutritious food, exercising regularly, and getting enough sleep. This helps the body fight infection and defend against infection. Seeking social and emotional support from friends, family, support groups, and mental health professionals. HIV can cause anxiety, depression, and other psychological issues. Positive thinking and having goals and aspirations can contribute to psychological wellbeing. While life expectancy for people with HIV has greatly increased over the past few decades, HIV remains a chronic condition that requires constant medical and lifestyle management. But with access to care and a strong support system, many people

living with HIV are able to sustain fulfilling lives and experience happiness, productivity and positive health outcomes.

In view of the significance of quality of life of the lives of people with HIV, and in view of dearth of psychological studies on adults in our culture. The present study focused on the quality of life experienced by HIV-infected adults, aiming to uncover the psychological variables that may influence various domains of quality of life. These domains include physical (domain 1), psychological (domain 2), level of independence (domain 3), social relationships (domain 4), environmental (domain 5), and spirituality (domain 6). The study focuses on examining the roles of hardiness dimensions (commitment, control, and challenge), perceived social support (from family, friends, and significant others), and coping styles (such as self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame) in shaping quality of life outcomes for individuals living with HIV. The study also examined the impact of pertinent sociodemographic & infection related variables, age, gender, education, occupation, marital status, residential background, type of family, HIV serostatus, mode of transmission, duration of infection, CD4 cell count, and duration of ART. The present study entitled as "**Role of Hardiness, Perceived Social Support, Coping Style on the Quality of Life in HIV-Infected Adults".**

Objectives of the study

1. To examine the effect of sociodemographic and infection-related factors on the hardiness, perceived social support, coping style, and quality of life of HIV-infected adults.

2. To find out the relationship between hardiness, perceived social support, coping style, and quality of life of HIV-infected adults.
3. To examine the predictive role of sociodemographic and infection-related factors on the quality of life of HIV-infected adults
4. To examine the predictive role of hardiness, perceived social support, and coping style on the quality of life of HIV-infected adults.

Research design

The research design is the detailed plan of the investigation. In fact, it is the blue print of the detailed procedures of testing the hypotheses and analyzing the obtained data. The current research is correlational, predictive in nature and used a cross-sectional research design

Participants

The sample for the study comprised of 441 HIV infected adults. For collecting the sample Kerala is divided into three zones, south, middle and north. All of the respondents were selected using purposive sampling method. The samples were taken from registered NGO's such as Kuriakose Elias Service Society (KESS), community based organizations and care support centers for people living with HIV in Trivandrum, Kollam, Alappuzha, Kottayam, Idukki, Thrissur, Kozhikode, Malappuram and Wayanad districts in Kerala. The age of the respondents ranged from 20 to 60 years.

Instruments for the study

- Personal Data Sheet
- Quality of Life - WHOQOL-HIV BREF (WHO, 2002)
- Singh Psychological Hardiness Scale(Arun Kumar Singh,2007)

- The Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet& Farley, 1988)
- The Brief COPE (Carver, 1997)

Procedure

The data collection process commenced with the researcher liaising with the Kerala State Aids Control Society (KSACS) to obtain a comprehensive list of NGOs across various districts in Kerala catering to individuals affected by HIV. Respondents were then purposefully selected from these NGOs, including organizations such as KESS, community-based groups, and care support centers operating in Trivandrum, Kollam, Alappuzha, Kottayam, Idukki, Thrissur, Kozhikode, Malappuram, and Wayanad districts. Upon selection, individual meetings were conducted with the respondents to describe the study's objectives. The investigator requested authorization from the authorities to have a one-on-one meeting with the subject. The participants will contact their respective NGOs to gather nutritional resources as soon as the doctor's consultation occurs. The participants are open to discussions during this time. Face-to-face encounters have helped to build rapport with the participants. In addition to fostering rapport, the researcher's brief conversations with participants encouraged them to share their painful worries. Following the discussion, the questionnaires were given out with their permission and permission to be used for research, on the understanding that the data would be kept private and used to help government and non-government organizations provide better services to HIV-positive people. Volunteers and counselors provided additional support to instill confidence in respondents. The data collection instruments comprised validated self-reported questionnaires covering

domains such as hardiness, perceived social support, coping styles, and quality of life. Questionnaires were administered post-consultation during the patient's regular visit with a physician. Prior to completing the questionnaire, participants were assured of confidentiality and informed that their responses would contribute to enhancing services for HIV-infected individuals. Participants were also given the option to discontinue participation at any point without consent. A personal data sheet capturing basic information was filled out by participants before proceeding to the questionnaires.

Statistical Analysis

All statistical analyses were done with the R programming (version4. 0. 6), microsoft Word was utilized to create tables. Prior to analyzing the data to test the hypotheses, the distribution's normality was assessed. with Kolmogorov-Smirnov test. The following statistical techniques were used for analysing the data:

- Descriptive statistics
- Kolmogorov-Smirnov test
- Mann-Whitney U test
- Kruskal-Wallis H test
- Spearman’s rank correlation rho
- Analysis of Variance
- Multiple linear regression

Major findings

1. Hardiness (commitment, control and challenge)

- There is a significant difference in the hardiness of HIV-infected adults based on age. Middle-aged adults show a higher level of commitment and challenge.

- There is no significant gender difference in commitment, challenge and control.
- There is a significant difference in the dimensions of the hardiness of HIV-infected adults based on their education. Education has a significant difference in the challenge, and people who have plus two levels of education have higher differences than others.
- There is a significant difference in the dimensions of hardiness of HIV-infected adults based on their occupation. For those who have no job, the challenge is high.
- There is a significant difference in the dimensions of hardiness of HIV-infected adults based on their marital status. The commitment and challenge are mostly used by unmarried people with HIV, compared to other groups.
- There is a significant difference in the dimensions of hardiness of HIV-infected adults based on their residential background. Those who are residing in urban areas as compared to rural people, show higher levels of commitment and challenge.
- There is a significant difference in the dimensions of the hardiness of HIV-infected adults based on their type of family. Those people from a nuclear family have more control, and those from a joined family have a challenging type of hardiness personality.
- There is a significant difference in HIV serostatus with respect to control and challenge. In this, those who are symptomatic show high levels of control, while asymptomatic people show high levels of challenge.

- There is a significant difference in the dimensions of the hardiness of HIV-infected adults based on the mode of transmission. Those who are affected by HIV through blood transfusion show a high level of challenge.
- There is a significant difference in the dimensions of the hardiness of HIV-infected adults based on the duration of the infection. For those with more duration of infection having control dimension of hardiness.
- There is a significant difference in the dimensions of hardiness of HIV-infected adults based on their CD4 cell count. Those who are low in CD4 cell count show more commitment and challenge.
- There is a significant difference in the dimensions of the hardiness of HIV-infected adults based on their duration of ART. HIV-infected adults have a longer duration of ART, are high in control.
- There is no significant relationship between hardiness and the perceived social support of HIV-infected adults.
- There is a significant negative relationship between hardiness and the coping style of HIV-infected adults.
- There is a significant positive relationship between commitment and domains 1 (physical QoL), 3 (level of independence QoL), and 6 (spiritual QoL).
- There is a significant positive relationship between control and domain 2 (psychological QoL) and domain 3 (level of independence QoL).
- The dimension of challenge and domain 6 (spiritual QoL) have a significant positive relationship.
- The commitment dimension of hardiness positively predicts the domain 1 (physical) quality of life of HIV-infected adults.

- The control dimension of hardiness positively predicts the domain 2 (psychological) quality of life of HIV-infected adults.
- The control dimension of hardiness positively predicts the domain 3 (level of independence) quality of life of HIV-infected adults.
- Hardiness does not predict the domain 4 (social relationship) and domain 5 (environment) quality of life of HIV-infected adults.
- Hardiness positively predicts the domain 6 (spirituality) quality of life of HIV-infected adults.

2. Perceived social support (family, friends and significant others)

- There is a significant difference in the dimensions of perceived social support of HIV-infected adults based on age. Compared to early adults, middle-aged adults living with HIV receive more support from family, friends, and significant others.
- There is a significant gender difference in the dimensions of perceived social support for HIV-infected adults. Women living with HIV get more support from family, friends, and significant others than men.
- There is a significant difference in the dimensions of perceived social support of HIV-infected adults based on their education. Those who have SSLC education have more perceived social support.
- There is a significant difference in the perceived social support of HIV-infected adults based on their occupation. Those people with jobs are high in perceived social support.

- There is a significant difference in the dimensions of perceived social support for HIV-infected adults based on their marital status. Married people with HIV are high in perceived social support.
- There is a significant difference in the dimensions of perceived social support for HIV-infected adults based on their residential background. Rural people receive more support than urban people**.**
- There is no significant difference in perceived social support based on the type of family.
- There is no significant difference in perceived social support based on HIV serostatus.
- There is a significant difference in the dimensions of perceived social support for HIV-infected adults based on the mode of transmission. Those who are included in the 'other' category of HIV infection are high in perceived social support.
- There is a significant difference in the dimensions of perceived social support for HIV-infected adults based on the duration of the infection. Adults with a long duration of HIV infection get more support from family and significant others.
- There is a significant difference in the dimensions of perceived social support for HIV-infected adults based on their CD4 cell count. Those who have a higher CD4 cell count are high in perceived social support.
- There is a significant difference in the dimensions of perceived social support for HIV-infected adults based on their duration of ART. Those who have a longer duration of ART get more support from family and significant others.
- There is a significant positive relationship between perceived social support and the coping style of HIV-infected adults.

- There is a significant positive relationship between domain 1 (physical QoL), domain 2 (psychological QoL), domain 3 (level of independence QoL), domain 4 (social relationship QoL), domain 5 (environment QoL), and perceived social support from the family of HIV-infected adults.
- Perceived social support has a significant negative correlation with domain 6 (spirituality) quality of life.
- Perceived social support does not predict the domain 1 (physical) quality of life of HIV-infected adults.
- Perceived social support, except support from family, positively predicts the domain 2 (psychological) quality of life of HIV-infected adults.
- Perceived social support, except support from family, positively predicts the domain 3 (level of independence) quality of life of HIV-infected adults.
- Perceived social support from friends positively predicts the domain 4 (social relationship) quality of life of HIV-infected adults.
- Perceived social support, except support from family, positively predicts domain 5 (environment) quality of life of HIV-infected adults.
- Perceived social support does not predict the domain 6 (spirituality) quality of life of HIV-infected adults.

3. Coping styles (self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame)

- There is a significant difference in the coping styles of HIV-infected adults based on age. Middle-aged adults living with HIV use higher levels of self-

distraction, active coping, emotional support, behavioral disengagement, venting, positive framing, humor, acceptance, and religion coping styles.

- There is a significant gender difference in the dimensions of the coping style of HIV-infected adults. Women living with HIV use coping styles such as self-distraction, active coping, substance use, use of emotional support, behavioral disengagement, venting, humor, and religion more than men.
- There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their education. Those with lower education use coping styles such as self-distraction, active coping, denial, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive framing, humor, acceptance, religion, and self-blame compared to others.
- There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their occupation. HIV-infected adults with jobs use coping styles such as self-distraction, active coping, instrumental support, emotional support, humor, and religion.
- There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their marital status. Married people with HIV use coping styles such as self-distraction, active coping, denial, instrumental support, emotional support, humor, behavioral disengagement, venting, positive reframing, acceptance, religion, and self-blame.
- There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their residential background. Those who are residing in rural areas as compared to urban people, show higher status in their use of coping styles such as self-distraction, active coping, denial, instrumental support,

emotional support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, and religion.

- There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their type of family. Those who are from nuclear families mostly use self-distraction, denial, emotional support, behavioral disengagement, humor, acceptance, and religious coping styles.
- There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their HIV serostatus. There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their HIV serostatus. Those who have symptomatic HIV serostatus use more self-distraction, substance use, emotional support, behavioral disengagement, planning, humor, acceptance and religion coping styles, than other group.
- There is a significant difference in the dimensions of coping styles of HIV-infected adults based on the mode of transmission. Those who are in the 'others' category use self-distraction, active coping, denial, emotional support, venting, and humor coping styles except positive reframing.
- There is no significant difference in coping styles based on the duration of the infection.
- There is a significant difference in the dimensions of the coping style of HIV-infected adults based on their CD4 cell count. Those who are high in CD4 cell count use self-distraction, substance use, emotional support, and venting as coping styles.
- There is no significant difference in coping styles with respect to the duration of ART.

- Coping styles (self-distraction and active coping) have a significant positive relationship with the physical quality of life (domain 1) of HIV-infected adults.
- All coping styles have a significant positive relationship with the psychological quality of life (domain 2) of HIV-infected adults.
- Coping styles (self-distraction, active coping, denial, use of emotional support, use of instrumental support, positive reframing, planning, humor, acceptance, and religion) have a significant positive relationship with the level of independence and quality of life (domain 3) of HIV-infected adults.
- All coping styles have a significant positive relationship with the social relationship quality of life (domain 4) of HIV-infected adults.
- All coping styles have a significant positive relationship with the environmental quality of life (domain 5) of HIV-infected adults.
- Coping styles (self-distraction, substance use, use of emotional support, behavioral disengagement, venting, positive reframing, planning, acceptance, and self-blame) have a significant negative relationship with the spiritual quality of life (domain 6) of HIV-infected adults.
- Coping styles such as self-distraction, active coping, and planning positively predict the domain 1 (physical) quality of life of HIV-infected adults.
- Coping styles such as active coping, use of emotional support, and planning positively predict the domain 2 (psychological) quality of life of HIV-infected adults.
- Coping styles such as self-distraction and use of emotional support positively predict the domain 3 (level of independence) quality of life of HIV-infected adults.

- Coping styles such as active coping, use of emotional support, planning, and acceptance positively predict the domain 4 (social relationship) quality of life of HIV-infected adults.
- Coping styles such as self-distraction, use of emotional support, and planning positively predict the domain 5 (environment) quality of life of HIV-infected adults.
- Coping styles such as self-distraction, substance use, use of emotional support, behavioral disengagement, positive reframing, planning and self-blame positively predict the domain 6 (spirituality) quality of life of HIV-infected adults.

4. Quality of life (physical, psychological, level of independence, social relationship, environment and spirituality)

- There is a significant difference in the quality of life of HIV-infected adults based on age. Middle-aged people have higher psychological, social, and environmental quality of life than young adults, except for spirituality.
- There is a significant gender difference in the domains of quality of life of HIV-infected adults. Women have a higher level of independence, social relationship, and environmental domains of quality of life compared to men.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on their education. Those with lower education show high psychological, levels of independence, social relationship, environment, and spirituality domains of quality of life.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on their occupation. Those, with jobs have a higher quality of life in

domains such as psychological, level of independence, social relationship, and environment.

- There is a significant difference in the quality of life of HIV-infected adults based on their marital status. Married people with HIV have a higher quality of life in relation to psychological, level of independence, social relationship, environment, and spirituality.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on their residential background. Those who live in rural areas show high scores in all domains of quality of life except the physical domain compared to urban areas.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on their type of family. HIV-infected people from nuclear families show high psychological, social relationship, environmental, and spiritual quality of life.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on their HIV serostatus. Those with asymptomatic HIV serostatus in relation to their level of independence and quality of life are high; on the other hand, symptomatic people are high in spirituality domains of quality of life.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on mode of transmission. Those who transmit HIV through blood transfusions have a high psychological quality of life compared to other groups.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on the duration of the infection. The longer the duration of infection, the better the quality of life of HIV-infected adults.

- There is a significant difference in the domains of quality of life for HIV-infected adults based on their CD4 cell count. HIV-infected adults with an increased CD4 cell count have a higher level of independence and spiritual quality of life.
- There is a significant difference in the domains of quality of life of HIV-infected adults based on their duration of ART. The longer the duration of ART, the better the psychological, level of independence and environmental quality of life of HIV-infected adults.

5. Sociodemographic and infection-related factors (age, gender, education, occupation, marital status, residential background, type of family, HIV serostatus, mode of transfusion, duration of infection, CD4 count, and duration of ART)

- The result shows that sociodemographic and infection-related factors do not predict the domain 1 (physical) quality of life of HIV-infected adults.
- Sociodemographic and infection-related factors (education and mode of transmission) negatively predict the domain 2 (psychological) quality of life of HIV-infected adults.
- Sociodemographic and infection-related factors (education and HIV serostatus) negatively predict the domain 3 (level of independence) quality of life of HIV-infected adults.
- Sociodemographic factors (gender and education) negatively predict the domain 4 (social relationship) quality of life of HIV-infected adults.
- Sociodemographic factors (residential background) negatively predict the domain 5 (environment) quality of life of HIV-infected adults.

- Infection-related factor (HIV serostatus) positively predict the domain 6 (spirituality) quality of life of HIV-infected adults.

Tenability of the hypotheses

Hypothesis 1

There is no significant difference in the dimensions of hardiness, perceived social support, coping style, and quality of life of HIV-infected adults based on sociodemographic factors.

Hypothesis 1. 1

There is no significant age difference in the dimensions of hardiness of HIV-infected adults.

The result revealed that there is a significant age difference in commitment and challenge except control dimension of hardiness

The hypothesis is rejected

Hypothesis 1. 2

There is no significant age difference in the dimensions of perceived social support among HIV-infected adults.

The result revealed that there is a significant age difference in social support from family, friends, and significant others.

The hypothesis is rejected

Hypothesis 1. 3

There is no significant age difference in the dimensions of the coping style of HIV-infected adults.

It has been found that there is a significant age difference in the use of coping styles such as self-distraction, active coping, use of emotional support, behavioral disengagement, venting, positive reframing, humor, acceptance, and religion.

The hypothesis is rejected

Hypothesis 1. 4

There is no significant age difference in the domains of quality of life of HIV-infected adults.

The results indicate that there are significant age differences in the psychological, level of independence, social relationships, environment, and spirituality domains of quality of life, except in the in the physical domain.

The hypothesis is rejected

Hypothesis 1. 5

There is no significant gender difference in the dimensions of hardiness of HIV-infected adults.

There is no significant gender difference in commitment and challenge except for the for the control dimension of hardiness.

Accept the hypothesis

Hypothesis 1. 6

There is no significant gender difference in the dimensions of perceived social support for HIV-infected adults.

There is a significant gender difference in social support from family, friends, and significant others.

Reject the hypothesis

Hypothesis 1. 7

There is no significant gender difference in the dimensions of the coping style of HIV-infected adults.

There is a significant gender difference in the use of coping styles such as self-distraction, active coping, substance use, use of emotional support, behavioral disengagement, venting, humor, and religion.

The hypothesis is rejected

Hypothesis 1. 8

There is no significant gender difference in the domains of quality of life of HIV-infected adults.

The results indicate that there are significant gender differences in level of independence, social relationship, and environment domains of quality of life, except for the for the physical, psychological, and spiritual domains.

The hypothesis is rejected

Hypothesis 1. 9

There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their education.

The result indicates that there is a significant difference in the challenge dimension of hardiness based on their education.

The hypothesis is rejected

Hypothesis 1. 10

There is no significant difference in the dimensions of perceived social support of HIV-infected adults based on their education.

The result shows that there is a significant difference in perceived social support from family, friends, and significant others among HIV-infected adults based on their education.

Reject the hypothesis

Hypothesis 1. 11

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their education.

The result indicates that there is a significant difference in the use of coping styles such as self-distraction, active coping, denial, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, humor, acceptance, religion, and self-blame based on their education.

The hypothesis is rejected

Hypothesis 1. 12

There is no significant difference in the domains of quality of life of HIV-infected adults based on their education.

The results indicate that there are significant differences in psychological, level of independence, social relationship, environment, and spirituality domains of quality of life based on their education.

The hypothesis is rejected

Hypothesis 1. 13

There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their occupation.

Significant differences exist only in the challenge dimension of hardiness based on their occupation.

The hypothesis is rejected

Hypothesis 1. 14

There is no significant difference in the perceived social support of HIV-infected adults based on their occupation.

There is a significant difference in the perceived social support of HIV-infected adults based on their occupation.

Reject the hypothesis

Hypothesis 1. 15

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their occupation.

It has been found that there is a significant difference in coping styles such as self-distraction, active coping, use of emotional support, use of instrumental support, humor, and religion.

The hypothesis is rejected

Hypothesis 1. 16

There is no significant difference in the domains of quality of life of HIV-infected adults based on their occupation.

The results reveal that there are significant differences in psychological, level of independence, social relationship, and environmental domains of quality of life based on their occupation.

The hypothesis is rejected

Hypothesis 1. 17

There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their marital status.

The result indicates that there is a significant difference in commitment and challenge except for the control dimension of hardiness based on marital status.

The hypothesis is rejected

Hypothesis 1. 18

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their marital status.

The results revealed that there is a significant difference in dimensions of perceived social support and of HIV-infected adults based on their marital status.

Reject the hypothesis

Hypothesis 1. 19

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their marital status.

It was found that there is a significant difference in the use of coping styles such as self-distraction, active coping, denial, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, humor, acceptance, religion, and self-blame based on their marital status.

The hypothesis is rejected

Hypothesis 1. 20

There is no significant difference in the quality of life of HIV-infected adults based on their marital status.

Except for physical, there is a significant difference in psychological, level of independence, social relationship, environment and spirituality domains of quality of life based on their occupation.

The hypothesis is rejected

Hypothesis 1. 21

There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their residential background.

The result shows that there is a significant difference in commitment and challenge except for the control dimension of hardiness based on their residential background.

The hypothesis is rejected

Hypothesis 1. 22

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their residential background.

The results revealed that there is a significant difference in the dimensions of perceived social support among HIV-infected adults based on their residential background.

Reject the hypothesis

Hypothesis 1. 23

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their residential background.

There is a significant difference in the use of coping styles such as self-distraction, active coping, denial, use of emotional support, use of instrumental support,

behavioral disengagement, venting, positive reframing, planning, humor, acceptance, and religion based on their residential background.

The hypothesis is rejected

Hypothesis 1. 24

There is no significant difference in the domains of quality of life of HIV-infected adults based on their residential background.

There is a significant difference in psychological, level of independence, social relationship, environment, and spirituality domains of quality of life based on their residential background.

The hypothesis is rejected

Hypothesis 1. 25

There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their type of family.

Significant differences exist in the control and challenge dimensions of the hardiness of HIV-infected adults based on their type of family.

The hypothesis is rejected

Hypothesis 1. 26

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their type of family.

There is no significant difference in the dimensions of perceived social support of HIV-infected adults based on type of family.

Accept the hypothesis

Hypothesis 1. 27

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their type of family.

There is a significant difference in the use of coping styles such as self distraction, denial, use of emotional support, behavioral disengagement, humor, acceptance, and religion based on type of family.

The hypothesis is rejected

Hypothesis 1. 28

There is no significant difference in the domains of quality of life of HIV-infected adults based on their type of family.

There is a significant difference in psychological, social relationship, environment and spirituality domains of quality of life based on type of family.

The hypothesis is rejected

Hypothesis 2

There is no significant difference in the dimensions of hardiness, perceived social support, coping style, and quality of life of HIV-infected adults based on infection-related factors.

Hypothesis 2. 1

There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their HIV serostatus.

There is a significant difference in the control and challenge dimensions of hardiness of HIV-infected adults based on HIV serostatus.

The hypothesis is rejected

Hypothesis 2. 2

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their HIV serostatus.

It was found that there is no significant difference in the dimensions of perceived social support of HIV-infected adults based on their HIV serostatus.

Accept the hypothesis

Hypothesis 2. 3

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their HIV serostatus.

There is a significant difference in the use of coping styles such as self-distraction, substance use, use of emotional support, behavioral disengagement, planning, humor, acceptance, and religion based on their type of family.

The hypothesis is rejected

Hypothesis 2. 4

There is no significant difference in the domains of quality of life of HIV-infected adults based on their HIV serostatus.

Significant differences were only found in the level of independence and spirituality domains of the quality of life of HIV-infected adults based on their HIV serostatus.

The hypothesis is rejected

Hypothesis 2. 5

There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on the mode of transmission.

A significant difference was only found in the challenge dimensions of the hardiness of HIV-infected adults based on the mode of transmission.

The hypothesis is rejected

Hypothesis 2. 6

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on the mode of transmission.

It was found that there is a significant difference in the dimensions of perceived social support of HIV-infected adults based on the mode of transmission.

Reject the hypothesis

Hypothesis 2. 7

There is no significant difference in the dimensions of coping styles of HIV-infected adults based on the mode of transmission.

There is a significant difference in the use of coping styles such as self-distraction, active coping, denial, use of emotional support, venting, positive framing, and humor of HIV-infected adults based on the mode of transmission.

The hypothesis is rejected

Hypothesis 2. 8

There is no significant difference in the domains of quality of life of HIV-infected adults based on mode of transmission.

Significant differences were only found in the psychological domain of the quality of life of HIV-infected adults based on the mode of transmission.

The hypothesis is rejected

Hypothesis 2. 9

There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on the duration of the infection.

A significant difference was found only in the control dimensions of the hardiness of HIV-infected adults based on the duration of the infection.

The hypothesis is rejected

Hypothesis 2. 10

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on the duration of the infection.

There is a significant difference in perceived social support from family and significant others among HIV-infected adults based on the duration of the infection.

The hypothesis is rejected

Hypothesis 2. 11

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on the duration of the infection.

It was found that there is no significant difference in the dimensions of coping styles of HIV-infected adults based on the duration of the infection.

Accept the hypothesis

Hypothesis 2. 12

There is no significant difference in the domains of quality of life of HIV-infected adults based on the duration of the infection.

There is a significant difference in the physical, psychological, level of independence, environment, and spirituality domains of quality of life for HIV-infected adults based on the duration of the infection.

The hypothesis is rejected

Hypothesis 2. 13

There is no significant difference in the dimensions of hardiness of HIV-infected adults based on their CD4 cell count.

There is a significant difference in the commitment and challenge dimensions of the hardiness of HIV-infected adults based on their CD4 cell count.

The hypothesis is rejected

Hypothesis 2. 14

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their CD4 cell count.

The results revealed that there is a significant difference in the dimensions of perceived social support among HIV-infected adults based on their CD4 cell count.

Reject the hypothesis

Hypothesis 2. 15

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their CD4 cell count.

It was found that significant differences were observed in self-distraction, substance use, use of emotional support, and venting dimensions of the coping style of HIV-infected adults based on their CD4 cell count.

The hypothesis is rejected

Hypothesis 2. 16

There is no significant difference in the domains of quality of life for HIV-infected adults based on their CD4 cell count.

There is a significant difference in the level of independence and spirituality domains of quality of life of HIV-infected adults based on their CD4 cell count.

The hypothesis is rejected

Hypothesis 2. 17

There is no significant difference in the dimensions of the hardiness of HIV-infected adults based on their duration of ART.

There was a significant difference only in the control dimensions of the hardiness of HIV-infected adults based on their duration of ART.

The hypothesis is rejected

Hypothesis 2. 18

There is no significant difference in the dimensions of perceived social support for HIV-infected adults based on their duration of ART.

There is a significant difference in perceived social support from family and significant others among HIV-infected adults based on their duration of ART.

The hypothesis is rejected

Hypothesis 2. 19

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their duration of ART.

There is no significant difference in the dimensions of the coping style of HIV-infected adults based on their duration of ART.

Accept the hypothesis

Hypothesis 2. 20

There is no significant difference in the domains of quality of life of HIV-infected adults based on their duration of ART.

There is a significant difference in the psychological, level of independence, and environmental domains of quality of life of HIV-infected adults based on their duration of ART.

The hypothesis is rejected

Hypothesis 3

There is no significant relationship between hardiness, perceived social support, coping style, and quality of life of HIV-infected adults.

Hypothesis 3. 1

There is no significant relationship between hardiness and perceived social support in HIV-infected adults.

It has been found that there is a negative correlation between hardiness and social support.

Reject the hypothesis

Hypothesis 3. 2

There is no significant relationship between hardiness and coping style in HIV-infected adults.

The result shows that there is a significant negative correlation between hardiness and coping style.

Reject the hypothesis

Hypothesis 3. 3

There is no significant relationship between perceived social support and coping style in HIV-infected adults.

The result indicates that there is a significant positive correlation between social support and coping style.

Reject the hypothesis

Hypothesis 3. 4

There is no significant relationship between hardiness (commitment, control, and challenge) and six domains of quality of life in HIV-infected adults.

There is a significant positive correlation between commitment and domain 1, domain 3, domain 4 and domain 6. There is a significant positive correlation between control and domains 2 and 3. The dimensions of challenge has a positive relationship with domain 1 and domain 6 quality of life.

The hypothesis is rejected

Hypothesis 3. 5

There is no significant relationship between perceived social support (family, friends, and significant others) and six domains of quality of life in HIV-infected adults.

There is a positive significant relationship in family, friends, and significant others with domain 1, domain 2, domain 3, domain 4, and domain 5, and a negative significant relationship with domain 3 quality of life in HIV-infected adults.

The hypothesis is rejected

Hypothesis 3. 6

There is no significant relationship between coping style (self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame) and the six domains of quality of life of HIV-infected adults.

Certain coping mechanisms exhibit distinct relationships with different domains of quality of life. Self-distraction shows a positive significant association with domains 1 through 5 but has a negative significant correlation with domain 3. Active coping demonstrates positive and significant relationships with domains 1 through 5 but negatively affects domain 6 quality of life. Denial, use of instrumental support, humor, and religion are positively correlated with domains 2 through 5 of quality of life. substance use, behavioral disengagement, and planning exhibit positive and significant relationships with domains 2, 3, 4, 5, and 6. Emotional support and acceptance positively influence domains 2 and 5 but negatively impact domain 6. Venting correlates positively with domains 2, 4, and 5 but negatively with domain 6. Positive reframing shows positive and significant relationships with domains 2, 3, 4, and 5, but negatively affects domain 6. Lastly, self-blame is positively associated with domains 2, 4 and 5 but negatively influences domain 6 quality of life in HIV-infected adults.

The hypothesis is rejected

Hypothesis 4

Sociodemographic and infection-related factors, hardiness, perceived social support, and coping style, are not significantly predicting the quality of life of HIV-infected adults.

Hypothesis 4. 1

Sociodemographic and infection-related factors do not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

The result shows that sociodemographic and infection-related factors do not have a predictive role in domain 1 (physical) quality of life for HIV-infected adults.

The hypothesis is accepted

Hypothesis 4. 2

Hardiness does not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

The result shows that hardiness (commitment) has a positive predictive role in domain 1 (physical) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 3

Perceived social support does not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

The result shows that perceived social support does not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

The hypothesis is accepted

Hypothesis 4. 4

Coping style does not have a predictive role in domain 1 (physical) quality of life of HIV-infected adults.

The result shows that coping style (self distraction, active coping, and planning) has positively predicted domain 1 (physical) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 5

Sociodemographic and infection-related factors do not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

The result shows that education (plus two, degree & above) and mode of transmission ('others' category) have a negative predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 6

Hardiness does not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

Hardiness (control) has a positive predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 7

Perceived social support does not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

The result shows that perceived social support (friends and significant others) has a positive predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 8

Coping style does not have a predictive role in domain 2 (psychological) quality of life of HIV-infected adults.

Coping style (active coping, use of emotional support and planning) has positively predicted domain 2 (psychological) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 9

Sociodemographic and infection-related factors do not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

Education (plus two, degree & above) and HIV serostatus (symptomatic) have a negative predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 10

Hardiness does not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

Hardiness (control) has a positive predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 11

Perceived social support does not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

Result shows that perceived social support (friends and significant others) has positively predict domain 3 (level of independence) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 12

Coping style does not have a predictive role in domain 3 (level of independence) quality of life of HIV-infected adults.

Coping style (self distraction and use of emotional support) has positively predicted domain 3 (psychological) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 13

Sociodemographic and infection-related factors do not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

Gender (female) shows a negative predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 14

Hardiness does not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

The result shows hardiness does not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

The hypothesis accepted

Hypothesis 4. 15

Perceived social support does not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

Perceived social support (friends) has positively predicted domain 4 (social relationship) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 16

Coping style does not have a predictive role in domain 4 (social relationship) quality of life of HIV-infected adults.

Coping style (active coping, use of emotional support, planning and acceptance) has positively predicted domain 4 (social relationship) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 17

Sociodemographic and infection-related factors do not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

Residential background (urban) shows a negative predictive role in domain 5 (environment) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 18

Hardiness does not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

Result shows that hardiness does not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

The hypothesis is accepted

Hypothesis 4. 19

Perceived social support does not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

Perceived social support (friends and significant others) positively predict domain 5 (environment) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 20

Coping style does not have a predictive role in domain 5 (environment) quality of life of HIV-infected adults.

Coping style (self distraction, use of emotional support, and planning) has positively predicted domain 4 (social relationship) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 21

Sociodemographic and infection-related factors do not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

HIV serostatus (symptomatic) have a positive predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 22

Hardiness does not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

Hardiness positively predict domain 6 (spirituality) quality of life of HIV-infected adults.

The hypothesis is rejected

Hypothesis 4. 23

Perceived social support does not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

The result shows perceived social support does not have any predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

The hypothesis is accepted

Hypothesis 4. 24

Coping style does not have a predictive role in domain 6 (spirituality) quality of life of HIV-infected adults.

Coping style such as self distraction, use of emotional support, positive reframing and self blame are positively substance use, behavioral disengagement and planning are negatively predict domain 6 (spirituality) quality of life of HIV-infected adults.

The hypothesis is rejected

Conclusion

This research studied the role of hardiness, perceived social support, and coping style on the quality of life in HIV-infected adults. The main findings were that hardiness, perceived social support, and positive coping styles were

significantly correlated with higher quality of life in the HIV-infected participants. These factors acted as protective resources that helped the participants cope better with their condition and maintain a good quality of life. Hardiness, which includes commitment, control, and challenge, enabled the participants to view challenges as controllable and meaningful. This attitude helped them effectively cope with stress related to their infection. Perceived social support from friends, family, and medical professionals also contributed significantly to the participants' quality of life. Social support helped the participants feel cared for, loved, and understood, which buffered the negative effects of HIV on their wellbeing. Participants who used more positive coping strategies like problem-focused coping and positive reinterpretation reported a higher quality of life. These coping styles helped them effectively deal with obstacles and find meaning in their circumstances. In conclusion, this research demonstrates that hardiness, perceived social support, and positive coping play important protective roles for the quality of life of HIV-infected adults. Efforts to improve these factors through psychological interventions may help improve the wellbeing of people living with HIV.

Chapter 5

RECOMMENDATIONS AND IMPLICATIONS

Implications of the study

Limitations

Suggestion for future research

Implications of the study

This section provides implications, limitations and suggestions for the future research. It also highlights the relevance of psychological factors and its influence on quality of life among HIV-infected adults.

1. Support at Government Level:

Governments typically invest in public health campaigns aimed at raising awareness about HIV/AIDS, promoting prevention methods such as safe sex practices and needle exchange programs, and reducing the stigma associated with the infection. These efforts help prevent new infections and encourage individuals to seek testing and treatment. India's National AIDS Control Program (NACP) is a government initiative aimed at preventing new HIV infections and providing care and support to people living with HIV/AIDS. It offers support for HIV-infected individuals and their families. Many governments fund healthcare services specifically adapted to the needs of HIV-infected individuals, including specialized clinics, counseling services, and support groups.

- Governments may establish policies to safeguard the rights of individuals living with HIV and prevent discrimination based on their HIV status. This includes measures to ensure equal access to employment, housing, education, and healthcare services, as well as legal recourse for individuals who experience discrimination.
- Governments often allocate funds for HIV/AIDS research to support efforts to develop new treatments, vaccines, and prevention strategies.
- This research helps advance our understanding of the virus and improves outcomes for those living with HIV.

- Governments may support community-based organizations and NGOs that provide outreach, education, and support services to individuals living with HIV. These organizations play a crucial role in reaching underserved populations, providing culturally competent care, and advocating for the needs of people living with HIV.

2. ***Education and Employment Opportunities:***

Education and employment has been identified as a vital determinant to influence coping, perceived social support and quality of life among HIV-infected individuals.

- Investing in educational opportunities and vocational training programs could empower individuals to enhance their coping skills and access better support networks.
- Implementing free education programs in higher education sector will help the community to gain knowledge about disease and its impacts.
- Providing opportunities to participate and interact with field experts such conferences and seminars will also strengthen the community to expand their knowledge regarding the coping with HIV.
- Promoting inclusive employment policies and creating job opportunities for HIV-infected adults could contribute to improving their overall well-being.
- Launching skill training programs exclusively for HIV infected adults will provide a platform for inclusive working environment.
- Allocating short term credit facilities will also help the people to establish small scale business industries and can flourish as an independent earning member.

3. ***Holistic Health Approaches:***

Since coping styles such as active coping, emotional support, and positive reframing are associated with better quality of life, interventions should focus on promoting these adaptive coping strategies.

- A treatment plan should formulate by addressing physical, psychological and social aspects along with pharmacotherapy.
- A mental health team should be employed in the medical team to monitor mental wellbeing.
- Peer group support can be implemented as a therapeutic technique to enhance acceptance from others by reducing stigma associated with the illness.
- Nutritional support program can be incorporated in all local governing bodies such as panchayat to ensure the physical health.
- Home care services can be employed in exceptional cases to attend the needy people.
- Long-term care planning should prioritize comprehensive health management, including regular monitoring of CD4 cell counts and adherence to antiretroviral therapy (ART), to maintain and improve quality of life outcomes.

4. ***Support programs:***

Understanding the specific demographic and contextual factors influencing hardiness, perceived social support, coping styles, and quality of life among middle-aged adults living with HIV is mandatory. Support programs should be adapted to

address these factors effectively. Financial assistance scheme can be employed to meet patients daily and medical expenses.

- Legal assistance can be implemented as a free service to protect their rights and dignity.
- HIV testing and screening programs should be available to detect their level of functioning.
- Community outreach programs will help the general population to understand about HIV and will reduce stigma associated discrimination.
- Supportive housing programs offer affordable housing options, along with onsite services such as case management, healthcare, and social activities.

5. ***Gender-Sensitive Support:***

Given the differences in perceived social support, coping styles, and quality of life between men and women living with HIV, it's essential to develop gender-sensitive support services. These services could provide targeted assistance based on the unique needs and coping strategies of men and women. Also efforts should be made to understand and address any societal factors contributing to gender disparities in social support and quality of life.

- Gender-specific support groups may be organized for women, men, transgender individuals, or non-binary individuals, allowing for tailored discussions and support.
- Access to comprehensive reproductive health services that meet the specific needs of individuals based on their gender identity. This includes

family planning, contraception, prenatal care, and support for safer conception and pregnancy for women living with HIV.

- Many individuals living with HIV/AIDS, particularly women and transgender individuals, may experience gender-based violence, including intimate partner violence, sexual assault, or discrimination. Gender-sensitive support programs provide counseling, legal assistance, and referrals to shelters or safe spaces for survivors of gender-based violence.
- For transgender and non-binary individuals, gender-sensitive support programs ensure access to gender-affirming healthcare services, including hormone therapy, gender-affirming surgeries, and mental health support.

6. ***Family and Community Support:***

Family and community support networks are crucial resources for individuals living with HIV. Efforts should be made to strengthen these networks, particularly in rural areas where social support seems to be more prevalent. Providing education and training to family members and community leaders on how to offer effective support and reduce stigma surrounding HIV could enhance the quality of life for affected individuals.

- Family counseling programs provide education and support to families of individuals living with HIV/AIDS. These programs address issues such as stigma, discrimination, communication within the family, and the importance of providing emotional and practical support to their loved ones regardless of gender.

- Family members of individuals living with HIV/AIDS can benefit from peer support networks where they can connect with others facing similar challenges. These networks offer a safe space for sharing experiences, coping strategies, and resources for supporting their loved ones effectively.
- For individuals living with HIV/AIDS who are parents, gender-sensitive parenting support programs offer guidance and resources on how to navigate issues related to disclosure, stigma, and maintaining the health and well-being of their children. These programs recognize the unique needs and concerns of both mothers and fathers living with HIV/AIDS.
- Community-based care initiatives engage community members, including religious leaders, community elders, and local organizations, in providing support to individuals living with HIV/AIDS and their families. These initiatives promote acceptance, compassion, and inclusion regardless of gender identity.
- Caregiver training programs offer education, skills development, and emotional support to caregivers, acknowledging the gender dynamics that may influence their caregiving responsibilities and experiences.
- Provide a platform for partners and spouses to address their issues, strengthen their relationships, and access resources for maintaining their own health and well-being.
- Family and community support programs actively work to reduce stigma and discrimination associated with HIV/AIDS, addressing harmful stereotypes and promoting acceptance, understanding, and solidarity within families and communities.

- Youth and adolescent programs offer age-appropriate education, peer support, and guidance on disclosure, treatment adherence, and navigating relationships and sexuality in a supportive environment.

The findings of the study pointed out the importance of the quality of life of HIV-infected adults. Based on the present study, it is essential to improve their quality of life and they need good social support, they need to develop adaptive coping styles and need to improve personality traits to manage their stressful situations. So governments, NGOs, or other voluntary organizations should take the initiative in community-based programs, educate those who are connected with HIV people, and make them aware of the importance of support in HIV-infected adult's lives.

Limitations of the study

The study had some limitations.

1. The sample size was relatively small with only 441 participants. HIV research often deals with small sample sizes due to the challenges of recruiting and retaining participants, especially in long-term studies. This can limit the generalizability of findings to broader populations. A larger and more representative sample would have provided more reliable and generalizable results.
2. The study was conducted in only few geographical regions which may limit the applicability of the findings to other populations.
3. HIV is a highly diverse virus with various subtypes and strains, and infected individuals may have different disease progression rates, treatment histories,

and comorbidities. This heterogeneity can make it challenging to draw generalized conclusions from study findings.

4. The self-reported questionnaire may be subject to recall and social desirability biases from the participants.

5. The cross-sectional design of the study prevents determining any causal relationships between the factors examined and quality of life. A longitudinal study would be required to establish causation.

6. The study only examined a limited number of variables that could potentially influence quality of life. Other potential factors were not investigated.

7. HIV-infected individuals often have other health conditions or lifestyle factors (e. g. , substance abuse, mental health disorders) that can complicate research findings by introducing confounding variables.
8. HIV-infected adults often have higher rates of co-infections and comorbidities, such as hepatitis C, tuberculosis, or mental health disorders, which can complicate research outcomes and management strategies.
9. Disparities in access to healthcare and antiretroviral therapy (ART) may affect the study population, potentially influencing outcomes and limiting the generalizability of findings.
10. Participants may be hesitant to disclose their HIV status due to social stigma, which can affect the accuracy and completeness of data collected.
11. The landscape of HIV treatment and care is constantly evolving, with new medications, guidelines, and technologies emerging over time. Studies may struggle to capture these dynamic changes and their impact on outcomes.

12. Assessing outcomes such as viral load, CD4 count, or quality of life may involve subjective or imperfect measures, leading to variability and potential biases in study results.

In summary, while the study provides valuable insights into quality of life issues for people living with HIV, the limitations mentioned should be considered when interpreting the results. Future research addressing these limitations could help build upon and extend the findings of this study.

Suggestions for the future research

- Conduct longitudinal studies to examine how changes in hardiness, perceived social support, and coping style over time impact the quality of life of HIV-infected adults. This would allow researchers to better understand the dynamic nature of these factors and their cumulative effects on quality of life outcomes.
- Investigate the mediating and moderating effects of perceived social support and coping style on the relationship between hardiness and quality of life in HIV-infected adults. Understanding the mechanisms through which these factors influence quality of life can provide insights into intervention targets.
- Explore how cultural and contextual factors influence the relationships between hardiness, perceived social support, coping style, and quality of life among HIV-infected adults. This could involve cross-cultural comparisons or studies conducted within specific cultural or socio-economic contexts to identify culturally relevant interventions.
- Design and evaluate interventions targeting hardiness, perceived social support, and coping style to improve the quality of life of HIV-infected

adults. Interventions could include resilience training programs, social support interventions, coping skills training, or integrated psychosocial support programs.

- Investigate the efficacy of technology-based interventions, such as mobile applications or online support platforms, for enhancing hardiness, perceived social support, coping style, and quality of life in HIV-infected adults. These interventions could reach a wider audience and provide ongoing support outside of traditional healthcare settings.
- Engage HIV-infected individuals, community organizations, and healthcare providers in community-based participatory research to co-design interventions that address the specific needs and preferences of the target population. This approach can enhance the relevance, acceptability, and sustainability of interventions.
- Research the integration of psychosocial support services into HIV care settings and evaluate the impact of policy changes on the availability and accessibility of support services. This research can inform policy recommendations aimed at improving the integration of psychosocial care into HIV care delivery models.
- Supplement quantitative research with qualitative studies to gain a deeper understanding of the lived experiences, perspectives, and coping strategies of HIV-infected adults. Qualitative research can provide rich insights into the complexities of managing HIV and inform the development of more holistic interventions.
- Investigate the role of peer support networks in promoting hardiness, perceived social support, coping style, and quality of life among HIV-

infected adults. Peer support interventions may offer unique benefits, such as shared experiences, empathy, and practical advice, which complement traditional support services.

- Future studies can contribute to a more comprehensive understanding of the interplay between hardiness, perceived social support, coping style, and quality of life in HIV-infected adults, ultimately leading to the development of more effective interventions and support strategies.

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APPENDICES

UNIVERSITY OF CALICUT
CALICUT UNIVERSITY HUMAN ETHICS COMMITTEE
CALICUT UNIVERSITY PO, MALAPPURAM - 673 635, KERALA, INDIA

CERTIFICATE OF ETHICAL CLEARANCE FOR INVOLVEMENT OF HUMAN PARTICIPANTS IN RESEARCH

Doc. No: 034/CUHEC/CU/2024 **Date: 30.01.2024**

CUEC Application No.: 034/CUHEC/2023 dated 15/11/2023

Name of Research Scholar: **Ms. Liby Leo Akkara**

Approved Title of Ph. D. work:
Role of hardiness, perceived social support, coping style on quality of life in HIV infected adults

Name & Address of Host Institution:
Department of Psychology, Prajyoti Niketan College, Pudukkad, Thrissur, Kerala

Application status: New review

Date of Review (D/M/Y): 30/01/2024

Decision of the Committee:
Recommended with suggestions

Suggestions / Remarks (if any):
Need to include about the zonal selection of the data

Recommended period of study:
One year from the date of sanction

Reporting frequency:
Six months

Approved sample size of human involvement:
400 Nos

Directions:
- Inform CUHEC in case of any change in the information given
- This permission is valid only for the period mentioned thereon
- CUHEC have the right to monitor the trial with prior intimation

Chairman
CHAIRMAN
CALICUT UNIVERSITY
HUMAN ETHICAL COMMITTEE

Member Secretary
Dr. C.D. SEBASTIAN
Professor & Head
Department of Zoology
University of Calicut
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DEPARTMENT OF ZOOLOGY
UNIVERSITY OF CALICUT

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ലിബി ലിയോ അക്കര
ഗവേഷക വിദ്യാർഥി
മന:ശാസ്ത്ര വിഭാഗം
പ്രജ്യോതി നികേതൻ കോളേജ്, പുതുക്കാട്

പ്രിയ സുഹൃത്തെ.

PhD ബിരുദത്തിനായി ഞാൻ ഏറ്റെടുത്ത ഒരു ഗവേഷണ പ്രവർത്തനത്തിനായി നിങ്ങളുടെ പൂർണ്ണസഹകരണം പ്രതീക്ഷിക്കുന്നു. എന്റെ പഠനം " **Role of Hardiness, Perceived Social Support,Coping Style on Quality of Life in HIV Infected Adults"** ഇതുമായി ബന്ധപ്പെട്ടതാണ്. ഇതിനൊപ്പം തരുന്ന ചോദ്യാവലിയോട് പ്രതികരിക്കുന്നതിലൂടെ നിങ്ങളിൽക്കു മാത്രമേ ഇതിലേക്ക് സംഭാവന ചെയ്യാൻ കഴിയൂ. നിങ്ങളുടെ പ്രതികരണങ്ങൾ ഗവേഷണ ആവശ്യങ്ങൾക്ക് മാത്രമേ ഉപയോഗിക്കു വ്യക്തിയെ തിരിച്ചറിയുന്ന തരത്തിലുള്ള യാതൊരു ചോദ്യങ്ങളും ഇതിലില്ല. നിങ്ങൾക്ക് തരുന്ന ചോദ്യാവലിയിലെ എല്ലാ ചോദ്യങ്ങൾക്കും ദയവായി നിങ്ങളുടെ സത്യസന്ധമായ പ്രതികരണം നൽകുക.

നിങ്ങളുടെ പൂർണ്ണമായ സഹകരണം പ്രതീക്ഷിച്ചുകൊണ്ട്

നന്ദിയോടെ

ലിബി ലിയോ അക്കര

സമ്മതപത്രം

ലിബി ലിയോ അക്കര എന്ന മനശാസ്ത്ര ഗവേഷക വിദ്യാർഥി നടത്തുന്ന ഗവേഷണ പഠനത്തിൽ പങ്കെടുക്കാൻ ഞാൻ താല്പര്യപ്പെടുന്നു. ഈ ഗവേഷണ പഠനം **HIV** ബാധിതരുടെ ജീവിതനിലവാരം വിലയിരുത്തുന്നത് ആണെന്ന് ഞാൻ മനസ്സിലാക്കുന്നു. ഇതിൽ പങ്കെടുക്കാൻ ഞാൻ ഒരു ചോദ്യാവലി പൂരിപ്പിച്ചു കൊടുക്കേണ്ടതാണ്. ഈ പഠനവുമായി ബന്ധപ്പെട്ട് എനിക്ക് യാതൊരുവിധ ബുദ്ധിമുട്ടുകൾ ഉണ്ടാവില്ലെന്നും എന്നെ തിരിച്ചറിയുന്ന തരത്തിലുള്ള വിവരങ്ങളൊന്നും വെളിപ്പെടുത്താൻ ആവശ്യപ്പെട്ടിട്ടില്ലെന്നും ഞാൻ മനസ്സിലാക്കുന്നു. ഈ പഠനത്തിൽ നിന്നും ലഭിക്കുന്ന വിവരങ്ങൾ എന്നെയോ മറ്റു ആളുകളെയോ ഭാവിയിൽ സഹായിക്കുമെന്ന് ഞാൻ മനസ്സിലാക്കുന്നു. ഈ പഠനത്തിലെ എന്റെ പങ്കാളിത്തം പൂർണ്ണമായും സ്വമേധയ ഉള്ളതാണ്. ഞാൻ ആഗ്രഹിക്കുന്ന ഏത് സമയത്തും എനിക്ക് പഠനത്തിൽനിന്ന് പിന്മാറാം. ഈ സമ്മതപത്രം ഞാൻ വായിക്കുകയും മനസ്സിലാക്കുകയും ചെയ്തു . ഇതിൽ പങ്കെടുക്കാൻ ഞാൻ സമ്മതിക്കുന്നു.

ഒപ്പ്

Personal Data Sheet

1. Age :
2. Gender : Male / Female
3. District of Residence :
4. Education : SSLC / Plus Two / Graduation
5. Occupation : With job / Without job
6. Marital Status : Married / Unmarried / Widow or Divorced
7. Residential Background : Rural / Urban
8. Type of Family : Nuclear / Joined
9. HIV Serostatus : Asymptomatic / Symptomatic
10. Mode of Transmission : Blood transfusion / Injection / Sex / Others
11. Duration of infection : 1-5 Years / 6-10 Years / More than 10 Years
12. CD4 Cell Count : 201-350/351-500 / More than 500
13. Duration of ART : 1-5 Years / More than 5 Years

Psychological Hardiness Scale

I would like to know how much you agree with the following statements. Read each statement carefully and indicate with a tick mark how much you agree with each statement.

S.No	Statement	Strongly Agree	Agree	Neutral	Disgree	Strongly Disagree
1	I give much importance to my life values.					
2	I have full control over the works done by me.					
3	I strongly face the situation					
4	I like very much doing work according to my life values.					
5	I maintain my emotional balance.					
6	Even if anybody forces fear, I don't hesitate to keep moving towards goals.					
7	I am in advance confident of the success of the works done by me.					
8	Even when the situations are against me, I maintain control over me.					
9	Once I step forward, I don't go back.					
10	My image among friends is much appreciable.					
11	Friends behaviour towards me is balanced & controlled.					
12	For me challenge is like motivation.					
13	Whatever work I am to do, I do it after planning and with concentration.					
14	I maintain balance while expressing my thoughts.					
15	I feel pleasure in accepting any challenge and go ahead.					
16	My family life is satisfactory.					
17	My family members are mostly displeased over my controlled and strong behaviour..					

S.No	Statement	Strongly Agree	Agree	Neutral	Disgree	Strongly Disagree
18	I feel comparably pleasure in doing difficult works.					
19	I do any work with this belief that I will definitely get success one day.					
20	I keep restrain over my behaviour.					
21	I do not hesitate in doing dangereous works.					
22	People identify me as or successful person.					
23	Sometimes in my life I fail to understand what to do & what not to do.					
24	My confidence motivates me to accept some challenging work					
25	Mostly I have disputes with my family members.					
26	Behaviour of my friends for me is indifferent.					
27	My opponents fear my challenging attitude.					
28	Mostly my faith is proved wrong.					
29	I understand that a balanced & controlled life gives more pleasure to the individual.					
30	My family members are proud of my challenging spirit.					

Multidimensional Scale of Perceived Social Support

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Sl.No	Statement	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	There is a special person who is around when I am in need.							
2	There is a special person with whom I can share joys and sorrows.							
3	My family really tries to help me.							
4	I get the emotional help & support I need from my family.							
5	I have a special person who is a real source of comfort to me.							
6	My friends really try to help me.							
7	I can count on my friends when things go wrong.							
8	I can talk about my problems with my family.							
9	I have friends with whom I can share my joys and sorrows.							
10	There is a special person							

Sl.No	Statement	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
	in my life who cares about my feelings.							
11	My family is willing to help me make decisions.							
12	I can talk about my problems with my friends.							

Brief COPE

The following statements are about how you cope with life's pressures especially with your overall health issues over the past few months.Indicate your answer by putting a tick in the column opposite the statement.

Sl No	Statement	I haven't been doing this at all	I've been doing this at all	I've been doin this a medium amount	I've been doing this a lot
1	I've been turning to work or other activities to take my mind off things.				
2	I've been concentrating my efforts on doing something about the situation I'm in.				
3	I've been saying to myself "this isn't real."				
4	I've been using alcohol or other drugs to make myself feel better.				
5	I've been getting emotional support from others.				
6	I've been giving up trying to deal with it.				
7	I've been taking action to try to make the situation better.				
8	I've been refusing to believe that it has happened.				
9	I've been saying things to let my unpleasant feelings escape.				
10	I've been getting help and advice from other people.				
11	I've been using alcohol or other drugs to help me get through it.				
12	I've been trying to see it in a different light, to make it seem more positive.				
13	I've been criticizing myself.				
14	I've been trying to come up with a strategy about what to do.				
15	I've been getting comfort and understanding from someone.				
16	I've been giving up the attempt to cope.				
17	I've been looking for				

Sl No	Statement	I haven't been doing this at all	I've been doing this at all	I've been doin this a medium amount	I've been doing this a lot
	something good in what is happening.				
18	I've been making jokes about it.				
19	I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.				
20	I've been accepting the reality of the fact that it has happened.				
21	I've been expressing my negative feelings.				
22	I've been trying to find comfort in my religion or spiritual beliefs.				
23	I've been trying to get advice or help from other people about what to do.				
24	I've been learning to live with it.				
25	I've been thinking hard about what steps to take.				
26	I've been blaming myself for things that happened.				
27	I've been praying or meditating.				
28	I've been making fun of the situation.				

WHOQOL-HIV BREF

Please read each question, assess your feelings, and put a tick mark on the scale for each question that gives the best answer for you.

Sl. no	Statement	Very poor	Poor	Neither poor nor poor	Good	Very good
1	How would you rate your quality of life?					
2	How satisfied are you with your health?					
3	To what extent do you feel that physical pain prevents you from doing what you need to do?					
4	How much are you bothered by any physical problems related to your HIV infection?					
5	How much do you need any medical treatment to function in your daily life?					
6	How much do you enjoy life?					
7	To what extent do you feel your life to be meaningful?					
8	To what extent are you bothered by people blaming you for your HIV status					
9	How much do you fear the future?					
10	How much do you worry about death?					
11	How well are you able to concentrate?					
12	How safe do you feel in your daily life?					
13	How healthy is your physical environment?					
14	Do you have enough energy for everyday life?					
15	Are you able to accept your bodily appearance?					
16	Have you enough money to					

Sl. no	Statement	Very poor	Poor	Neither poor nor poor	Good	Very good
	meet your needs?					
17	To what extent do you feel accepted by the people you know?					
18	.How available to you is the information that you need in your day-to-day life?					
19	To what extent do you have the opportunity for leisure activities?					
20	How well are you able to get around?					
21	How satisfied are you with your sleep?					
22	How satisfied are you with your ability to perform your daily living activities?					
23	How satisfied are you with your capacity for work?					
24	How satisfied are you with yourself?					
25	How satisfied are you with your personal relationships?					
26	How satisfied are you with your sex life?					
27	How satisfied are you with the support you get from your friends?					
28	How satisfied are you with the conditions of your living place?					
29	How satisfied are you with your access to health services?					
30	How satisfied are you with your transport?					
31	How often do you have negative feelings such as blue mood, despair, anxiety, depression?					