

The coping strategies used over a two-year period by HIV-positive women who were diagnosed during pregnancy

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Abstract

In order to investigate the coping styles used by HIV-positive pregnant women over the first two years after diagnosis, structured interviews were conducted with 224 women at antenatal clinics in Tshwane, South Africa. The baseline interview was conducted four weeks after diagnosis during pregnancy, and three follow-up interviews were conducted postpartum. Coping was measured with an adapted version of the Brief COPE (Carver, 1997). Differences between each assessment period with regard to the different coping strategies were assessed by means of paired *t*-tests. Variables associated with coping were identified with mixed linear analysis. It was found that active coping was used more often than avoidant coping throughout the two-year period. The most frequently used coping strategies included acceptance, direct action, positive reframing, religion and distraction. Self-blame and out-of-control decreased substantially over time, whereas helping others increased markedly over time. Active coping was associated with low internalised stigma, low depression, high self-esteem, high positive social support, knowing someone who is HIV-positive, living above the poverty line and not receiving antiretroviral treatment. Avoidant coping was associated with low HIV-knowledge, low self-esteem, high internalised stigma, high depression as well as education below tertiary level.

Recommendations for psychological support services, policy and further research are made.

Keywords: coping, HIV, women, pregnancy, postpartum, South Africa, quantitative, longitudinal

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CHAPTER 1 – Introduction

In 2002 in an article in the New York Times, former secretary general of the United Nations, Kofi Annan, stated that “today, AIDS has a woman's face” (Annan, 2002, para. 4). The statement remains true today. The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that slightly more than half of the people who are living with HIV globally are women. Southern African countries have been particularly hard hit by the acquired immune deficiency syndrome (AIDS) pandemic. The UNAIDS estimates that close to 40% of the female population in southern Africa are living with HIV (UNAIDS, 2010a). The present study places the focus on women living with the human immunodeficiency virus (HIV) in South Africa and how they cope with their HIV-positive status. More specifically, the present study is aimed at gaining greater insight into the coping strategies used, during the first two years after diagnosis, by HIV-positive women who were diagnosed during pregnancy.

This chapter presents an overview of and justification for the present study. The chapter commences with a brief introduction to HIV and AIDS. The discussion then turns to the AIDS pandemic amongst antenatal women in South Africa, followed by a brief discussion of relevant academic literature regarding women’s vulnerability to HIV-infection and how people living with HIV cope with their HIV-positive status. Thereafter, an overview of the study is presented. The chapter concludes with an outline of the dissertation.

1.1. DEFINING HIV AND AIDS

HIV is a retrovirus that specifically attacks the CD4 cells (also known as T-helper cells) of the human body, which are defensive cells that form part of the human immune system. CD4 cells defend the human body against harmful elements such as bacteria, viruses and certain cancer cells and produce and aid in the development of substances that further protect the body. By attacking CD4 cells, HIV causes the number of CD4 cells to decrease, thereby leading to a

decline in the immune system's ability to adequately protect the body. AIDS is caused by HIV and develops in the advanced stages of HIV-infection (UNAIDS, 2008). AIDS is defined as a "syndrome of opportunistic infections and certain cancers" which is acquired as the individual's immune system becomes progressively less able to protect itself due to the HIV-infection (Van Dyk, 2008, p. 4). These opportunistic infections and cancers become increasingly more lethal as time progresses and will ultimately lead to death. From the time of becoming infected with HIV, it can take a number of years before a person develops AIDS, depending on the specific HIV strain they have as well as their general health status (Van Dyk, 2008). HIV-infection is treated with antiretroviral (ARV) medication, which can help to delay AIDS disease progression by decreasing the HIV-positive person's viral load (UNAIDS, 2008).

Ultimately, HIV and AIDS is not merely a condition that affects one's physical well-being, but is also a social disease. To this end, HIV and AIDS is deeply embedded in an array of psychological and socio-economic dynamics. Since HIV was first discovered in 1981 it has been closely tied with numerous social, political and cultural issues such as gender, sexuality, socio-economic status and human rights (Van Dyk, 2008). In the present study, the focus will be specifically on the psychological consequences of living with HIV as a newly diagnosed mother. The discussion now turns to the current available statistics regarding the AIDS pandemic amongst antenatal women in South Africa.

1.2. THE AIDS PANDEMIC AMONGST ANTENATAL WOMEN IN SOUTH AFRICA

In 2008, an estimated total of 33.4 million people were living with HIV globally, with 22.4 million HIV-positive people living in sub-Saharan Africa (UNAIDS, 2009). According to the UNAIDS, South Africa remains the country with the highest number of people living with HIV in the world, with an estimated 5.6 million people believed to have been HIV-positive in 2009 (UNAIDS, 2010a). It is estimated that about 3.3 million women aged 15 years and older are infected (UNAIDS, 2010b). Consequently South African women, similarly to women globally, share a greater HIV prevalence rate than men. It is estimated that the HIV prevalence rate amongst South African women and men between the ages of 15 and 49 was approximately 17.8% during 2009 (UNAIDS, 2009).

In order to prevent mother-to-child transmission, HIV testing for pregnant women attending antenatal clinics has become a routine procedure (Department of Health, 2010). As a result, many women only discover their HIV-positive status once they are pregnant and making use of antenatal services. According to the South African Department of Health, the HIV prevalence rate among women between the ages of 15 and 49 who made use of antenatal services in 2009 was 29.4% (Department of Health, 2010). Figure 1.1 illustrates the antenatal HIV prevalence rates from 1999 to 2009. When considering the HIV prevalence trends amongst antenatal women over time, one finds that the rate progressively increased from 1990 (0.8%) to 2005 (30.2%), thereafter it stabilised around 29% (Department of Health, 2010).

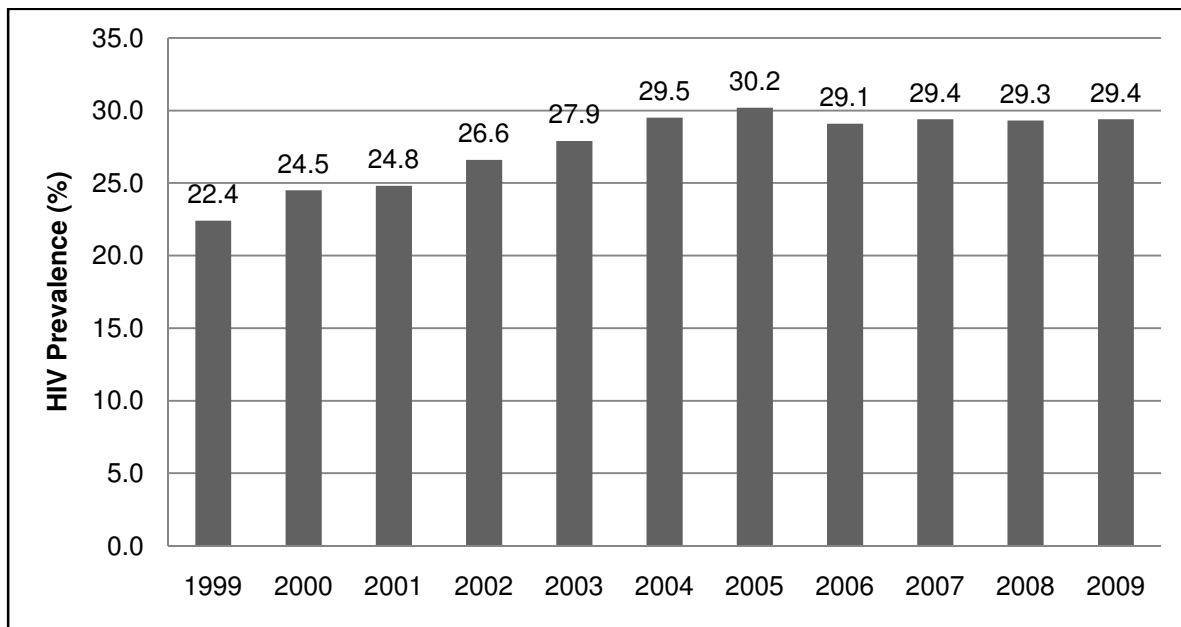


Figure 1.7: HIV prevalence trends among antenatal women in South Africa from 1999 to 2009 (Department of Health, 2010)

Table 1.1 presents the antenatal HIV prevalence rates from 2007 to 2009 according to age. Women who attended antenatal clinics between the ages of 25 and 39 have been found to have the highest HIV prevalence rate, particularly the age group 30 to 34 (Department of Health, 2010). These statistics are particularly alarming, as they indicate that it is mostly young women and mothers who are carrying the burden of HIV-infection.

Table 1.1: Antenatal HIV prevalence rates from 2007 to 2009 according to age (Department of Health, 2010)

Age group	2007	2008	2009
15-19	13.1	14.1	13.7
20-24	28	26.9	26.6
25-29	37.5	37.9	37.1
30-34	39.6	40.4	41.5
35-39	33	32.4	35.4
40-44	22.2	23.3	25.6
45-49	20.6	17.6	23.9

1.3. RECEIVING AN HIV-POSITIVE DIAGNOSIS

The difficult social and economic circumstances of many South African women have been identified as some of the main factors that contribute to their vulnerability to HIV-infection. These circumstances include poverty, unemployment, economic dependency on a partner or governmental grant, gender inequality, crime, poor education level, lack of accessible quality healthcare, poor social services as well as a lack of basic services such as sanitation, electricity and housing (Gilbert & Walker, 2002; Kasese-Hara, Mayekiso, Modipa, Mzobe, & Mango, 2008; Van Niekerk, 2001). These circumstances, together with stigma and discrimination, serve as obstacles for women who are living with HIV, as they prevent the women from gaining access to healthcare, and negatively affect their psychological well-being (Van Niekerk, 2001).

Receiving an HIV-positive diagnosis can be very traumatic and people generally go through an array of emotional reactions after receiving the diagnosis, including shock, suicidal ideation, fear, depression, uncertainty, helplessness and denial (Amuyunzu-Nyamongo, Okeng'o, & Wagura, 2007; Plattner & Meiring, 2006; Sorajjakool, 2006; Stevens & Doerr, 1997). Receiving an HIV-positive diagnosis during pregnancy can be even more traumatic, as the pregnant mother has to cope with her own diagnosis while being concerned about the well-being and future of her unborn infant (Kwalombota, 2002). Considering that South Africa has an estimated 5.6 million people that have experienced the trauma of being diagnosed with HIV and living with

HIV and AIDS daily, it is clear that psychological research, on how people living with HIV experience and cope with their HIV-status, is essential. The present study is aimed at investigating this important issue.

1.4. COPING WITH HIV

Numerous studies in the social science field have explored HIV coping. The term *coping* refers to “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p.141). Studies have revealed that people living with HIV utilise a variety of coping strategies, such as denial, distraction, social support, religion, acceptance and direct action (Burchardt, 2010; Deichert, Fekete, Boarts, Druley, & Delahanty, 2008; Hodge & Roby, 2010; Pence et al., 2008; Stein & Rotheram-Borus, 2004). When closely considering the academic literature on HIV coping, it is observed that most international studies have focussed mainly on homosexual men or intravenous drug-users (Deichert et al., 2008; Prado et al., 2004; Sanders, 2008). The findings of studies using these participant samples are not necessarily generalisable to the HIV-positive population in South Africa, particularly women who were diagnosed with HIV during pregnancy. Furthermore, very few studies have explored coping with HIV over time, especially from diagnosis onwards. Studies that have explored HIV coping over time have mostly made use of qualitative methodology. Consequently, there is a need for more quantitative research on coping with HIV that utilises longitudinal methodology.

Although psychological aspects of living with HIV have received extensive research attention, there is still a great deal to learn about how people living with HIV cope with their HIV-positive status and how it affects their psychological well-being. Relatively little research has been done on the coping strategies of HIV-positive South African women, particularly women that were diagnosed during pregnancy. Considering the high antenatal HIV prevalence rates in South Africa, it is vital that more research attention is given to the way in which HIV-positive pregnant women and recent mothers cope with their HIV-status. Preliminary evidence seems to suggest that receiving an HIV-positive diagnosis during pregnancy may be more distressing than receiving an HIV-positive diagnosis at any other time in one’s life (Kwalombota, 2002). The

possibility therefore exists that newly diagnosed HIV-positive women who were diagnosed during pregnancy may cope with their HIV-status in a unique way. In this regard, the present study is aimed at using a quantitative methodology to investigate the coping strategies used by HIV-positive women who were diagnosed during pregnancy, from the time of diagnosis to approximately 21 months post-diagnosis. In addition, the present study is aimed at investigating the connections that exist between coping and various psychosocial and demographic variables. The discussion now turns to an overview of the present study.

1.5. BACKGROUND TO THE STUDY

The present study is a sub-study of the larger Serithi research project, which was conducted in two townships in Tshwane (Pretoria). In this section, a brief overview is presented of the Serithi research project, followed by an overview of the present study and its use of the Serithi data.

1.5.1. Overview of the Serithi study

The Serithi research project was a joint venture between the University of Pretoria and Yale University under the leadership of Prof. Brian Forsyth, Prof. Bridget Jeffery and later Dr. Jennifer Makin. Permission was obtained from Dr. Makin to use data from the Serithi research project for the present study. The Serithi research project was aimed at gaining a better understanding of the experiences of newly diagnosed HIV-positive women who attended antenatal clinics in two townships in Tshwane, namely Mamelodi and Atteridgeville. The Serithi project followed a longitudinal research strategy, as data were collected from each participant over an approximate two-year period.

Recently diagnosed HIV-positive pregnant women were recruited into the study with the assistance of voluntary HIV counselling and testing (VCT) counsellors in the clinics. Data were collected from each participant through four structured interviews:

- The first interview was held approximately four weeks after diagnosis, while the women were approximately 28 weeks pregnant.
- The second interview was held three months after the delivery of the infant, which was approximately six months after the baseline interview.
- The third interview was held when the infant was nine months old, approximately 12 months after the baseline interview.
- The fourth interview was held when the infant was 18 months old, approximately 21 months after the baseline interview.

These specific time intervals were chosen, because they were the intervals scheduled for routine clinic visits for immunisation of the infants. The interview schedule consisted of a combination of open-ended and closed-ended questions as well as self-report questionnaires. The interview schedule was divided into three sections, namely demographic information, family information and personal experiences of being HIV-positive. The last part of the interview schedule consisted of psychological scales that included measures for coping, HIV-knowledge, internalised stigma, social support, self-esteem and depression.

1.5.2. The present study

The main aim of the present study is to investigate how women living with HIV cope with their HIV-positive status during the first two years after being diagnosed. This inquiry is guided by three research questions:

- (1) What are the coping strategies that HIV-positive women who were diagnosed during pregnancy use in the first two years after diagnosis?
- (2) Is there a developmental course in the way that HIV-positive mothers use coping strategies over time?
- (3) What demographic and psychosocial variables relate to changes in the use of active and avoidant coping over time?

It is the researcher's intention to use the present study to gain deeper insight into the coping process, particularly with regard to how women, who are living with HIV, cope with their HIV-positive status. In this way the findings of the present study will serve to increase our understanding of the temporal nature of coping with HIV. Furthermore, the findings of the present study will shed more light on the possible connections that exist between coping and various other demographic and psychological variables. This information may be of great value, not only in terms of adding to the academic literature, but also to healthcare professionals who work with HIV-positive women.

1.6. OVERVIEW OF THIS DISSERTATION

The dissertation consists of five chapters that systematically describe the theoretical background of the study, the actions taken in conducting the study as well as the results and implications of the findings.

- This chapter (**Chapter 1**) introduced and presented a brief background of the present study to the reader.
- **Chapter two** presents a critical discussion of the cognitive-phenomenological theory of stress and coping (Lazarus & Folkman, 1984) and of recent academic literature regarding being diagnosed and living with HIV.
- **Chapter three** presents a detailed description of the research methodology that was used in the study.
- **Chapter four** presents the results of the study.
- Lastly, **Chapter five** presents an in-depth discussion of the results of the study and the implications thereof. In addition, Chapter 5 includes recommendations for further research and practice in the light of the findings. Potential limitations of the study are also explored and discussed.

CHAPTER 2 –Theoretical Background and Literature Review

In this chapter the author uses the cognitive-phenomenological theory of stress and coping of Lazarus and Folkman (1984) to explore coping with HIV. The basic tenets of the theory are discussed alongside a critical discussion of international and South African literature on coping with HIV. The discussion starts with an introduction to social cognitive theory and the cognitive-phenomenological theory of stress and coping, followed by a discussion of Lazarus and Folkman's (1984) definition of coping. The discussion then turns to cognitive appraisal of threatening situations, receiving an HIV-positive diagnosis, the challenges faced by women living with HIV, as well as the connection between HIV and psychological distress. Thereafter, the discussion turns to coping styles and coping within the context of HIV, with particular emphasis on active and avoidant coping, gender differences and coping during pregnancy. The chapter concludes with a discussion on coping effectiveness and coping as a dynamic process.

2.1. INTRODUCTION TO SOCIAL COGNITIVE THEORY AND COGNITIVE-PHENOMENOLOGICAL THEORY OF STRESS AND COPING

The cognitive-phenomenological theory of stress and coping was formulated by Richard Lazarus and Susan Folkman and formally published in *Stress, Appraisal and Coping* (1984) as well as in additional publications such as Folkman, Lazarus, Dunkel-Schetter, DeLongis and Gruen (1986) and Lazarus (1999). This theory of stress and coping is based on social cognitive theory, which proposes that human behaviour is influenced by the complex interaction between the person and the environment (Bandura, 1986; Lazarus & Folkman, 1984). Social cognitive theory uses and builds on concepts from several schools of thought, including phenomenology, Gestalt psychology and cognitive psychology. Theorists such as Albert Bandura, Walter Mischel and Julian Rotter were influential in establishing social cognitive theory as a comprehensive theory of human behaviour (Meyer & Moore, 2003).

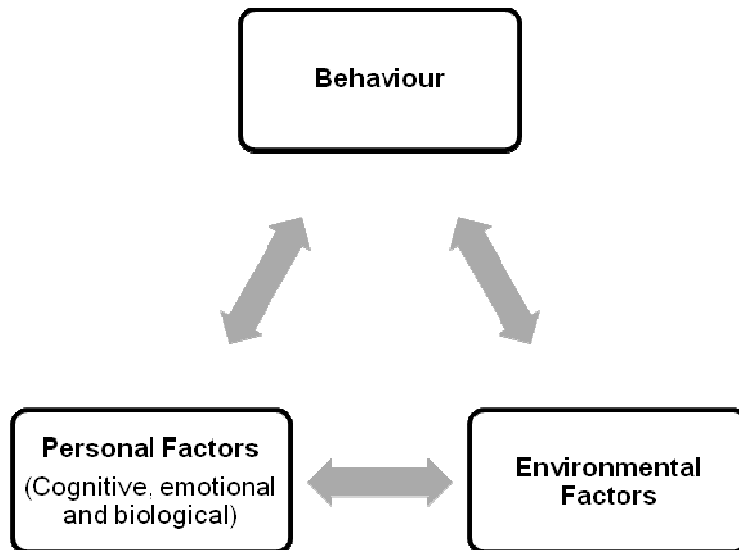


Figure 8.1: Reciprocal determinism model (Bandura, 1986)

Social cognitive theory views human psychological functioning through the triadic reciprocal determinism model, which is illustrated in Figure 2.1. This model proposes that personal factors, including biological, cognitive and emotional factors, as well as behaviour and the environment, are in constant interaction with one another and influence each other bi-directionally (Bandura, 1978). Therefore, one’s environment, including aspects such as other people’s behaviour, influences one’s behaviour, emotions and cognitions. Yet, at the same time the environment is directly influenced by how one reacts to it and one’s emotions and cognitions (Bandura, 1999). It is for this reason that Bandura (1999) says that, although people may not always have control over the physical or social environment they are in, they have the ability to attempt to understand and react to it.

2.1.1. Definition of *coping* as a psychological construct

Attempts to define *coping* as a psychological construct have proven to be difficult, due to the multidimensional nature of coping (Carpenter, 1992). For this reason, no consensus has been reached on what the specific conceptualisation of *coping* should entail. For example, in their landmark article on the structure of coping, Pearlin and Schooler (1978) define *coping* as a “behaviour that protects people from being psychologically harmed by problematic social

experience, a behaviour that importantly mediates the impact that societies have on their members” (p. 2). They add that “coping, in sum, is certainly not a unidimensional behaviour. It functions at a number of levels and is attained by a plethora of behaviors, cognitions, and perceptions” (Pearlin & Schooler, 1978, p. 7–8). This definition highlights that *coping* is a multifaceted psychological construct that includes not only behaviour, but also cognitions. Furthermore, Pearlin and Schooler (1978) note that coping is aimed at protecting people against psychological harm.

For the purposes of the present discussion the definition of *coping* set forth by Lazarus and Folkman (1984) will be used. The cognitive-phenomenological theory of stress and coping proposes that perceived stress and the resultant coping efforts are the products of a stressful person-environment relationship (Lazarus & Folkman, 1984). For that reason, the theory can be viewed as a transactional theory of stress and coping. *Coping* is defined as “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p.141).

A number of characteristics of coping are highlighted by Lazarus and Folkman’s (1984) definition. Firstly, the definition implies that coping is not a trait that is stable over time, but rather a dynamic process that is continuously changing in response to the constantly changing person-environment relationship. The cognitive-phenomenological theory of stress and coping thus has a “process oriented” perspective on coping (Folkman et al., 1986, p. 993). This perspective on coping stands in contrast to other conceptualisations of coping such as psychodynamic and trait theories of coping. The psychodynamic approach conceptualises coping in terms of “defence mechanisms, which are unconscious means of regulating negative affect, primarily anxiety” (Aldwin & Brustrom, 1997, p. 76). This conceptualisation originates from Sigmund Freud’s theory of psychoanalysis that describes defence mechanisms as ego processes aimed at regulating anxiety caused by inconsistencies between the id and superego. Numerous defence mechanisms have been identified, including denial, projection, sublimation and repression (Aldwin & Brustrom, 1997). Trait coping theories maintain that people generally cope in a habitual manner and use the same select coping strategies whenever they encounter a stressful situation. Additionally, it is proposed that coping is based on stable personality dispositions which cause coping to be used in a stable trait-like manner. People are therefore believed to cope in a habitual manner and use the same coping styles to address a variety of

stressful situations (Carver, Scheier, & Weintraub, 1989). Both approaches to coping have been influential in expanding our understanding of the way people deal with threatening situations and of the manner in which certain personality factors may influence people's coping strategy use. However, both approaches fail to recognise the contextual nature of coping and that coping is influenced by both personal and environmental factors that shape the ultimate coping strategies that will be used (Folkman et al., 1986). Moreover, the psychodynamic approach to coping focuses primarily on the emotional component of coping, and subsequently fails to include a problem-solving conceptualisation of coping that is aimed at solving the stressful situation (Aldwin & Brustrom, 1997). Coping as a dynamic process will be discussed in greater detail in Section 2.8.

Lazarus and Folkman's (1984) definition of coping describes coping as a cognitive and behavioural response to deal with something that is perceived to be threatening or surpassing the resources available to the person. This highlights the cognitive aspect of coping, as situations are judged as either threatening or non-threatening, whereafter it is then decided how to effectively deal with the situation. However, there are many theories that use a physiological perspective to view stress and coping, such as the general adaptation syndrome (GAS) theory of stress by Selye (1956) and more recently the neuro-immunomodulation model of coping by Temoshok (2000). This approach to stress and coping was quite popular in the beginning stages of stress research and suited the behaviourism paradigm that was particularly influential in shaping psychology at that time (Lazarus, 1999). Stress theories that view stress and coping from a physiological perspective have contributed to a better understanding of the physiological responses that people experience in stressful situations. However, these theories have been criticised for neglecting the role that psychosocial processes such as cognition and emotion play in stress and coping (Lazarus & Folkman, 1984). The advantage of using a cognitive-phenomenological approach to stress and coping is that it allows for different stressors to be perceived differently and for individual differences in the way people perceive stress in their lives. Section 2.2 presents a more detailed discussion on the appraisal of threatening situations.

According to Lazarus and Folkman (1984), dealing with a threatening situation may include both cognitive and behavioural actions. These actions can include any kind of cognitive or behavioural acts as long as they are aimed at managing the threatening situation. Numerous coping styles and coping strategies have been identified, as illustrated by Skinner, Edge, Altman and Sherwood (2003). The term *coping style* will be used in this dissertation to refer to higher-

order coping categories that include numerous individual coping strategies that are similar in terms of their aims and/or key features. In this regard, Skinner et al. (2003) refers to higher-order coping categories as “families of coping” (p. 217). The term *coping strategy* will be used to refer to smaller lower-order coping categories that form part of larger higher-order coping categories (Skinner et al., 2003). Coping styles and strategies are discussed more comprehensively in Section 2.6.

The main aim of coping, according to Lazarus and Folkman (1984), is to deal with something that is perceived to be threatening by the individual. Lazarus and Folkman (1984) distinguish between two coping functions, namely problem-focussed and emotion-focussed coping. Problem-focussed coping is aimed at managing the specific problem that is causing the distress, whereas emotion-focussed coping is aimed at regulating the emotional responses that the stressful situation elicits (Lazarus & Folkman, 1984). Problem- and emotion-focussed coping can be viewed as coping styles and are described in greater detail alongside other coping styles in Section 2.6.

Lastly, the definition of coping as proposed by Lazarus and Folkman (1984) does not make any value judgments on the effectiveness or adaptiveness of specific coping styles. Lazarus and Folkman (1984) maintain that coping styles are not inherently adaptive or maladaptive and that the nature of the person-environment relationship will ultimately determine the adaptiveness of a coping strategy. Consequently, Lazarus (1999) maintains that the use of coping strategies will depend on the specific nature of the stressful situation and will change over time as the person-environment relationship changes over time. In contrast, most other conceptualisations of *stress* and *coping*, such as the psychodynamic and trait approach, maintain that certain coping strategies are fundamentally maladaptive and that certain specific criteria must be met for a coping strategy to be adaptive (Folkman et al., 1986). As a result, these approaches fail to recognise the important contextual nature of coping and its effectiveness. Section 2.7 presents a more in-depth discussion on coping effectiveness in the context of coping with HIV.

The cognitive-phenomenological theory of stress and coping provides a clear and comprehensive description of coping. The value of the theory lies in the fact that it allows the researcher to explore stress and coping within a dynamic person-environment relationship. The theory particularly suits the present study as it looks specifically at how coping strategies in women living with HIV changed over time and how coping was influenced by demographic and

psychological variables. The remainder of this chapter will explore Lazarus and Folkman's (1984) conceptualisation of *coping* in greater detail, starting with the appraisal process, followed by the different types of coping, coping as a dynamic process and coping effectiveness.

2.2. COGNITIVE APPRAISAL

Lazarus and Folkman (1984) define *psychological distress* as “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (p. 19). Lazarus and Folkman (1984) utilise an appraisal model of stress, as they view stress as a psychological state that develops out of a troublesome transaction between the person and the environment. Psychological distress is viewed as a dynamic process that includes a sequence of ongoing transactions between the person and the environment (Cox & Ferguson, 1991). This relational perspective of stress and appraisal allows for particular situational circumstances as well as individual differences to be taken into consideration when examining the stress process. The person-environment relationship is mediated by two processes, namely cognitive appraisal and coping, which form the two main components of the cognitive-phenomenological theory of stress and coping (Lazarus & Folkman, 1984).

Cognitive appraisal refers to the cognitive evaluation of the personal significance of a specific situation for the well-being of the individual (Lazarus, 1999). To this end, cognitive appraisal can be viewed as the complex cognitive process that mediates the transaction between the person and the environment (Lazarus & Folkman, 1984). Cognitive processes play a particularly important role in social cognitive theory. Cognitive factors are instrumental in determining what meaning is attached to specific situations, how enduring, motivating and emotionally significant these situations will be, as well as how the information that the specific situation sends out will be interpreted and organised in the future (Bandura, 1999). In particular, people have the ability to appraise their current situations and think about how best to react to them, considering that different actions could produce varying consequences (Bandura, 1978). Figure 2.2 illustrates the cognitive appraisal process as described by Lazarus and Folkman (1984).

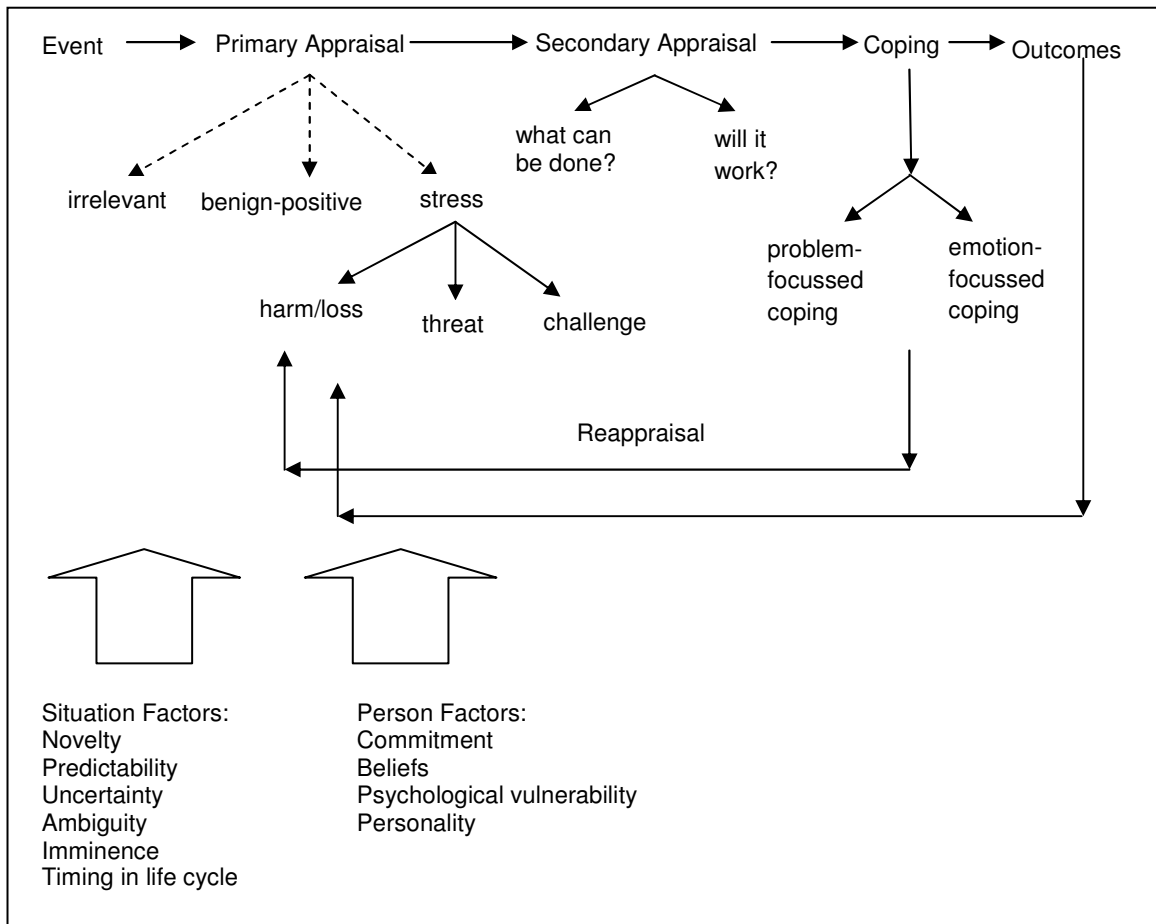


Figure 2.2: The cognitive appraisal process (Photobucket, 2011)

Lazarus and Folkman (1984) distinguish between three types of cognitive appraisal, namely primary appraisal, secondary appraisal and reappraisal, which function interdependently in facilitating the coping process. There are three types of primary appraisals, namely irrelevant, benign-positive and stress primary appraisal:

- An irrelevant primary appraisal is made when the situation that the individual is confronted with, has no important influence on her/his well-being. That is, the situation does not pose any relevance to the person and is mostly ignored.
- A benign-positive primary appraisal is made when the individual considers the outcome of her/his current situation to be favourable to her/his well-being. A benign-positive appraisal is usually accompanied by emotions such as joy and excitement. At times a benign-positive appraisal may also include a degree of apprehension as the person may fear that a situation may become less favourable at a later stage. Because both

irrelevant and benign-positive appraisals indicate that the person's well-being is not under threat, no secondary appraisals will follow these primary appraisals.

- In contrast, a stress primary appraisal is made when the individual considers the situation that she/he is confronted with to contain an element of harm or loss, threat or challenge to her/his well-being. Stress primary appraisals lead to secondary appraisals and the implementation of coping strategies.
 - Situations which may have led to damage being done to the self-esteem, social standing or physical health of the individual or someone close to them, will be appraised as comprising of harm or loss.
 - An appraisal of threat is made when harm or loss is expected to occur. Anger, anxiety and fear are usually associated with threat appraisals. A threat appraisal allows for anticipatory coping as preparations are made for possible future harm or loss to take place.
 - A primary appraisal of challenge is made when a situation is appraised to have the potential to lead to mastery and growth and includes emotions such as excitement and eagerness. A primary appraisal of challenge is more likely to be made when one has a sense of control over the stressful situation. Threat and challenge stress appraisals can occur simultaneously as a situation may be appraised as comprising of potential harm as well as the potential of positive growth (Lazarus & Folkman, 1984).

Secondary appraisal entails the evaluation of a perceived stressful situation whereby the individual considers what coping strategy to use. To this end, the individual chooses coping strategies based on two types of expectancies, namely the person's own competency in using particular coping strategies with success as well as the possible outcomes and effectiveness of those coping strategies (Lazarus, 1999; Lazarus & Folkman, 1984). In social cognitive theory, Bandura (1986) uses the terms *perceived self-efficacy* and *outcome expectations* to explain these two types of secondary appraisal expectancies. *Perceived self-efficacy* refers to "people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). *Perceived self-efficacy* relates to the judgement of how effectively one can execute a given task, in this case a coping strategy, with the abilities and resources one has at one's disposal (Bandura, 1986). Resources may include material resources, physical health, social support, problem-solving skills as well as social skills (Lazarus & Folkman, 1984). *Outcome expectation* is a judgment concerning the

expected result of a given behaviour (Bandura, 1986), such as a coping strategy. Perceived self-efficacy is viewed as a very important factor in predicting behaviour, as it forms the basis of human agency according to social cognitive theory. In this regard, one's belief in succeeding in a particular action is vital in order to initiate action and continue with it in the future (Bandura, 1999). Therefore, if one does not think that one has the ability and/or resources to successfully perform a given coping strategy, it is unlikely that one would follow through with it, even if one had favourable outcome expectations for that particular coping strategy (Bandura, 1986).

Ultimately, the primary appraisal of threat and the secondary appraisal of coping options are in constant interaction with each other and never truly come to a point of completion. Consequently, the individual may engage in reappraisal and appraise a situation and potential coping options differently at a later stage. Reappraisal follows an earlier appraisal and occurs when new information about the person-environment relationship comes to light. During reappraisal this relationship can then be re-evaluated, resulting in the construction of different primary and secondary appraisals. A previously threatening person-environment relationship may therefore later be reappraised as benign-positive or as a challenge (Lazarus, 1999; Lazarus & Folkman, 1984). According to Lazarus and Folkman (1984), appraisal is influenced by numerous person and environment factors. Person factors include commitment, beliefs, personality and psychological vulnerability, whereas environment factors include novelty, predictability, event uncertainty, temporal uncertainty, ambiguity, as well as the imminence, duration and timing of a stressful event.

In a study by Moskowitz and Wrubel (2005) the illness appraisals of gay men who were living with HIV in the United States of America (USA) were qualitatively explored. Most men appraised losing control of one's life, one's present and future health, the loss of a friend, damage to self-worth, stigma and one's own mortality as some of the most threatening aspects associated with being HIV-positive. Other aspects of living with HIV that were appraised as either harmful, threatening or a challenge included financial loss, experiencing constant stress, the health of one's partner and the disruption of work-related goals (Moskowitz & Wrubel, 2005).

Cognitive appraisal can be summarised as an evaluation process that mediates the transaction between the person and the stressful environment with the aim of determining to what extent the stressful environment is threatening or challenging (Folkman et al., 1986). The discussion now turns to how people appraise the receiving of an HIV-positive diagnosis.

2.3. RECEIVING AN HIV-POSITIVE DIAGNOSIS

Previous research indicates that testing for HIV, and especially receiving an HIV-positive diagnosis can be an extremely stressful and life-changing experience. In particular, people experience various short- and long-term emotional and behavioural reactions immediately after being diagnosed with HIV. With regard to emotional reactions, previous research has identified the following reactions:

- shock (Amuyunzu-Nyamongo et al., 2007; Hult, Maurer, & Moskowitz, 2009; Pittiglio & Hough, 2009)
- surprise and disbelief (Hult et al., 2009)
- anger (Reeves, Merriam, & Courtenay, 1999)
- denial (Medley, Kennedy, Lunyolo, & Sweat, 2009; Pittiglio & Hough, 2009; Sorajjakool, 2006)
- deep sadness (Hult et al., 2009; Sorajjakool, 2006)
- suicide ideation (Hult et al., 2009; Plattner & Meiring, 2006; Sorajjakool, 2006)
- fear (Medley et al., 2009; Reeves et al., 1999)
- guilt and bereavement (Holt et al., 1998)
- disorientation and derealisation (Stevens & Doerr, 1997).

A number of behavioural reactions have been identified, such as:

- the inability to move (Stevens & Doerr, 1997)
- blurry vision (Sanders, 2008)
- dizziness (Hult et al., 2009)
- needing to leave the testing site immediately (Hult et al., 2009)
- numbness (Hult et al., 2009)
- feeling that the room is spinning (Hult et al., 2009)
- dry mouth (Hult et al., 2009)
- sweating (Hult et al., 2009)
- inability to hear anything the counsellor said after hearing the result (Hult et al., 2009)
- crying (Hult et al., 2009; Stevens & Doerr, 1997).

Moreover, newly diagnosed individuals may start to isolate themselves (Nyanzi-Wakholi et al., 2009; Sanders, 2008; Stevens & Doerr, 1997), mentally and behaviourally disengage (Reeves

et al., 1999), abuse alcohol and drugs (Reeves et al., 1999; Stevens & Doerr, 1997), keep their HIV-positive status secret (Holt et al., 1998) and practise risky sexual behaviour (Reeves et al., 1999). However, some newly diagnosed individuals may react to the news of their HIV-status more positively, by seeking social support (Holt et al., 1998; Hult et al., 2009), seeking information about HIV and AIDS (Hult et al., 2009; Reeves et al., 1999), practising safer sexual behaviour (Holt et al., 1998; Stevens & Doerr, 1997), and disclosing their HIV-positive status to others (Amuyunzu-Nyamongo et al., 2007; Holt et al., 1998).

It has been found that there are different ways in which newly diagnosed persons react to the discovery of their HIV-positive status. In their qualitative study on the subjective experiences of newly diagnosed women, Stevens and Doerr (1997) identified three types of reactions women experienced immediately after being diagnosed:

- Some experienced the discovery as an epiphany, and viewed the diagnosis as a positive turning point in their lives which helped them to find meaning and make drastic changes in their lives.
- Others experienced the discovery as a confirmation of what they already expected. In this regard, knowing other people who live with HIV created a social familiarity towards HIV which prepared them for the HIV-positive diagnosis. Women who experienced the discovery as a confirmation, viewed their HIV-positive status as merely one of several problems in their lives and accepted it with resignation.
- Lastly, some newly diagnosed women experienced the discovery of their HIV-positive status as a calamity, viewing their discovery as a severely traumatic event. Women who experienced their discovery as a calamity displayed severe emotional and behavioural reactions, such as shock, fear and even suicidal thoughts (Steven & Doerr, 1997). It has been found that women who experience such severe emotional and behavioural reactions are more likely to be isolated from social support sources. Their emotional state immediately after diagnosis then further prevents them from seeking social support services (Sanders, 2008; Stevens & Doerr, 1997). This is a major concern as women that have such adverse reactions to the discovery of their HIV-positive status are the most at risk of further psychological distress and have the greatest need for psychological support.

The discussion now turns to the implications of receiving an HIV-positive diagnosis during pregnancy.

2.3.1. Receiving an HIV-positive diagnosis during pregnancy

Many women only discover their HIV-positive status once they are pregnant and making use of antenatal services. Receiving an HIV-positive diagnosis during pregnancy is particularly traumatic, as the HIV-positive diagnosis is further complicated by the foetus and the health of the pregnant mother (Sanders, 2008). Being diagnosed with HIV during pregnancy is very distressing for the newly diagnosed woman, as she is concerned about her own and her child's well-being. In particular, she may fear transmitting the virus to her infant (Sanders, 2008). To this end, pregnant women living with HIV may experience a range of distressing emotions such as guilt, anxiety and remorse at the thought of transmitting the virus to their children (Lazarus, Struthers, & Violari, 2009). Furthermore, the mother may be concerned about her unborn infant and her other children's future, whether she will be able to provide for them and how much time she has left to be there for them (Pittiglio & Hough, 2009).

In a study on psychological distress amongst HIV-positive pregnant Zambian women, Kwalombota (2002) found that pregnant women who discovered their HIV-positive status during pregnancy were more likely to experience psychological distress compared to pregnant women who had prior knowledge of their HIV-positive status. In addition, Kwalombota (2002) found that women who discover their HIV-positive status during pregnancy are more likely to consider terminating the pregnancy, compared to HIV-positive pregnant women who were diagnosed before they became pregnant. The discussion now turns to the difficulties that women living with HIV face.

2.4. CHALLENGES FACED BY WOMEN LIVING WITH HIV

Women living with HIV may face numerous hardships, particularly those living in developing countries. In South Africa as well as other sub-Saharan African countries, most HIV-positive women live in poverty, are therefore not regularly employed, and are dependant on others for financial assistance (Amunyunzu-Nyanmango et al., 2007; Gilbert & Walker, 2002). As a result, money and employment remains a great source of concern for many women living with HIV (Nyanzi-Wakholi et al., 2009; Olley, 2006). According to a study in Peru, poverty and low socio-economic status contribute significantly to depression in impoverished women living with HIV (Wu et al., 2009). Dageid and Duckert (2008) found that poverty, gender inequality and the

unequal distribution of resources place a heavy burden on women living with HIV in Limpopo, South Africa. It was found that women living with HIV in low socio-economic situations are often subjected to abuse from men and that they have little control over material and social resources and decision-making. Consequently, the women at times considered poverty to be a bigger obstacle to their well-being than being infected with HIV (Dageid & Duckert, 2008). Linked to the issue of poverty is the availability and adherence to ARV treatment. It has been found that a lack of knowledge of ARVs, long distances to healthcare facilities, transport costs, long waiting times, perceived high ARV costs, stigma, non-disclosure of HIV-status and food insecurity are major obstacles to ARV adherence, particularly in sub-Saharan Africa and other developing regions (Hardon et al., 2007; Posse, Meheus, Van Asten, Van Der Ven, & Baltussen, 2008; Weiser et al., 2010).

Another challenge faced by women living with HIV, especially newly diagnosed women, is the issue of status disclosure. Women who are living with HIV face the challenge of disclosing their HIV-positive status to other people, most notably their partners. In a South African study on newly diagnosed pregnant women in Tshwane, it was found that being married, having a partner with a tertiary education, prior discussion about HIV testing and less experience of violence in relationships were associated with disclosure to partners. Moreover, better housing, less financial dependence on partners and knowing someone else who is also HIV-positive were associated with disclosure to other people (Makin et al., 2008).

Despite possibly having a strong desire to disclose their HIV-positive status and tell other people about what they have experienced (Jarman, Walsh, & De Lacey, 2005), newly diagnosed women may feel apprehensive about disclosing their status out of fear of being rejected and abused by family and community members (Nyanzi-Wakholi et al., 2009; Sorajjakool, 2006). These fears may lead to self-isolation (Stevens & Doerr, 1997) and loneliness (Medley et al., 2009). Non-disclosure has been found to be associated with increased levels of stigma (Makin et al., 2008). In a qualitative study by Rohleder and Gibson (2006), women living with HIV in Cape Town, South Africa, described their emotional struggle in coming to terms with their HIV-positive status and the way in which they had to internalise a new “spoiled identity”, which rendered them “dirty, dangerous and contagious” (p. 33). This new identity caused the women great distress and symptoms of internalised stigma (Rohleder & Gibson, 2006). Similarly, in a study on newly diagnosed women and men who lived with HIV in Cape Town, South Africa, a high level of internalised stigma was found (Simbayi et al., 2007).

Participants reported that they felt ashamed, guilty and dirty as a result of their HIV-positive status (Simbayi et al., 2007). These feelings of shame, guilt, anxiety and being damaged, may lead people living with HIV to fear the potential negative reactions of other people if they were to disclose their HIV-positive status (Rohleder & Gibson, 2006; Simbayi et al., 2007). The discussion now turns to psychological distress amongst people living with HIV.

2.5. HIV AND PSYCHOLOGICAL DISTRESS

Numerous international studies (Cook et al., 2004; Eller et al., 2010; Meade, Wang, Lin, Wu, & Poppen, 2010) as well as South African studies (Kagee & Martin, 2010; Olley, 2006; Simbayi et al., 2007) have reported very high levels of psychological distress, including depression and anxiety amongst people living with HIV. Research on psychological distress in South Africans living with HIV has revealed that major depression and post-traumatic stress disorder were the most frequently reported mental disorders (Freeman, Nkomo, Kafaar, & Kelly, 2007; Myer et al., 2008; Olley, 2006; Olley et al., 2003). Women living with HIV have been found to report a higher prevalence and severity of psychological distress symptoms compared to their male counterparts (Bennetts et al., 1999; Cook et al., 2004; Mello, Segurado, & Malbergier, 2010; Olley, Seedat, Nei, & Stein, 2004; Reece et al., 2007).

However, it has also been found that some HIV-positive women, particularly those with a low socio-economic status, do not have significantly higher psychological distress levels compared to their HIV-negative peers. In a study on women in the USA, it was found that although HIV-positive women had more psychological distress than HIV-negative women, the change in psychological distress levels was more greatly influenced by chronic burdens and low socio-economic status than by their HIV-status (Gurung, Taylor, Kemeny, & Myers, 2004). Rubin et al. (2011) found no difference in perinatal depression symptoms between HIV-positive and HIV-negative mothers living in the USA. Instead, perinatal depression was found to be related to having multiple sexual partners and using mental health services prior to conception as well as not graduating from high school. With regard to HIV-positive women it was found that perinatal depression symptoms were specifically related to drug use and depression prior to conception. Similarly, a study done on African American HIV-positive and HIV-negative recent mothers in the USA, found that HIV-status did not influence the level of psychological distress experienced by the women (Smith et al., 2001). To this end, HIV-positive mothers did not report higher levels

of psychological distress compared to their HIV-negative counterparts. It was found that both the HIV-positive and HIV-negative mothers considered finances their biggest source of stress. Smith et al. (2001) suggests that the women's low socio-economic status played a more significant role in their psychological well-being.

These results are reaffirmed by a study on postnatal depression in Zimbabwean women, which found that HIV-status did not have a significant influence on psychological distress (Chibanda et al., 2010). Instead, it was found that postpartum depression in both HIV-positive and HIV-negative mothers was associated with adverse life events, being unemployed and having multiple children (Chibanda et al., 2010). Similarly, a study conducted in Soweto, South Africa, found no significant difference between HIV-positive and HIV-negative mothers with regard to depression, mother's concerns, social standing and adverse life events (Kasese-Hara et al., 2008). The authors suggested that the low education level and especially the high unemployment rate and adverse social and economic circumstances of the mothers played a more significant role in their psychological well-being than their HIV-status (Kasese-Hara et al., 2008). Therefore, in the context of poverty it seems that HIV-infection as a source of stress is often eclipsed by other seemingly more immediate sources of stress such as unemployment, money, housing, food and safety. The literature thus suggests that being HIV-positive may serve as an additional stressor in the presence of numerous other stressors for people who are living in impoverished conditions.

Research findings that indicate a high prevalence of psychological distress amongst people living with HIV raise concern, especially considering the adverse effect it can have on one's well-being. Several studies have revealed that psychological distress amongst people who are living with HIV is associated with poor behavioural and health outcomes. In particular, associations have been found between chronic depressive symptoms and:

- poor quality of life (Adewuya et al., 2008)
- poor ARV adherence (Campos, Guimaraes, & Remien, 2008; Do et al., 2010)
- poor healthcare facility attendance (Bhatia, Hartman, Kallen, Graham, & Giodano, 2010)
- faster disease progression (Antelman et al., 2007; Leserman, 2003).

It has been found that psychological distress during and after pregnancy can have adverse outcomes for the mother and her infant. Prenatal and postpartum psychological distress can be associated with behavioural problems in the child (Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001), impaired physical and cognitive development in the child (Avan, Richter, Ramchandani, Norris, & Stein, 2010; Pearson, Cooper, Penton-Voak, Lightman, & Evans, 2010), as well as disruption in the relationship between the mother and her child (Lindgren, 2001; Oswalt & Biasini, 2010). For this reason, it is vital that HIV-positive pregnant and postpartum women find adaptive ways of coping with their diagnosis in order to limit the level of psychological distress that they experience. The present study aimed to address this particular issue, by investigating how HIV-positive women, who had been diagnosed during pregnancy cope with the diagnosis, and what demographic and psychological variables can be associated with different coping styles.

To conclude, it is clear that women living with HIV, and particularly women diagnosed during pregnancy, face numerous difficulties and are at an increased risk of experiencing psychological distress symptoms. The literature highlights the need for more support after diagnosis to address psychological distress in women living with HIV. The next section of this chapter focuses on the conceptualisation of different coping styles within the context of HIV coping literature.

2.6. COPING STYLES

Coping is a vast concept that includes numerous behavioural, cognitive and affective responses. Consequently, a great number of coping styles have been identified (Skinner et al., 2003). This section presents a brief discussion of some of the main coping styles, namely problem- and emotion-focussed coping, engagement and disengagement coping, as well as meaning-focussed coping.

2.6.1. Problem- and emotion-focussed coping

Lazarus and Folkman (1984) propose two main coping styles, namely problem-focussed and emotion-focussed coping. *Problem-focussed coping* is defined as “coping that is aimed at managing or altering the problem causing the distress” (Lazarus & Folkman, 1984, p. 150).

Problem-focussed coping includes coping strategies such as problem-solving and planning. These coping strategies are directed at both the environment and at the self with the aim of addressing the stressful situation. Strategies directed at the environment include modifying resources, obstacles and any other environmental entities that may be contributing to the problem. Strategies directed at the self generally involve motivational and/or cognitive alterations. Problem-focussed coping is usually employed when the individual appraises that something can still be done to change the stressful situation (Lazarus & Folkman, 1984).

Emotion-focussed coping is defined as “coping that is directed at regulating emotional responses to the problem” (Lazarus & Folkman, 1984, p. 150). Emotion-focussed coping includes coping strategies such as venting of emotions, distraction and emotional support. Emotion-focussed coping strategies are mostly defensive in nature and are directed at the negative emotions that the stressful situation generates. Utilising emotion-focussed coping strategies may not change the meaning of the problem or be aimed at addressing the problem directly, but instead is aimed at minimising the emotional distress that the person is experiencing. These coping strategies are mostly used when the individual appraises that nothing can be done to change the stressful situation. Although emotion-focussed coping is aimed at dealing with the negative emotions associated with the stressor and make the person feel better, some emotion-focussed coping strategies may be counterproductive and lead to more emotional distress (Lazarus & Folkman, 1984).

Apart from the problem- and emotion-focussed distinction, a number of other coping style distinctions have been made. Engagement and disengagement coping remain one of the most often used distinctions. A brief discussion of engagement and disengagement coping as well as meaning-focussed coping and other prominent coping styles in the HIV coping literature now follows.

2.6.2. Engagement and disengagement coping

Compas, Connor-Smith, Saltzman, Thomsen and Wadsworth (2001) define *engagement coping* as “responses that are oriented toward either the source of stress, or toward one’s emotions and thoughts” (p. 92). *Disengagement coping* is defined as “responses that are oriented away from the stressor or one’s emotions or thoughts” (Compas et al., 2001, p. 92). Engagement coping is sometimes referred to as confrontation, vigilant or active coping and is similar to

certain problem-focussed coping strategies. Disengagement coping is similar to avoidant and minimisation coping as well as some emotion-focussed coping strategies (Carver & Connor-Smith, 2010; Taylor, 2003). Engagement coping includes strategies such as seeking social support, acceptance and positive reframing, whereas disengagement coping includes strategies such as substance use, distraction and denial (Carver & Connor-Smith, 2010). Engagement coping can further be divided into primary- and secondary-control coping. Primary-control coping, which refers to controlling the stressful situation, includes direct action and planning. Secondary-control coping, which refers to adjusting to the stressful situation, relates more to positive reframing and acceptance (Skinner et al., 2003).

2.6.3. Meaning-focussed coping

Meaning-focussed coping is also referred to as benefit finding, positive growth and positive reappraisal and is often linked with spirituality and religion. Meaning-focussed coping involves the positive reappraisal of stressful situations by connecting positive meanings to these situations. To this end, beliefs and values form the basis of meaning which is then superimposed on stressful situations to assist people in finding meaning in the situation and to see the positive side to the stressful situation (Carver & Connor-Smith, 2010). Folkman and Moskowitz (2000) note that meaning-focussed coping involves gaining temporary relief from ongoing stress by regularly pausing to reflect on the positive aspects of a stressful situation. In addition, meaning-focussed coping includes the planning of positive events as well as the use of humour to reduce tension and create positive emotions (Folkman & Moskowitz, 2000). Meaning-focussed coping is generally used more to cope with stressful situations that are considered to be uncontrollable and unchangeable (Folkman, 2008).

2.6.4. Coping styles used by people living with HIV

Apart from the aforementioned coping styles, numerous other coping styles for coping with HIV have been identified in academic literature. Most quantitative studies measuring coping styles in people living with HIV have used confirmatory factor analysis to identify the main coping styles that people living with HIV use. Distinctions that have been made include:

- active, supportive and maladaptive coping (Prado et al., 2004)
- active, supportive and avoidant coping (Smith et al., 2001)

- cognitive and behavioural coping (Kraaij et al., 2008)
- adaptive and maladaptive coping (Pence et al., 2008)
- detachment and involvement coping (DeMarco, Ostrow, & DiFranceisco, 1999).

Qualitative studies on coping with HIV have revealed similar coping styles with particular emphasis on meaning-focussed coping (Barroso & Powell-Cope, 2000). The discussion now turns to specific coping strategies used within the context of HIV, the role of gender in coping with HIV as well as coping with HIV during pregnancy. For the purpose of the present discussion, a distinction will be made between active and avoidant coping.

2.6.4.1. HIV and active coping.

Active coping is sometimes referred to as positive, engagement, approach or involvement coping and relates to most problem-focussed and certain emotion-focussed coping strategies. Active coping generally includes coping strategies such as acceptance, direct action, planning, problem-solving, involvement, positive reframing, goal setting, information seeking, religion, meaning-making, social support, helping others and humour.

In order to explore the connections between coping and psychosocial variables, quantitative studies generally make use of correlational or regression analysis. Examples of such studies include Kraaij et al. (2008) and Trevino et al. (2007). It has been found that active coping strategies are associated with positive psychosocial and health outcomes in people living with HIV. Active coping strategies have been associated with the following:

- less HIV- and AIDS-related symptoms (Chida & Vedhara, 2009; Solano et al., 2002)
- enhanced quality of life (Vosvick et al., 2002; Vyavahakar, Moneyham, Murdaugh, & Tavakoli, 2011)
- high positive affect (Deichert et al., 2008)
- high self-esteem (Stein & Rotheram-Borus, 2004; Trevino et al., 2007)
- less symptoms of psychological distress, depression and anxiety (Chan et al., 2006; Kraaij et al., 2008; Moneyham et al., 1998; Prado et al., 2004)
- lower frequency of substance use (Pence et al., 2008)
- disclosure of HIV-positive status (Simoni, Demas, Mason, Drossman, & Davis, 2000)
- the utilisation of social support resources (Deichert et al., 2008)

- greater satisfaction with social support (Simoni et al., 2000)
- adherence to ARV treatment (Vervoort, Grypdonck, de Grauwe, Hoepelman, & Borleffs, 2009).

The present study is based on the prediction that more positive outcomes, including disclosure of HIV-positive status, high self-esteem, social support, high HIV-knowledge, low depression and low internalised stigma scores are associated with the increased use of active coping. Note that HIV-knowledge is included in this prediction. Although very few studies have considered the association between coping and HIV-knowledge, limited research findings suggest that HIV-knowledge may be associated with positive outcomes such as ARV adherence and helping other people (Pittiglio & Hough, 2009; Vervoort et al., 2009). The present study focussed specifically on eight active coping strategies, namely direct action, acceptance, positive reframing, emotional and instrumental social support, information seeking, helping others and religion. A brief discussion of each of coping strategy now follows.

2.6.4.1.1. Direct action.

Direct action as a coping strategy entails taking active steps to address the stressor and its effects (Carver et al., 1989). Direct action is therefore a problem-solving way of coping and implies that one takes responsibility of one's stressful circumstances (Skinner et al., 2003). Furthermore, direct action is more likely to be used in response to stressful situations that are still perceived to be changeable or controllable (Carver et al., 1989). Using direct action to cope with HIV-infection has been linked to perceived control, suggesting that someone who is using direct action has a sense of mastery and sees the self as capable to exercise control over her/his life and stressful situations (Coetzee & Spangenberg, 2003). It can also be said that direct action has an element of confrontation and goal-orientation, as it is aimed at confronting the stressor in an often goal-directed manner (Coetzee & Spangenberg, 2003). Direct action is considered to be emotionally constructive, as it not only deals with the stressor but also relates to improvement in emotional well-being (Skinner et al., 2003).

2.6.4.1.2. Acceptance.

According to Carver et al. (1989), acceptance implies an acknowledgement of reality and an attempt to deal with the stressful situation. Acceptance of one's HIV-positive status can be seen as the preparedness to recognise the impact HIV will have on one's life (Vervoort et al., 2009). People living with HIV may not necessarily achieve acceptance of their HIV-status immediately after diagnosis, but may steadily develop a sense of acceptance as time progresses. Lieberich et al. (1997) found that most of their participants achieved acceptance once they had overcome the initial distress of the discovery of their HIV-positive status. Acceptance is often conceptualised as a secondary control or accommodative way of coping and is as a result more likely to be used in stressful situations where the stressor is not changeable and must be accommodated (Carver et al., 1989; Skinner et al., 2003). In some instances acceptance can take the form of passive, resigned or even fatalistic acceptance which is associated with negative affect and faster disease progression in people living with HIV. However, healthy acceptance should ultimately empower the person living with HIV to deal with the challenges of their illness in a realistic and proactive way (Coetzee & Spangenberg, 2003).

2.6.4.1.3. Positive Reframing.

Positive reframing is sometimes referred to as positive reinterpretation (Carver et al., 1989), positive growth, positive cognitive restructuring (Skinner et al., 2003) and positive reappraisal (Lazarus & Folkman, 1984). Positive reframing is an active coping strategy that entails purposefully reappraising a stressful situation in a more positive light and finding meaning in what is being experienced (Carver et al., 1989; Folkman & Moskowitz, 2000). Positive reframing is similar to meaning-focussed coping (see Section 2.6.3).

2.6.4.1.4. Social support.

Social support can be divided into two subcategories, depending on its focus. A distinction can be made between seeking social support for instrumental reasons and seeking social support for emotional reasons. Seeking social support for instrumental reasons is focussed on obtaining support in the form of advice, information as well as material and financial assistance. Conversely, seeking social support for emotional reasons is focussed on obtaining support in the form of sympathy, understanding and moral support (Carver et al., 1989). Social support is

therefore based on the act of reaching out to other people and receiving some form of assistance from them. This can be done by joining a support group, staying in close contact with others and receiving counselling. The value of interpersonal relationships compared to social isolation has been emphasised numerous times. It has been found that mothers living with HIV who did not have social support were significantly more likely to have high psychological distress levels compared to HIV-positive mothers who had social support (Bennetts et al., 1999; Blaney et al., 2004; Mellins, Ehrhardt, Rapkin, & Havens, 2000).

2.6.4.1.5. Information seeking.

Information seeking, which is sometimes referred to as seeking understanding, can be defined as “attempts to learn more about a stressful situation or condition, including its course, causes, consequences, and meanings as well as strategies for intervention and remediation” (Skinner et al., 2003, p. 242). Information seeking has a problem-solving element to it, as it is aimed at addressing the stressful situation by gaining greater insight into it and finding out how to address it effectively. In addition, information seeking has a social support element to it, as it may be necessary to engage with other people in order to obtain information (Skinner et al., 2003). Information seeking is often used in response to the diagnosis of an illness and has been found to be particularly helpful to newly diagnosed people living with HIV, as better insight into their health provides them with hope for the future (Pittiglio & Hough, 2009; Skinner et al., 2003).

2.6.4.1.6. Helping others.

Helping others as a coping strategy is sometimes referred to as altruism (Skinner et al., 2003). Helping others entails purposefully reaching out to other people with the aim of supporting them either emotionally, physically or financially. Relatively little research has been conducted on helping others within the context of coping with HIV. Pittiglio and Hough (2009) found that as mothers living with HIV gained more knowledge about HIV and AIDS, they were more eager to help other people living with HIV. To this end, the mothers found great delight in reaching out to others by sharing their personal experiences of being HIV-positive and being sources of support to other people living with HIV (Pittiglio & Hough, 2009).

2.6.4.1.7. Religion.

People often draw upon their spiritual belief systems in order to cope with adverse circumstances. Pargament, Smith, Koenig and Perez (1998) identify two types of religious coping, namely positive religious coping and spiritual struggle (also referred to as negative religious coping). Positive religious coping involves actions that are directed at seeking an intimate relationship with God as well as the belief that there is a larger meaning to one's life. In contrast, spiritual struggle involves conflict, doubt and the questioning of one's faith, religious relationships and God (Pargament et al., 1998). Whereas positive religious coping has been associated with positive psychological outcomes in people living with HIV, spiritual struggle has been associated with negative psychological outcomes (Trevino et al., 2007). Note that religious coping can also have a social support element, as people using religious coping often go to religious meetings for fellowship with other believers, or seek religion-based counselling (Tarakeshwar, Kahn, & Sikkema, 2006). Furthermore, religious coping has a strong meaning-focussed element (Kremer, Ironson, & Kaplan, 2009). Previous research suggests that religious coping is often used by people living with HIV (Barroso & Powell-Cope, 2000; Maman, Cathcart, Burkhardt, Omba, & Behets, 2009; Perry, Davis-Maye, & Onolemhemen, 2007; Sorajjakool, 2006). It has been found that if organised religion did not provide the needed support, some people living with HIV turned to a broader sense of spirituality, the appreciation of prayer and mediation, and belief in a deity (Barroso & Powell-Cope, 2000). Research conducted in sub-Saharan Africa has revealed that people living with HIV sometimes incorporate their traditional beliefs in ancestors into organised religious doctrine (Dageid & Duckert, 2008). Note that the present study only measured positive religious coping.

2.6.4.2. HIV and avoidant coping.

Avoidant coping is sometimes referred to as maladaptive, detachment, disengagement, negative or passive coping and is linked to most of Lazarus and Folkman's (1984) emotion-focussed coping strategies. Avoidant coping generally includes coping strategies such as denial, repression, substance use, emotional venting, self-blame, distraction, self-isolation, catastrophising, escape, avoidance, feeling out of control, rumination as well as behavioural and mental disengagement.

Avoidant coping strategies have been found to be associated with negative psychosocial and health outcomes. In this regard, avoidant coping strategies have been associated with the following:

- increase in HIV- and AIDS-related symptoms (Chida & Vedhara, 2009; Solano et al., 2002)
- decreased physical functioning (Griswold, Evans, Spielman, & Fishman, 2005)
- poor quality of life (Weaver et al., 2004)
- low self-esteem (Stein & Rotheram-Borus, 2004)
- higher perceived stress levels (Koopman et al., 2000; Weaver et al., 2004)
- more symptoms of psychological distress, depression and anxiety (Chan et al., 2006; Kraaij et al., 2008; Prado et al., 2004).
- more frequent substance use (Pence et al., 2008)
- non-disclosure of HIV positive status (Makin et al., 2008; Simoni et al., 2000)
- non-adherence to ARV treatment (Vervoort et al., 2009).

In the light of these findings, the prediction in the present study was made that avoidant coping will be associated with negative outcomes, including the non-disclosure of HIV-positive status, low self-esteem, negative social support, low HIV-knowledge, high depression and high internalised stigma scores. The present study will focus specifically on seven avoidant coping strategies, namely distraction, emotional venting, escape, denial, self-blame, substance use and feeling out of control. Each of these coping strategies is discussed briefly:

2.6.4.2.1. Distraction.

Skinner et al. (2003, p. 242) define distraction as “active attempts to deal with a stressful situation by engaging in an alternative pleasurable activity”. Distraction is a tension-reducing coping strategy that is used to divert attention away from that which causes concern and worry to more enjoyable activities (Nemeroff, Hoyt, Huebner, & Proescholdbell, 2008; Pittiglio & Hough, 2009). Distraction may include both behavioural and cognitive acts. Similar to acceptance, distraction is often used to cope with an uncontrollable situation (Skinner et al., 2003). Studies have generally found distraction to be less used by people living with HIV (Myint & Mash, 2008).

2.6.4.2.2. Emotional Venting.

Emotional venting can be described as the “tendency to focus on whatever distress or upset one is experiencing and to ventilate those feelings” (Carver et al., 1989, p. 269). The emotions being expressed are mostly negative, such as anger and irritation. Emotional venting can lead to an increase in negative affect and psychological distress, and subsequently prevent constructive efforts to address the stressful situation (Skinner et al., 2003).

2.6.4.2.3. Escape.

Escape involves the avoidance of a stressful situation. More specifically, escape includes both mental withdrawal and behavioural escape. Mentally withdrawing refers to wishing that the situation would come to an end, whereas behavioural escape efforts refer to avoiding certain people or situations that are associated with the stressor (Folkman et al., 1986). Escape is sometimes combined with other similar coping strategies such as disengagement, avoidance, denial and distraction (Skinner et al., 2003).

2.6.4.2.4. Denial.

Denial is characterised by efforts to block, blunt and not accept a stressful situation and its consequences (Hackl, Somlai, Kelly, & Kalichman, 1997). Denial thus creates distance between the stressor and the individual, which provides temporary relief from negative thoughts and emotions. To this end, failing to disclose one’s HIV-positive status and living as if one is HIV-negative can be seen as an attempt to distance oneself from the reality of being HIV-positive. However, denial prevents the individual from confronting the stressor directly (Lazarus, 1999). Denial is frequently reported in studies on coping with health-related stress and is generally believed to be used in the initial stages shortly after diagnosis (Taylor, 2003).

2.6.4.2.5. Self-Blame.

Self-blame involves blaming and criticising oneself for being in a stressful situation and may include rumination and negative introspection (Skinner et al., 2003). Self-blame is closely associated with internalised stigma, which refers to the internalisation of AIDS-related stigmatic

beliefs about being HIV-positive into one's self-concept (Visser, Kershaw, Makin, & Forsyth, 2008). According to a meta-analysis by Moskowitz, Hult, Acree and Bussolari (2009), self-blame in people living with HIV is associated with negative affect as well as improved health-related behaviour. It is suggested that, despite self-blaming being an unkind way to deal with oneself, it involves taking responsibility for the stressful situation one is facing. Consequently, self-blame may contribute to people living with HIV becoming more actively involved in improving their health and taking care of themselves (Moskowitz et al., 2009).

2.6.4.2.6. Substance use.

Using alcohol and drugs as a way to cope with a stressful situation is viewed as an avoidant coping style. Substance use coping involves using alcohol and drugs to escape a stressful situation. Moreover, substance use is considered to be risk behaviour, as it may cause further health risks to the person living with HIV and contribute to the spread of HIV-infection (Pence et al., 2008).

2.6.4.2.7. Out-of-control.

Out-of-control refers to the feeling that one is not in control of one's life. This is linked to the concept of locus of control first identified by Rotter (1966). Locus of control refers to the perceived source of control over one's life. A distinction can be made between internal and external locus of control. Internal locus of control refers to the belief that one is in control of one's life and has the ability to influence the outcome of one's circumstances. In contrast, external locus of control refers to the belief that one does not have control over one's life, but that other entities ultimately control one's life (Meyer & Moore, 2003). Feeling out of control within the context of the present study therefore involves having an external locus of control. Feeling out of control is a more passive way of coping, as one does not consider one's actions or thoughts as influencing the stressful situation one is facing. This stands in contrast to direct action, which is indicative of an internal locus of control, as someone who believes that she/he has the ability to change the situation, will be more active in the way she/he copes with the stressful situation (Coetzee & Spangenberg, 2003). Research on people living with HIV and their locus of control has revealed that, by creating meaning around the HIV-positive diagnosis, being on ARV treatment and actively getting involved in one's medical health contributed to an

internal locus of control (Barroso & Powell-Cope, 2000; Pittiglio & Hough, 2009; Vervoort et al., 2009). An internal locus of control has been found to be associated with decreased stress and greater use of involvement coping strategies (DeMarco et al., 1999).

2.6.4.3. Gender and coping with HIV.

Most studies have reported that HIV-positive women and men use similar coping strategies (Ashton et al., 2005; Coleman et al., 2006). However, some studies suggest that women living with HIV are more likely to use religious coping (Griswold et al., 2005), avoidance (Vosvick et al., 2002), as well as distraction and positive growth (Vosvick, Martin, Smith, & Jenkins, 2010) compared to men who are living with HIV. It has been found that women living with HIV are less likely to use substances as a way of coping compared to HIV-positive men (Pence et al., 2008).

South African research has supported these findings. Olley et al. (2003) found only a few differences in coping between women and men living with HIV. They found that HIV-positive women used planning and religion more, compared to men. Similarly, Myint and Mash (2008) found religion to be used more by HIV-positive women than by men in their South African sample. Ultimately, there is no clear consensus on the nature of gender differences with regard to coping with HIV.

2.6.4.4. Coping with HIV during pregnancy.

The women in the present study were pregnant at the time of their diagnosis and baseline interview. A study on coping in HIV-negative women with a normal pregnancy has revealed that increased emotion-focussed coping can be associated with older maternal age and high external locus of control (Huizink, Robles de Medina, Mulder, Visser, & Buitelaar, 2002). In addition, both increased emotion- and problem-focussed coping were found to be associated with higher education levels and a more positive primary appraisal of the pregnancy. Although emotion-focussed coping was not associated with psychological distress, it explained some of the variance in distress over the course of the pregnancy (Huizink et al., 2002). Yali and Lobel (2002) as well as Hamilton and Lobel (2008) found that avoidance coping was associated with more psychological distress in HIV-negative women with normal pregnancies. As expected, it was found that active coping is associated with less distress (Yali & Lobel, 2002). With regard to

pregnancy, research suggests that a combination of active and avoidant coping is mostly used and that psychological distress generally remains stable throughout the course of a normal pregnancy (Huizink et al., 2002; Yali & Lobel, 2002).

Very little research has been done on the coping strategies of pregnant women who are living with HIV, particularly on women who were diagnosed during pregnancy. Blaney et al. (2004) investigated the psychosocial and behavioural variables that can be associated with depression in 307 pregnant women who were living with HIV in the USA. Blaney et al. (2004) found that active coping was the most frequently used coping strategy, and that disengagement coping, perceived stress and low social support were significantly associated with higher psychological distress. Higher levels of support from one's partner were associated with lower psychological distress (Blaney et al., 2004). It must be noted, however, that the participant sample varied during the time that they knew their HIV-positive status, and that 59% of the participants had been diagnosed with HIV prior to their current pregnancy.

In a study on HIV-positive mothers who had recently given birth in Thailand, it was found that emotional venting was the most frequently used coping strategy (Bennetts et al., 1999). Other coping strategies that were found to be used frequently included denial and active planning (Bennetts et al., 1999). Similarly, Prado et al. (2004) found avoidant coping strategies to be used more frequently compared to active coping strategies by mothers living with HIV in the USA, who had known their HIV-status for approximately three years. The more prominent use of avoidant coping in HIV-positive mothers was also found in a study by Smith et al. (2001). In a qualitative study by Pittiglio and Hough (2009), it was found that mothers living with HIV in the USA used a combination of active meaning-making and passive tension-reducing coping strategies. Active meaning-making included acceptance of the diagnosis, changing perspective, personal growth, positive lifestyle changes, re-evaluating priorities as well as spirituality. Tension-reducing coping included more emotion-focussed strategies such as distraction and passive reflective activities such as prayer (Pittiglio & Hough, 2009). However, note that Bennetts et al. (1999), Pittiglio and Hough (2009) and Smith et al. (2001) did not indicate the time since diagnosis of their participants.

In conclusion, it must be noted that there are numerous ways of classifying coping styles. The distinction between different coping styles, particularly problem- and emotion-focussed coping remains having an immense influence on the manner in which stress and coping are

conceptualised and studied today. In particular, it is widely agreed upon that emotion and logical decision-making are integral to a conceptualisation of coping (Carver & Connor-Smith, 2010; Skinner et al., 2003).

However, distinctions between coping styles have been criticised for not being theoretically clear and comprehensive (Skinner et al., 2003). To this end, there is no consensus on what specific coping strategies are included under the various coping styles. Some coping strategies are as a result difficult to classify and may be sorted into more than one coping style (Skinner et al., 2003). For example, distraction, which is generally viewed as a disengagement way of coping, may also be seen as an engagement coping strategy, as it involves purposefully engaging in alternative enjoyable activities. With regard to problem- and emotion-focussed coping, some coping strategies such as social support and helping others cannot really be associated with either coping style (Skinner et al., 2003). In addition, little consensus has been reached regarding the exact terms and definitions of specific coping styles and strategies. As a result, countless different coping terms exist that refer to similar coping strategies and coping styles (Carver & Connor-Smith, 2010).

Despite these criticisms, progress has been made in developing a deeper understanding of the structure of coping. Research on coping with HIV has provided much insight into how people living with HIV cope with their status and how coping is associated with other psychological and demographic variables. The discussion now turns to the effectiveness of coping strategies.

2.7. COPING EFFECTIVENESS

Central to the discussion of coping with HIV, is dealing with the effectiveness of coping strategies. Numerous authors have suggested criteria for an effective coping strategy. The effectiveness of coping strategies is mostly based on the influence they have on adaptational outcomes, such as psychological, social and physiological variables (Lazarus & Folkman, 1984). Lazarus (1999) states that coping efficacy “depends on the type of person, the type of threat, the stage of the stressful encounter, and the outcome modality – that is, subjective well-being, social functioning, or somatic health” (p. 111). Zeidner and Zaklofske (1996) suggest that an effective coping strategy leads to the resolution of the stressor, a decrease in psychological distress and adverse physiological stress reactions, as well as a return to previous activities and

social functioning. Skinner et al. (2003) suggest that coping strategies that are “organised, flexible, and constructive” are more effective than the “repeated use of rigid, disorganised, or derogatory ways of coping” (p.231).

Within the context of coping with HIV, it has been suggested that coping strategies that are associated with a decrease in psychological distress and improved physiological and health-behaviour outcomes, such as less AIDS-related symptoms, an increased CD4 count, adherence to ARV treatment and safer sexual behaviour, are more effective (Moskowitz et al., 2009). For this reason, active coping strategies are generally considered to be more adaptive and effective in coping with HIV, whereas avoidant coping strategies are considered to be more maladaptive and ineffective. This was supported by findings from a meta-analytic study of coping effectiveness by Moskowitz et al. (2009) who found active coping strategies to be more beneficial for the physical and mental health of people living with HIV. Avoidant coping strategies, particularly behavioural disengagement, substance use, distancing and social isolation were found to be substantially less effective (Moskowitz et al., 2009).

It has also been argued that the effectiveness of a particular coping strategy is based on the “continuing fit with situational demands and opportunities provided by the environmental conditions” (Lazarus, 1999, p. 122). For this reason, it has been suggested that coping effectiveness is based on the specific nature of the stressful situation and the context within which the coping strategy is actualised. As a result, criteria for the effectiveness of a coping strategy may change over time (Lazarus, 1999; Temoshok, 2000). Coping strategies that may be generally viewed as maladaptive or ineffective may be experienced as effective in certain circumstances. Lazarus and Folkman (1984) maintain that it may be more effective to cope in an emotion-focussed style when facing stressful situations that are perceived to be uncontrollable or unchangeable. In contrast, stressful situations that are perceived to be changeable or controllable are more likely to be effectively addressed with a problem-focussed coping style (Lazarus & Folkman, 1984). The reasoning behind this is that, when confronted with uncontrollable stressful circumstances, it may be more adaptive to preserve one’s resources and resort to more avoidant-based coping strategies (Skinner et al., 2003). Lazarus (1999) maintains that the use of avoidant-based coping strategies, such as denial, can yield both positive and negative outcomes. Although denial can be detrimental to one’s psychological and physical well-being, Lazarus (1999) suggests that denial may be highly adaptive immediately after a stressor first appears, but may then become maladaptive as time

progresses. Lazarus and Folkman (1984) maintain that some people need to “feel worse before they can feel better; in order to get relief they first need to experience their distress acutely” (p. 150), and use emotion-focussed coping strategies such as denial, self-blame or emotional venting immediately after facing a stressful situation. However, these emotion-focussed coping strategies are not effective in the long-term and need to eventually make way for more problem-focussed coping strategies (Carver & Connor-Smith, 2010).

Research on coping with HIV supports this contextual view of coping effectiveness. In a study on 264 women living with HIV in the USA, it was found that avoidant coping strategies did not have a significantly negative influence on psychological well-being and physical symptoms in the early stages of HIV-infection (Moneyham et al., 1998). Moneyham et al. (1998) suggest that avoidant coping strategies may be effective during the early stages of HIV-infection, as the absence of AIDS-related symptoms may cause uncertainty with regard to how to deal with the illness. However, as the individual develops more AIDS-related symptoms, the effectiveness of avoidant coping strategies will decrease. The use of active coping strategies will then be more effective as the physical health of the HIV-positive person deteriorates (Moneyham et al., 1998).

With regard to the effectiveness of coping and its connection with the time that has elapsed since HIV diagnosis, Moskowitz et al. (2009) found that the effectiveness of certain coping strategies to improve physical and psychological well-being changed over time. It was found that direct action became increasingly less effective in improving physical health as time progressed since HIV diagnosis. Furthermore, social support and distancing were found to become less effective in improving psychological well-being over time. In contrast, self-control as a form of coping with HIV was found to become more effective in improving psychological well-being as time progressed (Moskowitz et al., 2009).

The effectiveness of a coping strategy is also dependent on the subjective experiences of the individual using the coping strategy. In a multinational study by Eller et al. (2010) women and men living with HIV rated the perceived effectiveness of the coping strategies that they used. It was found that distraction was the most frequently used coping strategy and considered to be the most effective coping strategy (Eller et al., 2010). In relation to this, Ashton et al. (2005) found that the level of satisfaction people living with HIV had in the social support they received played a significant role in the ultimate effectiveness of their social support. It was found that greater social support satisfaction related to substantially better physical health outcomes

compared to dissatisfaction with social support (Ashton et al., 2005). These findings suggest that the effectiveness of a coping strategy has a subjective component which plays an important role in the individual's choice of coping strategies.

Lastly, some research suggests that low socio-economic status may influence the effectiveness of coping with HIV. Stein (1996) found in her qualitative study on the coping strategies of HIV-positive women and men in Johannesburg, South Africa, that avoidant coping served as a form of protection from negative emotions and thoughts. Using avoidant coping strategies such as avoidance and distraction allowed the participants to experience less stress and released them from the constant weight of worry and stigmatisation (Stein, 1996). Similarly, Dageid and Duckert (2008) found that avoidance coping strategies such as escape, disengagement and minimisation were most often used by women living with HIV in Limpopo, South Africa. Dageid and Duckert (2008) argued that although their coping styles may be seen as maladaptive from a Western perspective, the coping styles used by the women "cannot be separated from the culture and context in which it is situated" (p. 188). All the women in Dageid and Duckert's (2008) participant sample were from the Sepedi culture and lived in impoverished living conditions. In the Sepedi culture avoiding confrontation and restricting one's expression of emotions are generally encouraged. Dageid and Duckert (2008) concluded that the main aim of the women's coping strategy was "to solve tasks of physical, psychological and social survival" (p. 182). In the light of these and other similar findings in studies in sub-Saharan Africa (Amuyunzu-Nyamongo et al., 2007), it has been suggested that avoidance coping strategies may be seen as survival strategies for women living with HIV that have limited social, financial and material resources. Coping in an avoidance-based manner may therefore be appropriate and even effective in the context of poverty (Tischler, 2009). The present study endeavoured to gain a deeper understanding of the adaptiveness of avoidance-based coping in newly diagnosed HIV-positive women by investigating the connections between avoidant coping and various psychosocial and demographic variables.

It can therefore be concluded that coping strategies are not inherently effective or ineffective. Numerous contextual, temporal and subjective factors influence the ultimate effectiveness of a coping strategy (Lazarus & Folkman, 1984; Moskowitz et al., 2009; Pearlin & Schooler, 1978; Skinner et al., 2003; Temoshok, 2000). The conclusion can consequently be made that coping effectively with HIV demands that people living with HIV use a wide variety of coping strategies

in different frequencies over time. The discussion now turns to coping as a dynamic process and the way coping strategies are used over time.

2.8. COPING WITH HIV AS A PROCESS

According to the cognitive-phenomenological theory of stress and coping, coping is a continuously changing process that changes in response to the changing relationship between the person and the stressful environment (Lazarus & Folkman, 1984). Consequently, efforts to cope with illness can be expected to change over time. In this regard, limited research has been done on changes in the way coping strategies are used over time in people living with HIV, since the diagnosis, and as the disease progresses.

Kubler-Ross (1969) identifies five stages of adjusting to the diagnosis of a terminal illness:

- The first stage is denial, which entails the unwillingness to accept the reality of the diagnosis. Denial is usually accompanied by negative emotions such as shock and fear.
- The second stage is anger. As denial decreases and the person starts to face the reality of the diagnosis, anger and bitterness may develop. The person may become angry at other people, healthy people and even God.
- The third stage is bargaining. In this stage, the person decides to bargain, often with God, to receive improved health and more time to live in exchange for better behaviour. People in this stage may become uncharacteristically charitable and pleasant.
- The fourth stage is depression. In this stage the person acknowledges that little can be done about the situation. As a result, psychological distress may increase and physical health may decrease in this stage.
- The fifth stage is acceptance and entails the acceptance of the diagnosis and deteriorating physical health. At this stage, people may be too weak to be depressed or angry and may alternatively become more at peace with their situation (Kubler-Ross, 1969).

Although these stages of adjustment may be useful in exploring coping over time, it must be noted that with the advent of ARVs, HIV-infection and AIDS is generally no longer considered to be a terminal illness, and people living with HIV may live for many years after becoming infected with HIV (Coetzee & Spangenberg, 2003). Kubler-Ross's (1969) stages of adjustment may

therefore not necessarily be directly reflected in the way people who live with HIV cope with their HIV-positive status.

Numerous studies support the notion that, from the point of diagnosis onwards, people living with HIV experience varying emotional and psychological reactions and employ various coping strategies in response to being diagnosed as HIV-positive (Chida & Vedhara, 2009). However, whether there is a specific developmental course (similar to Kubler-Ross's stages) in the way coping strategies are used over time by people living with HIV is still uncertain. It has been suggested that changes in the way coping strategies are used over time may be linked to HIV disease progression, the presence of AIDS-related symptoms, changing levels of psychological distress and prior use of coping strategies (Chida & Vedhara, 2009; Fleishman et al., 2003; Moneyham et al., 1998).

In a study by Reeves et al. (1999) the coping strategies used over time by 18 women and men living with HIV in the USA were qualitatively explored. The participants were diagnosed between 18 months and 13 years prior to the study. It was found that the coping strategies used by the participants changed markedly from immediately after diagnosis to later on in their lives. Reeves et al. (1999) found three main coping stages that people living with HIV go through.

The first stage occurs immediately after diagnosis. In this stage the coping strategies were found to be highly emotionally as well as behaviourally focussed and participants reported the experience of intense emotional reactions to the diagnosis including fear and anger. In addition, some participants reported attempting to continue their lives as if nothing had happened and engaged in risky behaviour such as substance abuse and unsafe sexual acts. Although some participants tried to blunt the diagnosis out, others actively searched for information to help them prepare for their future. Coping strategies used within the first stage after diagnosis included denial, behavioural and mental disengagement, substance use and information seeking (Reeves et al., 1999).

The second stage can be described as a stage of transition, during which time the participants came to the realisation that the coping strategies that they had been using up until that point had not been effective. This stage became a time of regaining control over their lives and purposefully confronting their situation. During this stage, people living with HIV may use more

active coping strategies, such as direct action, helping others and social support (Reeves et al., 1999).

The third stage can be described as the stage in which the participants purposefully lived with their HIV-status with greater acceptance. This stage was characterised by five prominent coping strategies, namely humour, religion, altruism, maintaining balance and seeking the support of other people. Humour was used to cope with the changes in their lives and sometimes a darker kind of humour was used to deal with particularly threatening health-related issues. Religion was used in the form of faith and trust in God, prayer and meditation. Altruism was the most frequently reported coping strategy. Participants indicated that they had the desire to make a difference and help other people. Moreover, the participants aimed to maintain as much balance in their lives as possible, so that HIV would not rule their lives. Finally, seeking social support became a more prominent coping strategy at this stage in the participants' lives. The participants reported that seeking social support immediately after diagnosis was difficult for them, as they seldom engaged in social support prior to their diagnosis and felt like they did not need it. Additionally, participants indicated that after being diagnosed with HIV, they realised that they do not have to be in control all the time and started to be more open to being in supportive relationships where support was provided and received (Reeves et al., 1999).

Reeves et al. (1999) found distinct changes in the focus of coping strategies as they were used over time by their participants. It was found that immediately after diagnosis coping strategies tended to be more reactive as participants responded to the threat of the diagnosis and dealt with intense emotions. As time progressed, coping strategies became more proactive as participants started to confront their situations more actively. It was also found that coping strategies immediately after diagnosis were indicative of less control, as participants perceived that they had little control over their behaviour and situations. Over time, participants gained a greater sense of empowerment and coping strategies became more indicative of greater control. Lastly, coping strategies immediately after diagnosis were found to be more self-centred, but became progressively more other-centred over time (Reeves et al., 1999).

Quantitative studies on coping with HIV from diagnosis onwards have also yielded meaningful results. Lieberich et al. (1997) investigated the coping strategy use of recently diagnosed women and men living with HIV in the USA. Coping strategies were measured by means of a semi-standardised interview schedule at two occasions. The baseline interview was conducted

in the first few months after diagnosis, whereas the follow-up interview was held 18 months later. At baseline, it was found that goal-oriented action coping was the most frequently used coping strategy, followed by logical problem analysis, seeking social support, passive acceptance, perceptual defence and fighting spirit coping. At the follow-up interview, the coping strategy used remained largely the same. However, it was found that perceptual defence, diversion and self-reproach decreased significantly from baseline to follow-up. Religion and philosophic orientation as a coping strategy were found to have increased in the same time period. The conclusion can therefore be made that people living with HIV gradually use more active coping strategies and less avoidant coping strategies as time progresses (Lieberich et al., 1997).

A few South African studies have explored coping in newly diagnosed people living with HIV. Olley (2006) conducted a quantitative study on 105 newly diagnosed women living with HIV in Cape Town, South Africa. The women's coping strategies were assessed at two time points with the Brief COPE (Carver, 1997). The baseline interview was conducted at least one year after diagnosis and the follow-up interview was conducted six months later. The women were not pregnant at the time of the study. It was found that acceptance, religion, emotional support, instrumental support and planning were the most frequently used coping strategies (Olley, 2006). In turn, denial, behaviour disengagement, humour and substance use were the least frequently used coping strategies. From baseline to the six-months follow-up interview, Olley (2006) found that denial, self-blame, behavioural disengagement and venting of emotions decreased significantly, whereas acceptance, emotional support, positive reframing and planning increased significantly.

In an analysis of the same data with the only difference being the inclusion of recently diagnosed HIV-positive men, Olley, Seedat and Stein (2006) found a similar coping use pattern. No significant differences were found between the coping strategy use of HIV-positive women and those of men (Olley et al., 2006). Regarding changes in coping over time, it was found that denial and venting of emotions decrease significantly, whereas instrumental and emotional support as well as positive reframing, planning and acceptance increased significantly over the six-month study period (Olley et al., 2006).

In another similar study, Myint and Mash (2008) quantitatively investigated the coping strategies of 120 recently diagnosed women and men living with HIV in KwaZulu-Natal, South Africa. The

participants completed the Brief COPE (Carver, 1997) two weeks after being diagnosed as HIV-positive. Myint and Mash (2008) found that emotional support was the most frequently used coping strategy, followed by acceptance, positive reframing, religion, active coping and planning. Disengagement, venting emotions and denial were the least frequently used coping strategies (Myint & Mash, 2008).

In summary, the literature on coping with HIV suggests that coping with HIV is a dynamic process and that different coping strategies are used over time. In the light of these findings it was predicted in the present study that active coping was less frequently reported at baseline, but that it gradually increased at follow-up interviews. Furthermore, it was predicted that avoidant coping strategies would be more frequently reported at baseline, but would gradually decrease at follow-up interviews.

2.9. CONCLUSION

In this chapter the theoretical background and academic literature pertaining to coping with HIV were discussed. It is clear that women living with HIV in developing countries, such as South Africa, are under severe strain. Women living with HIV face numerous challenges which are aggravated within the context of poverty and social inequalities. For this reason, coping effectively with HIV is essential, as it has proven to be an important factor for enhanced psychological and physical well-being.

Despite the extensive research that has been done on coping with HIV, there still remain certain gaps in the literature. To this end, little is known about the way pregnant women, who were diagnosed with HIV during pregnancy, cope. In addition, there is a need for longitudinal South African research on the way coping strategies are used over time. Research on coping with HIV should also be particularly sensitive to the socio-economic circumstances and disease stage of participants, as the literature seems to support the notion that these two factors play important roles in the coping process. The present study aims to fulfil these needs by focussing on women who were diagnosed during pregnancy and their use of coping strategies over the first two years after diagnosis. The participants in the present study are a homogeneous group with regard to socio-economic status and disease status, thus giving better insight into the way in which the

use of coping strategies changes over time. The following chapter presents a detailed description of the methodology that was used in the present study.

CHAPTER 3 – Research Methodology

The present study is a sub-study of the Serithi research project. In this chapter a discussion of the methodological procedures that were used in the Serithi project and the present study is presented. The chapter is divided into two parts. The first part focuses on the larger Serithi project and presents a detailed description of the project's research design, sampling procedure, data collection procedures and ethical considerations. The second part of this chapter focuses on the present study and entails a discussion of its research design, hypotheses, measuring instruments, data analysis procedures and ethical agreements.

3.1. THE SERITHI PROJECT

The Serithi research project followed a longitudinal research design and was conducted from 2003 to 2007. The project started with a baseline study, where participants were interviewed over a period of two years to gain a better understanding of the role stigma played in newly diagnosed HIV-positive pregnant women's status disclosure as well as their preferences regarding infant feeding. The findings obtained from the baseline study were used to develop an intervention that was implemented in the second phase of the project. The present study made use of the data from the baseline study where there was no intervention.

Data collection took the form of four structured interviews. The first interview (referred to as the baseline interview) was held approximately four weeks after diagnosis. The subsequent follow-up interviews were held six, 12 and 21 months later. The data that were captured therefore spanned over approximately two years. The data collection procedure will be described in greater detail in Section 3.1.2. Permission was obtained from Dr. Makin (project leader) to use data from the Serithi project for the present study. The following sections present a detailed discussion of the sampling method, data collection procedure and ethical considerations of the Serithi research project.

3.1.1. Sampling

Purposive sampling was used to recruit participants for the Serithi research project. Purposive sampling is a non-probability sampling technique that entails the sampling of participants based on the specific aims of the study (Whitley, 2002). VCT counsellors at Atteridgeville, Saulsville, Phomelong and Mamelodi antenatal clinics in Tshwane were tasked with recruiting newly diagnosed HIV-positive pregnant women for the study. The VCT counsellors were provided with training with regard to recruitment, the research process as well as HIV- and AIDS-related information that would help them in their roles as recruiters. The counsellors were paid a small monthly fee for their assistance in the study.

The participant recruitment phase of the study was done over a period of two years. The counsellors approached 438 pregnant women who had recently tested positive for HIV and asked them whether they would be interested in participating in the research project. Women who agreed to participate in the study met with a research assistant who explained the study aims and procedure to them more extensively. The only inclusion criterion for participation in the study was that the pregnant women had to have been diagnosed with HIV for the first time during the current pregnancy. Exclusion criteria included: being younger than 15 years old, testing HIV-positive prior to the current pregnancy, and indicating that it was likely that they would move away from Tshwane during the study period. A total of 293 newly diagnosed HIV-positive pregnant women agreed to participate in the study. Women who agreed to participate were required to sign a consent form (see Appendix) and an appointment was then made for their first interviews.

3.1.2. Data Collection Procedure

Data were collected by means of four structured interviews. For more information on the interview schedule please refer to Section 3.2.3. The baseline interview was conducted approximately four weeks after diagnosis. Participants were approximately 28 weeks pregnant during the time of the baseline interview. The follow-up interviews were held three, nine and 18 months after the birth of the infant. These specific follow-up intervals were chosen, because

they were the intervals scheduled for routine clinic visits for immunisation of the infants. The follow-up interviews were therefore conducted approximately six, 12 and 21 months after the baseline interview had taken place. The data collection phase of the study therefore spanned approximately two years.

The interviews were conducted in the vernacular of the participant by research assistants. The research assistants recorded the participants' responses verbatim onto the printed interview schedule. Each interview lasted between one and two hours and was held at the clinics where the participants were recruited. Transport money was provided to participants after each interview session.

All research assistants received special training to equip them for performing their responsibilities. The training sessions were led by senior researchers from the University of Pretoria and Yale University. The content of the training sessions included information regarding the research process, the collection of data, interviewing techniques, general administration of the interview schedule and basic HIV and AIDS information. In addition, each research assistant was required to conduct at least one interview under the supervision of a senior researcher in order to ensure that the correct procedures were followed.

The data were captured by the research assistants onto a Microsoft Access database and checked by the project leader. The database was checked regularly to make sure that the data had been captured in the correct manner. Thereafter, the data were exported to Microsoft Excel and Statistical Package for the Social Sciences (SPSS) 19.0 for Windows software programme® for analysis.

3.1.3. Ethical Considerations

The Serithi research project obtained ethical approval from the Faculty of Health Sciences Research Ethics Committee of the University of Pretoria (Protocol number 209(a)), as well as from the Human Investigation Committee of the Yale University, School of Medicine. All

participants who agreed to participate in the project signed an informed consent form (see Appendix). Specific attention was given to keep all data confidential and not to make the HIV-positive status of the participants public through their involvement in the project. This was done by removing all names and other related personal information from the data captured in the database. Therefore, the database did not contain any information that could be used to identify the participants and was kept separate from the names and addresses of the participants. The data files as well as the names and personal information of the participants were securely locked and only the project leader and the research assistants had access to it. With regard to contacting participants either telephonically or by visiting their homes, care was taken to protect the confidentiality of the women's HIV-positive status and their participation in the study.

3.2. THE PRESENT STUDY

This section includes a description of the methodology that was used in the present study. Attention is given to describing the present study's research design, hypotheses, measuring instruments, data analysis procedures and ethical agreements.

3.2.1. Research Design

As mentioned previously, the present study used the quantitative data obtained from the Serithi research project. Quantitative research can be described as a systematic and objective process whereby numerical data are obtained from a participant sample with the intention of making generalised inferences about the population under study (Maree & Pietersen, 2010). The quantitative research approach is based on the positivistic view of science which proposes that scientific inquiry should rely on meticulous empirical observations and aim to discover underlying patterns of behaviour (Neuman, 2006).

3.2.2. Hypotheses

As discussed in Section 1.5.2, three research questions were used to guide the present study. These research questions are the following:

- (1) What are the coping strategies that HIV-positive women who were diagnosed during pregnancy use in the first two years after diagnosis?
- (2) Is there a developmental course in the way that HIV-positive mothers use coping strategies over time?
- (3) What demographic and psychosocial variables relate to changes in the use of active and avoidant coping over time?

In order to answer these research questions, the researcher formulated a number of hypotheses. These hypotheses were formulated in the light of previous research results concerning coping with HIV and AIDS (refer to Chapter 2). With regard to research questions one and two above, the following is hypothesised:

- Avoidant coping strategies will be more frequently reported at the baseline interview and will gradually decrease in frequency at follow-up assessments.
- Active coping strategies will be less frequently reported at the baseline interview, but will gradually increase in frequency in follow-up assessments.

With regard to the third research question, the following is hypothesised:

- An increased active coping strategy score is related to disclosure of HIV-positive status, high self-esteem, positive social support, high HIV-knowledge, low depression and low internalised stigma scores.
- An increased avoidant coping strategy score is related to non-disclosure of HIV-positive status, low self-esteem, negative social support, low HIV-knowledge, high depression and high internalised stigma scores.

3.2.3. Measurement Instruments

The interview schedule¹ was divided into three sections. The first section consisted of questions pertaining to participants' medical history and present health, demographic information as well as their family relationships. The second section included questions regarding the participants' personal experiences of HIV testing and being diagnosed as HIV-positive as well as their experiences of disclosure, stigma, violence and social support. The third section of the interview schedule focussed on the participants' HIV-knowledge, self-esteem, depression and coping strategies.

The interview schedule was developed by members from the Sertihi research team, which included members from the University of Pretoria and Yale University. Exploratory focus group discussions were held with healthcare professionals at Kalafong Hospital as well as with Atteridgeville community members in order to gain better insight into the issues that should be addressed in the interview. Relevant academic literature and critical discussions amongst research team members also contributed to the development of the interview schedule.

Because most of the women did not speak English as their first language, it was decided to translate the interview schedule into Sepedi, Tswana, Zulu and Afrikaans. The translations were done by the Department of African Languages at the University of South Africa. To ensure that the interview schedule was understandable and not too long, it was piloted using 30 pregnant women who attended Atteridgeville, Saulsville, Phomelong or Mamelodi antenatal clinics. Changes were made to the interview schedule in accordance with the information gained from the pilot interviews. A discussion of the measuring instruments that were used to collect data in the study now follows.

3.2.3.1. Participant demographic characteristics.

In order to gain better insight into the participant sample, questions concerning their personal details and demographic information were asked. This included inquiries about the participants'

¹ The interview schedule is available on request.

age, home language, marital status, education level as well as where and with whom the participant stayed. Participants were also asked about their housing conditions, employment status and monthly household income so as to better understand their socio-economic circumstances.

Other questions that were posed included whether they knew anyone else who was HIV-positive as well as whether they had experienced any form of violence in the form of emotional, physical or sexual abuse or financial withholding. Information regarding HIV-status disclosure was obtained by means of a question about whether or not they had disclosed their HIV-positive status to anyone. Lastly, participants were also asked whether they were using ARVs.

3.2.3.2. Coping.

An adapted version of the Brief COPE (Carver, 1997) was used to measure the coping strategies used by the participants. The Brief COPE is a shortened version of the COPE Inventory (Carver et al., 1989). The original format of the Brief COPE questionnaire consists of 14 coping scales and 28 items. For the purposes of the Serithi study, the questionnaire was adapted to include 15 coping scales and 25 items which focussed specifically on HIV. Participants were asked to indicate how often they used a particular coping strategy. Participants had three options, namely 'most of the time', which received a score of '2', 'some of the time', which received a score of '1' and 'almost never', which received a score of '0'. Most scales had two corresponding items, although some had only one item. The final scores for each coping scale were computed by adding the scores of the two corresponding items. When a scale had only one item, the score of that item was doubled in order to get the final score for that scale. Consequently, each coping scale score is counted out of six.

In an exploratory factor analysis of the Serithi data (Makin et al., 2008) two factors, namely active and avoidant coping, were found. The following is a list of the eight active coping strategies and at least one corresponding item of each coping strategy:

- Acceptance ('I learn to live with HIV')

- Direct action ('I take responsibility to protect my and other people's health')
- Religion ('I put my trust in God')
- Positive reframing ('I look for something good in what is happening')
- Emotional support ('I get comfort and understanding from people')
- Instrumental support ('I talk to someone with similar experience to find out how best to handle the situation')
- Information seeking ('I try to get as much information as I can about HIV')
- Helping others ('I support other people with HIV')

Avoidant coping included the remaining seven coping strategies. The following is a list of the avoidant coping strategies and at least one corresponding item of each coping strategy:

- Distraction ('I keep myself busy to take my mind off HIV')
- Denial ('I refuse to believe that this has happened to me')
- Escape ('I wish I could escape from this situation')
- Emotional venting ('I get upset and fight with other people')
- Out-of-control ('I do not feel in control of my health')
- Self-blame ('I feel that it is my fault that I got HIV')
- Substance use ('I use alcohol and drugs to help me get through it')

Makin et al. (2008) found the Cronbach reliability coefficient of the Brief COPE for this sample of HIV-positive pregnant women to be 0.63, which is average. Active coping were found to have a reliability coefficient of 0.75 and avoidant coping a reliability coefficient of 0.54.

3.2.3.3. Stigma.

The Serithi stigma scale (Visser et al., 2008) was developed by the Serithi research team. The scale is an adaptation of the stigma of HIV/AIDS scale (Westbrook & Bauman, 1996). The Serithi stigma scale consists of two sub-scales, namely internalised stigma and attributed stigma. The purpose of the internalised stigma scale was to measure the extent to which the participant had internalised stigmatic beliefs about being HIV-positive into her/his self-concept. The internalised stigma scale consists of two sub-scales that measure two aspects of internalised stigma, namely moral judgment and interpersonal distancing. The internalised stigma scale consists of 12 items such as 'People with HIV should be ashamed of themselves' and 'I think less of myself because I have HIV' (moral judgment), as well as 'I feel uncomfortable around people when they know my status' (interpersonal distancing).

The attributed stigma scale aimed at measuring the extent to which the participant viewed the community as holding stigmatising views towards people who are HIV-positive. The attributed stigma scale consists of 12 similar items such as 'Most people believe that if you have HIV you must have done something to deserve it' (moral judgment), and 'Most employers would not hire someone with HIV to work for them' (interpersonal distancing). Both the internalised and attributed stigma scales have four response options, namely 'strongly agree', 'agree', 'disagree', and 'strongly disagree'. Visser et al. (2008) and Makin et al. (2008) found the Cronbach alpha coefficient of the internalised stigma scale to be 0.70 and that of the attributed stigma scale to be 0.77.

3.2.3.4. Social support.

An adapted version of the Multidimensional Social Support Inventory (MSSI) (Bauman & Weiss, 1995) was used to measure the participant's perceived level of social support. In a factor analysis of the adapted MSSI data, two distinct factors were identified, namely positive support and negative support. The positive support category included nine items measuring practical, affirmational and emotional support. Negative support was measured by three items regarding unwanted help and advice, being dominated, and not having one's wishes respected.

Participants were required to indicate whether a certain type of support was available to them by answering either 'yes' or 'no'. In addition, the participants had to indicate to what extent the specific type of support was available to them. The response categories were 'as much as I need (a lot)', 'quite a lot (some)' and 'only a little'. Bauman and Weiss (1995) recorded a satisfactory internal consistency of 0.80 for the MSSI. Makin et al. (2008) found the Cronbach's alpha coefficient of the positive support category to be 0.87, whereas the coefficient of the negative support category was found to be 0.56, which is poor.

3.2.3.5. HIV-knowledge.

The participants' knowledge regarding HIV and AIDS was measured by a general HIV and AIDS knowledge scale adapted from the World Health Organisation's (WHO) Research Package (World Health Organisation, 1990). The scale consists of 15 statements about the transmission and presentation of HIV, for example 'All babies born to pregnant women with HIV will get HIV' and 'A person can get HIV by being bitten by a mosquito or similar insect'. The response options for each item were 'true', 'false' or 'don't know'. Visser et al. (2008) found the Cronbach's alpha coefficient of the HIV-knowledge scale in their South African sample to be 0.64, which is acceptable.

3.2.3.6. Decisional Power.

This seven-item scale was developed by members of the Serithi research team. The purpose of the decisional power scale was to measure the extent to which participants had power to make important decisions in the household. Items probed who in the household made decisions regarding the manner in which money was spent, the purchasing of food, the healthcare of children, having more children, feeding methods for infants, the use of contraception, and condom use. Each item had four response options, namely 'respondent', 'husband/partner', 'jointly' and 'others'. The decisional power score was calculated by giving a score of '1' for women who made decisions alone or jointly, and '0' if they did not have input in decisions made. The internal consistency of the scale was found to be 0.62, which is satisfactory (Makin et al., 2008).

3.2.3.7. Self-esteem.

The Rosenberg Self-Esteem (RSE) scale (Rosenberg, 1965) was used to measure the self-esteem of the participants. The RSE is a 10-item scale consisting of statements about the individual's values and feelings towards the self, for example 'I feel I have a number of good qualities' and 'I think I am failure'. The participants chose among four response options, ranging from 'strongly agree' to 'strongly disagree'. Small changes in the wording of some items were made to improve cultural appropriateness. The item 'I wish I could have more respect for myself' was found to have given a negative inter-item correlation and was therefore excluded from the data analysis. Participants' scores were adjusted accordingly to allow the score range to remain from 0 to 40. Safren, Radomsky and Otto (2002) found the Cronbach's alpha coefficient of the RSE amongst their HIV-positive participant sample to be 0.86. Makin et al. (2008) recorded a Cronbach's alpha coefficient of 0.75 for this South African sample.

3.2.3.8. Depression.

The Centre for Epidemiologic Studies Depression scale (CES-D) (Radloff, 1977) was used to measure the presence and extent of depressive symptoms among participants. The scale consisted of 20 items, such as 'I was bothered by things that usually don't bother me', 'I felt depressed', and 'My sleep was restless'. Participants were required to indicate how often in the past week they had experienced the emotions and/or behaviour described in each statement. Each item had four response options, namely 'rarely or none of the time (less than one a day in the past week)', 'some or little of the time (1-2 days in the past week)', 'occasionally or a moderate amount of the time (3-4 days in the past week)', and 'most or all of the time (5-7 days in the past week)'. Bird, Bogart and Delahanty (2004) and Simoni and Ng (2000) found the internal consistency reliability of the CES-D for their participant samples to be 0.80 and 0.90 respectively. Because pregnancy-related symptoms may be similar to the somatic symptoms of depression measured by the CES-D (Kalichman, Rompa, & Cage, 2000), somatic symptoms that are similar to HIV-infection and pregnancy were excluded from the scale used in the present study's analysis. A fifteen item scale was thus used. Makin et al. (2008) found the CES-D to have a satisfactory reliability coefficient of 0.88.

3.2.4. Data Analysis

In the present study the researcher conducted a secondary analysis of data obtained in the Serithi research project. A descriptive analysis of the data was used to report participant demographic characteristics as well as the frequencies of coping strategies at each assessment period. For this purpose, means, standard deviations and standard errors were used to describe continuous data. Frequencies and percentages were used to describe categorical data. Instances where data did not follow a normal distribution were described, using ranges and medians.

In order to compare the frequency of each individual coping strategy amongst different assessment periods, paired *t*-tests were conducted. Paired *t*-tests were chosen, as the means that were compared originated from the same participants (Field, 2009). With regard to significance testing, the criterion of 95% confidence was used. Consequently, all *p* values that were less than 0.05 were viewed as statistically significant. Because the present study tested directional hypotheses, all significance testing with regard to the use of coping strategies was one-tailed. In order to determine the practical importance of statistically significant differences, effect sizes were calculated. Pearson's correlation coefficient *r* was used in this regard.

Mixed linear analysis was used to determine the variables that are related to changes in active and avoidant coping. To this end, active and avoidant coping were treated as dependent variables. Variables that were considered to be potentially related to changes in the use of active and avoidant coping were treated as independent variables. Mixed linear analysis was chosen, because it is a repeated measures analysis. Longitudinal data is repeated measures which can be seen as "multilevel data with repeated measurements nested within individuals" (Hox, 2009, p. 79). Another advantage of using mixed linear analysis is that it can be used to analyse longitudinal data sets that have some missing data, as long as the data are missing at random (West, Welch, & Galecki, 2007), which was the case for the Serithi data. This means that a mixed linear analysis does not require all participants to have attended all interviews, nor does it require that all participants attend the interviews at exactly the same time or that the collected data be absolutely complete. Instead, it only requires that each participant attend at least the baseline interview and one follow-up interview (Hox, 2009).

Participants who only attended the baseline interview were excluded from the mixed linear analysis. In order to determine whether there were any significant differences between the participants who only attended the baseline interview and those who attended both the baseline interview and at least one follow-up interview, a comparative analysis was done. The two groups were compared with regard to their demographic and psychological characteristics. Chi-square tests were conducted for categorical data and Fischer's Exact test was used in cases where expected values of less than 5 were found. Continuous data were analysed with student *t*-tests for independent samples. Data that were found not to be normally distributed were analysed by means of the Mann Whitney U test. All statistical analyses were performed with the use of the SPSS 19.0 for Windows software programme®.

3.2.5. Ethical Agreement

The present study received ethical clearance from the ethical committee of the Faculty of Humanities at the University of Pretoria. The researcher of the present study maintained the high ethical standards set by the researchers of the Serithi project by keeping all information regarding the participants and their contributions to the study confidential. All material relating to the study, including the completed questionnaires, data and personal participant information were securely stored to ensure that no unauthorised persons gained access to it.

3.3. CONCLUSION

In this chapter the methodological considerations of the present study were discussed. The present study used quantitative data obtained from the Serithi research project, a longitudinal study conducted in Tshwane. The participants were newly diagnosed HIV-positive pregnant women who were interviewed at four time points. The present study was aimed at identifying what coping strategies were used in the first two years post-diagnosis, whether there was a developmental course in the way coping strategies were used over time, and what demographic and psychosocial variables were related to changes in the use of active and avoidant coping.

The following chapter presents a detailed description of the results obtained in the present study.

CHAPTER 4 – Results

This chapter presents the results of the study. The first part of the chapter is devoted to a description of participant characteristics. This is followed by the results of the coping strategy use, with particular emphasis on the frequency of coping strategies at each assessment period and the way coping strategies change over time. The last part of the chapter outlines the process undertaken to determine the variables that were found to be related to change in active and avoidant coping strategy use.

4.1. PARTICIPANT CHARACTERISTICS

This section focuses on the main demographic characteristics of the participant sample. Results regarding interview attendance as well as participants' socio-demographic, medical and psychological characteristics are reported. In addition, differences between participants whose data were included in the analysis, and participants whose data were excluded from the analysis, are discussed.

4.1.1. Interview Attendance

Out of the 438 women who were invited to participate in the study, 293 (62%) agreed to take part in the baseline interview. A total of 69 women who participated in the baseline interview failed to participate in any further follow-up interviews and were subsequently excluded from the data analysis. A total of 198 (68%) women who participated in the baseline interview took part in the six-months follow-up interview, and 175 (60%) women took part in the 12-months follow-up interview. A total of 166 (57%) women participated in the 21-month follow-up interview. The total sample thus consisted of 224 women (the number of women who attended the baseline

interview and at least one follow-up interview). A large number of participants ($n = 131$) attended all four interviews.

4.1.2. Socio-Demographic Characteristics

Table 4.1 presents the socio-demographic characteristics of the women as recorded at the baseline interview. At the time of the baseline interview, the mean age of the women was 26.5 years. The majority of women were not married, but were in a relationship (68%). Furthermore, most women were living with relatives (81%), and 44% of women lived with their partners.

Table 4.1: Socio-demographic characteristics of participants at baseline (Makin et al., 2008)

Age [mean(sd)]	26.5 (5.1) years
Home language N (%)	
Sepedi	93 (41.5)
Setswana	38 (17.0)
Izizulu	34 (15.2)
Other	59 (26.3)
Marital status N (%)	
Married	43 (19.1)
Single with partner	152 (67.9)
No partner	29 (12.9)
Occupants of house [median]	4
Staying with N (%)	
Partner	98 (43.8)
Other relatives	181 (80.8)

Note. N = Number; sd = standard deviation.

Table 4.2 indicates the educational and socio-economic characteristics of the participants at baseline. Most women had some form of secondary education (76%). A total of 29% of women lived below the poverty line of less than R200 per month, and the median household income

was reported to be R320 per month. A total of 23% of women in the study had employment that provided a regular income. Furthermore, 67% of women in the study reported that their partners had employment with regular income and 71% of women indicated that their partners provided for them financially.

Table 4.2: Educational and socio-economic characteristics at baseline (Makin et al., 2008)

Education level N (%)	
None/primary	21 (9.3)
Some form of secondary	171 (76.3)
Some form of tertiary	32 (14.3)
Household income monthly per-capita [median]	R320
Below poverty line <R200 N (%)	64 (28.6)
Regular income employment N (%)	
Participant	52 (23.2)
Partner	151 (67.4)
Partner providing financial support N (%)	160 (71.4)

Note. N = Number

4.1.3. Health and psychosocial characteristics

Table 4.3 indicates the health and psychosocial variables at baseline. Most women were pregnant with their second child and on average 28 weeks pregnant at the time of the baseline interview. Most women had been diagnosed with HIV between one and four weeks prior to the baseline interview (70%). A total of 40% of women knew someone close to them who were also HIV-positive, 20% of whom were a family member and 29% was a non-relative. With regard to previous experiences of violence and abuse, it was found that emotional abuse was the type of abuse most frequently reported by women participating in the study (25%).

Table 4.3: Health and psychosocial variables at baseline (Makin et al., 2008)

Parity (median)	1
Gravidity (median)	2
Gestational age at baseline interview [mean (sd)]	27.6 (7.0)
Interval since HIV test done N (%)	
<1 week	63 (28.1)
1-4 weeks	94 (42.0)
>4 weeks	67 (29.9)
Know someone with HIV N (%)	89 (39.7)
Relative	44 (19.6)
Non-relative	65 (29.0)
Experiences of past violence N (%)	
Emotional	55 (24.6)
Financial withholding or control	36 (16.1)
Physical	26 (11.6)
Sexual	12 (5.4)
Two or more types of violence	49 (21.9)

4.1.4. Comparison between participants who were excluded and those who were included in the data analysis

Sixty-nine women attended only the baseline interview and their data were subsequently excluded from the analysis. Four out of the 69 women who only attended the baseline interview passed away before the 6-month follow-up interview was held. Table 4.4 indicates the significant differences between participants whose data were included in the study and those whose data were excluded from the study.

Table 4.4: Significant differences between participants who were excluded and those who were included in the data analysis (Makin, 2010)

Variable	Excluded: (only one interview) N = 65	Included: (> 1 interview) N = 224	<i>p</i> value*
Stay with someone else when child born N (%)	20 (30.7)	44 (19.6)	0.03
Housing score [mean (sd)]	2.06 (1.7)	3.2 (1.7)	< 0.001
Share home with partner N (%)	38 (58.5)	97 (43.5)	0.03
Share home with relatives N (%)	45 (69.2)	181 (80.8)	0.04
Total number of people in the house (median)	2	4	0.04
Know someone who is HIV-positive N (%)	16 (24.6)	89 (39.9)	0.02
Clinic N (%)			
Phomelong	26 (40.0)	69 (30.8)	< 0.001
Atteridgeville	7 (10.8)	18 (8.1)	
Saulsville	19 (29.2)	41 (18.3)	
Mamelodi	13 (20.0)	96 (42.9)	

Note. **p* > 0.05, two-tailed.

Women who only attended the baseline interview were found to be significantly more likely to stay with someone else after the birth of the child, to have a lower housing score, to share the home they live in with a partner and to share the home with less people, compared to women who attended all the interviews. Although the largest percentage of participants attended Phomelong clinic, the most participants who attended more than one interview attended Mamelodi clinic. In view of these findings it can be suggested that most of the women who attended only the baseline interview may have only temporarily settled in Tshwane to receive antenatal care and to be with their partners for the birth of an infant, with the intention of moving away once the child was born. Consequently, the main reason for attrition in the present study was that women moved to other areas after giving birth and could not be traced for follow-up interviews. There were no significant differences between the use of coping strategies at baseline of participants whose data were included or excluded in the study. The conclusion can therefore be made that, although the two participant groups differed with regard to a few

demographic characteristics, it did not necessarily influence their performance on the dependent variable of the present study, namely coping. This conclusion influences the generalisability of the results.

4.2. COPING STRATEGIES

This section is divided into three parts. The first and second parts focus on the results regarding the use of coping strategies at each assessment period, with the aim of determining what coping strategies were used most frequently and how coping strategy use changed over time. The third part presents the results of the mixed linear analysis models for active and avoidant coping.

4.2.1. Baseline

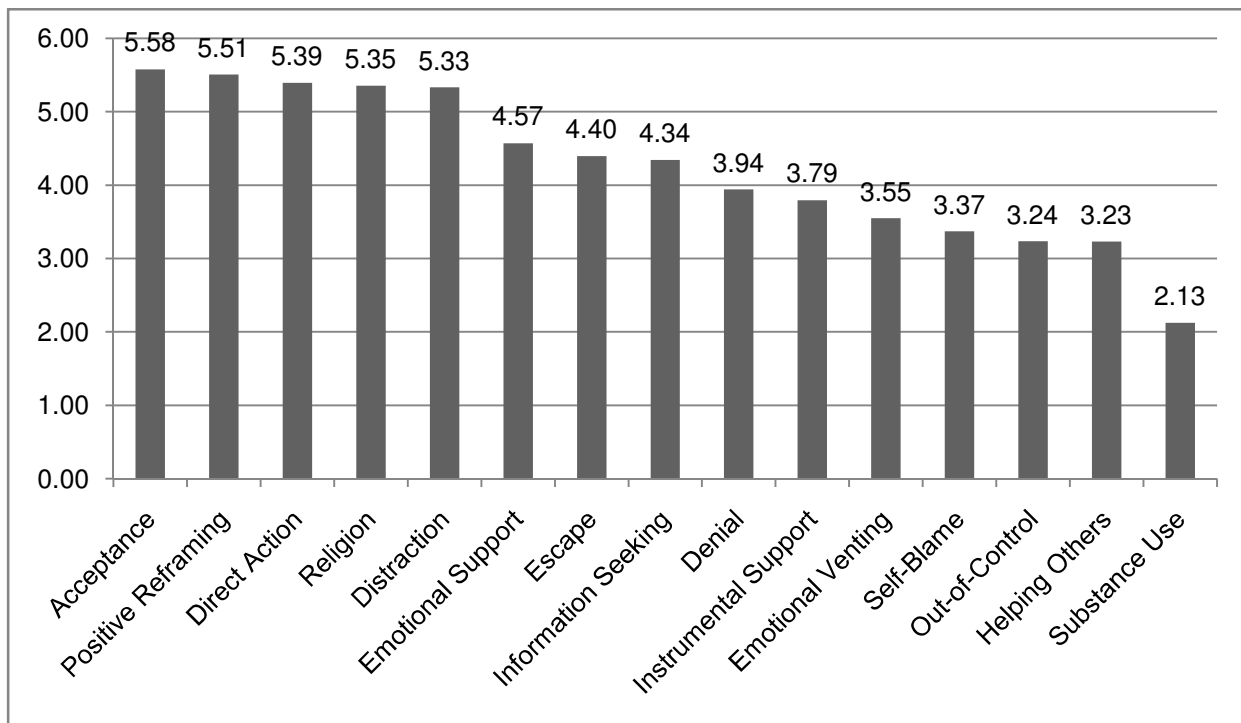


Figure 9.1: Coping strategy use at baseline

Figure 4.1 indicates the use of coping strategies at baseline. Acceptance was the most frequently reported coping strategy, followed by positive reframing, direct action, religion and distraction. Substance use was the least frequently reported coping strategy.

4.2.2. Follow-up interviews and coping over time

Table 4.5: Coping strategy use at baseline, 6-, 12- and 21-months follow-up

Coping Strategy	Baseline	6-months	12-months	21-months
Acceptance	5.58	5.80 [†]	5.82	5.71
Positive Reframing	5.51	5.54	5.63	5.52
Direct Action	5.39	5.69 [†]	5.77	5.70
Religion	5.35	5.70 [†]	5.64	5.58
Distraction	5.33	5.24	5.26	5.29
Emotional Support	4.57	4.76	4.68	4.76
Escape	4.40	4.27	4.25	4.45
Information Seeking	4.34	4.52 [†]	4.59	4.71
Denial	3.94	3.99	3.99	4.42 [†]
Instrumental Support	3.79	4.11 [†]	4.18	4.29
Emotional Venting	3.55	3.62	3.61	3.78 [†]
Self-Blame	3.37	3.23 [†]	3.08 [†]	1.80 [†]
Out-of-Control	3.24	2.98 [†]	2.96	2.70 [†]
Helping Others	3.23	3.70 [†]	4.21 [†]	4.25
Substance Use	2.13	2.06	2.09	2.27

Note. [†]Significant difference compared to previous assessment ($p < 0.05$, one-tailed).

Table 4.5 indicates the mean frequency of use of each coping strategy at all four the assessment periods. Acceptance remained the most frequently reported coping strategy over all assessment periods, followed by direct action, religion, positive reframing and distraction.

Similarly, substance use remained the least frequently reported coping strategy from baseline to 12-months follow-up, after which self-blame became the least used coping strategy.

When considering the changes in the use of each coping strategy over time, a few significant changes can be observed between each assessment period (see Figure 4.2). With regard to the changes in coping strategy use from baseline to six-months follow-up, it was found that acceptance [$t(195) = 3.50, r = 0.2$], direct action [$t(196) = 3.89, r = 0.3$], religion [$t(195) = 3.45, r = 0.2$], information seeking [$t(196) = 1.68, r = 0.1$], instrumental support [$t(196) = 2.42, r = 0.2$] and helping others [$t(196) = 3.72, r = 0.3$] increased significantly. Self-blame [$t(195) = -1.70, r = 0.1$] and out-of-control [$t(174) = -1.93, r = 0.1$] were found to have decreased significantly from baseline to six-months follow-up. The differences can be viewed as small in practical significance when considering the effect sizes.

Coping strategy use remained fairly similar from six- to 12-months follow-up with few significant changes. The only coping strategies that were found to have changed significantly from six- to 12-months follow-up were helping others and self-blame. Helping others [$t(158) = 4.89, r = 0.4$] increased significantly, whereas self-blame [$t(158) = -2.35, r = 0.2$] decreased significantly. The change in the use of helping others can be seen as moderate, whereas the change in the use of self-blame can be viewed as small in practical significance.

With regard to the changes in coping strategy use from 12- to 21-months follow-up, it was found that denial [$t(144) = 3.41, r = 0.3$] and emotional venting [$t(144) = 2.34, r = 0.2$] increased significantly, whereas feeling out-of-control [$t(144) = -2.04, r = 0.2$] and self-blame [$t(143) = -17.89, r = 0.8$] decreased significantly. The changes in the use of denial, emotional venting and out-of-control can be viewed as small in practical significance. However, the change in self-blame was substantial and can be seen as very large in practical significance.

Figures 4.3 and 4.4 indicate the use of respectively active and avoidant coping over the entire study period. Acceptance, positive reframing, direct action and religion were the most frequently used active coping strategies. Helping others was the least frequently used active coping

strategy. With regard to avoidant coping, distraction was found to be the most frequently used coping strategy. Substance use was the least frequently used coping strategy from baseline to 12-months follow-up, after which self-blame became the least frequently used avoidant coping strategy at 21-months follow-up.

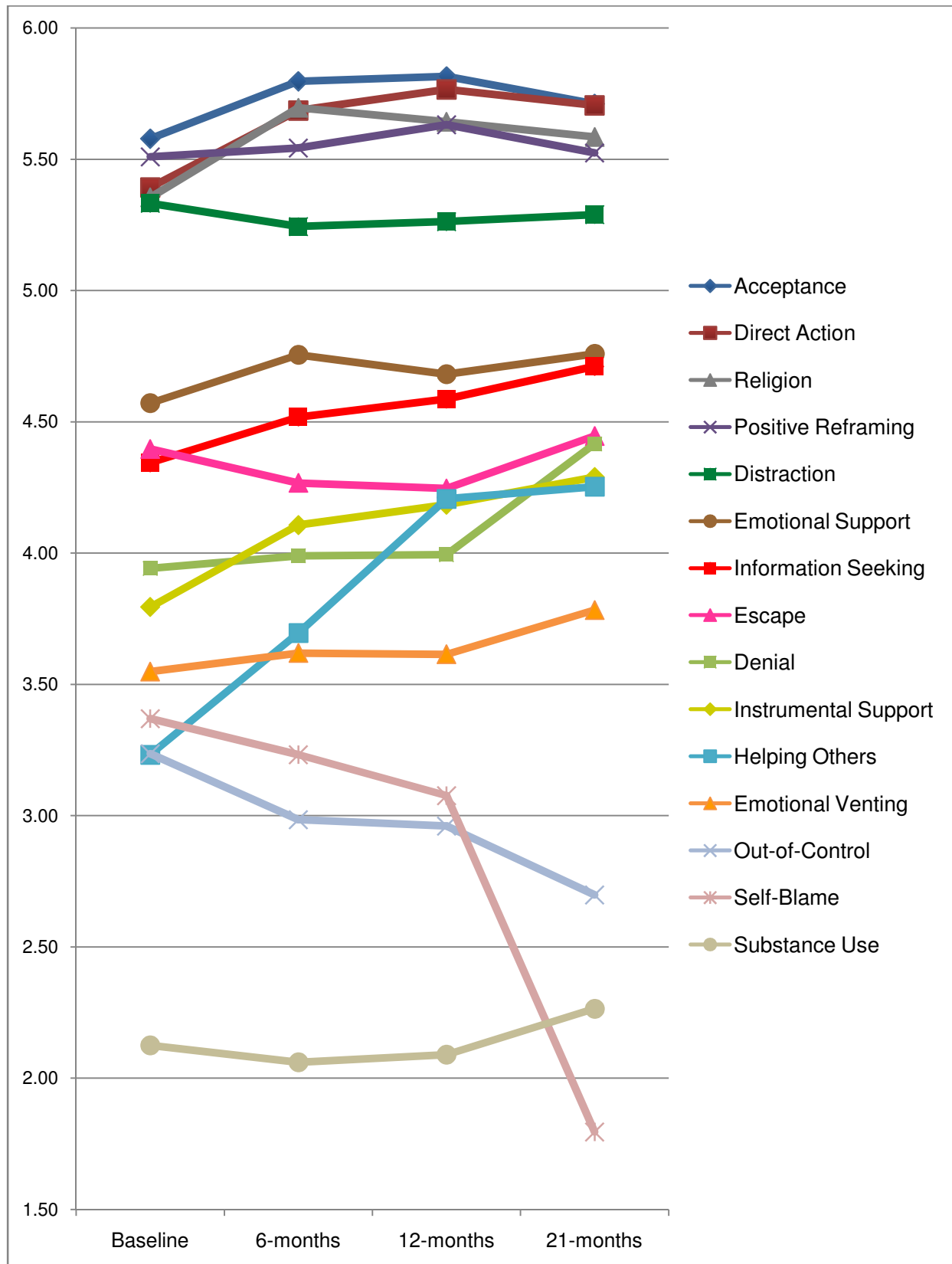


Figure 4.2: Coping strategy use over time

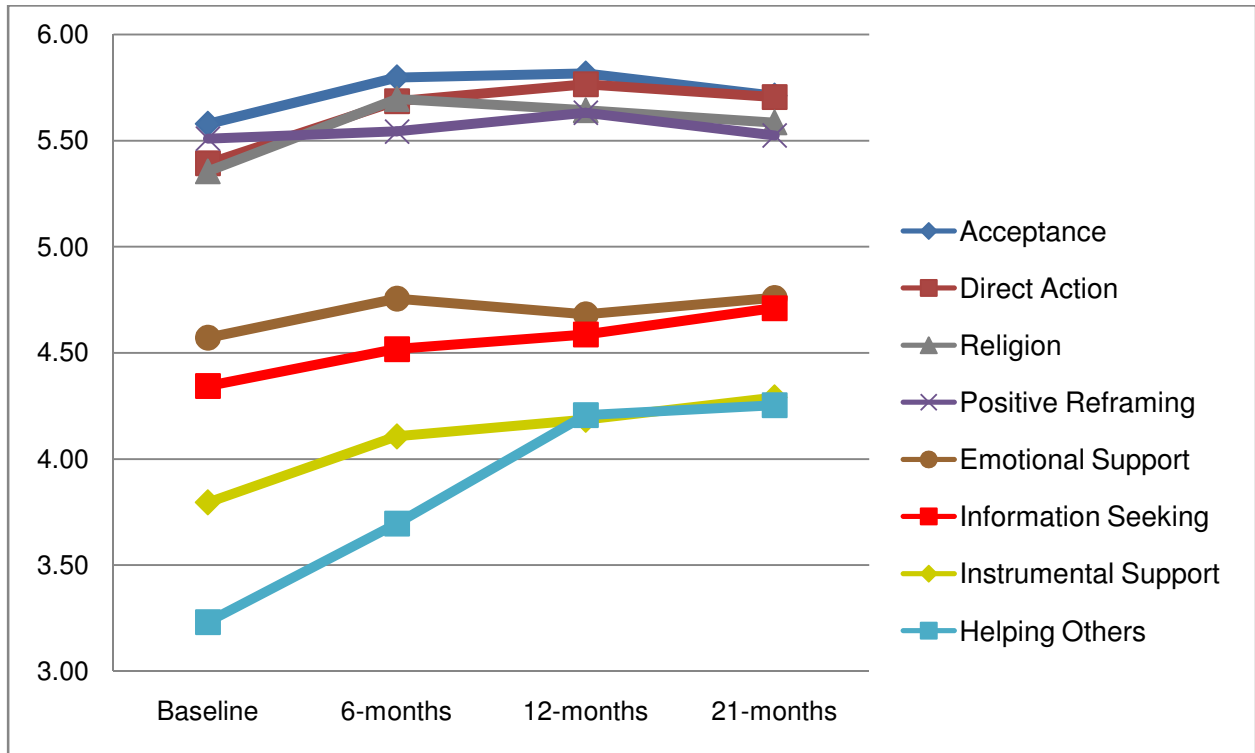


Figure 4.3: Active coping strategy use over time

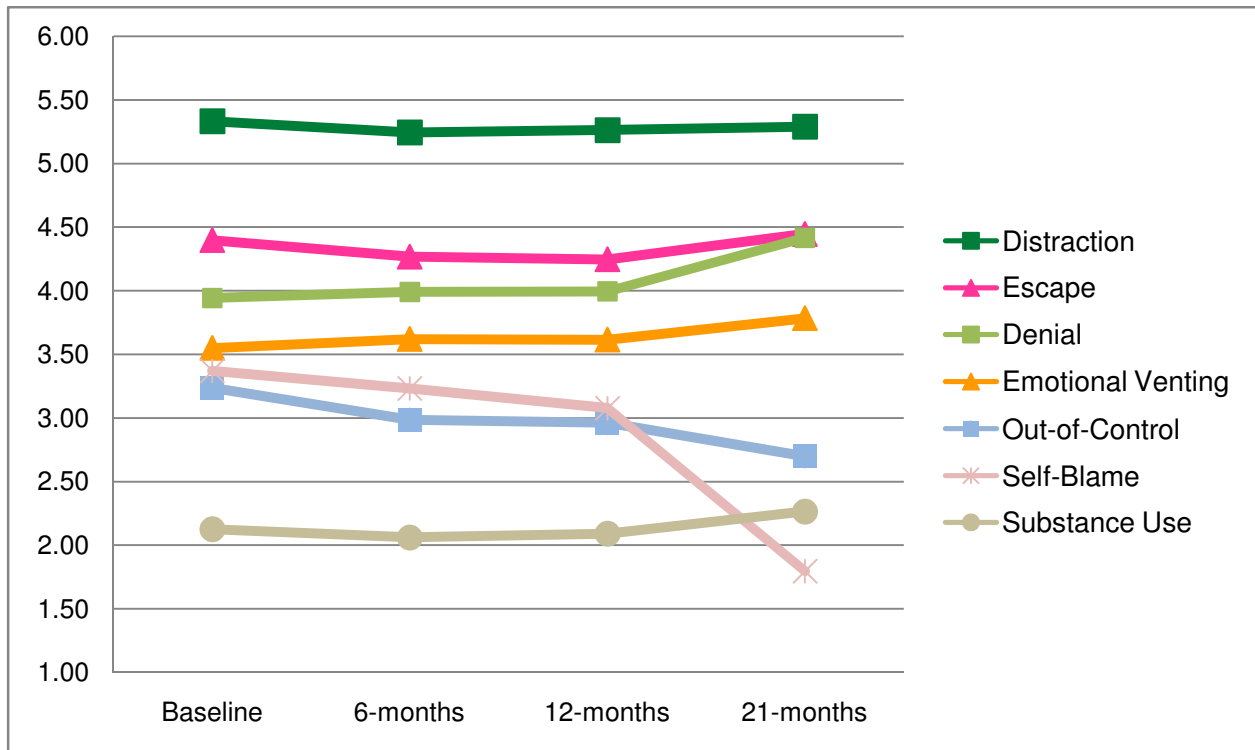


Figure 4.10: Avoidant coping strategies over time

4.2.3. Mixed linear analysis results

In addition to identifying the coping strategies that were used by the newly diagnosed HIV-positive women, and how this use changed over time, the present study aimed to identify variables that were related to changes in the use of active and avoidant coping strategies. In order to do this, a mixed linear analysis was conducted. This section delineates the procedure undertaken as well as the results of the analysis.

Table 4.6: Categorical variables potentially associated with coping (Makin, 2010)

Variable	Baseline N = 224	6-months N = 198	12-months N = 175	21-months N = 166
Categorical N (%)				
Marital status:				
Married	43 (19.2)	40 (20.2)	39 (21.7)	40 (24.2)
Single living with partner	58 (25.9)	45 (22.7)	41 (22.8)	30 (18.2)
Single not living with partner	94 (42.0)	79 (39.9)	60 (33.3)	60 (36.4)
No partner	29 (12.9)	34 (17.2)	40 (22.2)	35 (21.2)
Share home with outsiders	7 (3)	12 (6)	10 (6)	7 (4)
Share home with relatives	181 (80.8)	163 (85.3)	154 (86.0)	134 (80.7)
Women working	68 (29.5)	65 (32.8)	66 (36.7)	77 (46.4)
Partner providing support	160 (72)	143 (73)	114 (66.7)	114 (70)
Per capita income above poverty line	159 (71)	134 (69.1)	124 (69.3)	116 (70.7)
Disclosure	138 (62)	160 (81)	179 (84.4)	166 (91)
Receiving ARV treatment	0 (0)	0 (0)	19 (10.6)	23 (13.9)

Table 4.7: Continuous variables potentially associated with coping (Makin, 2010)

Variable	Baseline N = 224	6-months N = 198	12-months N = 175	21-months N = 166
Continuous variables Mean (sd) / Median (range)				
Median per capita income	320 (0-3000)	325 (0-3000)	300 (0-2500)	333 (13-2000)
Housing score	3.2 (1.7)	3.2 (1.6)	2.7 (1.4)	2.8 (1.3)
Decisional power	4.3 (1.8)	4.7 (1.7)	5.0 (1.7)	5.4 (1.4)
Internalised stigma	4.5 (2.6)	3.9 (2.3)	3.3 (2.3)	3.3 (2.6)
Attributed stigma	9.9 (2.4)	9.3 (2.7)	9.4 (2.7)	9.1 (3.1)
Positive support	18.6 (6.4)	19.4 (5.8)	19.9 (5.3)	19.6 (4.9)
Negative support	1.9 (2.3)	1.9 (2.3)	1.6 (2.0)	2.6 (2.5)
Depression	12.2 (8.8)	7.3 (7.7)	8.8 (9.4)	11.1 (10.7)
Self-esteem	31.5 (4.0)	32.5 (3.9)	32.0 (3.4)	34.3 (3.9)

In order to identify independent variables that were associated with the dependent variables (active and avoidant coping), variables that had the theoretical potential to be associated with coping were selected and treated as independent variables. Tables 4.6 and 4.7 present a list of the chosen independent variables that were thought to be associated with active and avoidant coping. The variables were treated as varying over time. Tables 4.6 and 4.7 only present data relating to women who attended all four interviews. However, they do provide some insight into how these variables changed in frequency over the study period. Note that, although Tables 4.6 and 4.7 omit the data of women who attended less than four interviews, mixed linear analysis can be used on data sets with missing data (see Section 3.2.4). Each of the chosen independent variables was entered into a separate repeated measures mixed linear model. Independent variables entered into the model that had a *p* value of less than 0.25 were then entered into the full model. Two separate mixed linear models were created, one for active coping and one for avoidant coping. Independent variables entered into the mixed linear models included demographic variables as well as psychological and other related variables. All of these variables had the potential to change over time and were treated as such in the setting up of the analysis. Time to each interview was entered into each model. This continuous variable was calculated by subtracting the date of the follow-up interviews from the date of the baseline interview. In this way, the fact that some women may not have attended their interviews at the

same gestational age and at slightly different follow-up times was taken into consideration. Table 4.8 indicates the variables entered into the full models for active and avoidant coping respectively.

Table 4.8: Variables included in the full models for active and avoidant coping respectively

Active Coping		Avoidant Coping	
Independent variable	<i>p</i> value*	Independent variable	<i>p</i> value*
Violence <2 ^a	0.064	Violence <2 ^a	0.009
Depression	<0.0001	Depression	<0.001
Knowledge	0.001	Knowledge	<0.0001
Self-esteem	<0.0001	Self-esteem	<0.0001
Time to interview	<0.0001	Time to interview	0.001
Internalised stigma	<0.0001	Internalised stigma	<0.001
Disclosure	<0.001	Disclosure	0.028
Positive support	<0.001	Negative support	0.024
Marital status	0.056	Partner support	0.130
Know someone with HIV	0.001	Attributed stigma	0.054
Below poverty line	0.005	Level of education	0.014
Decisional power score	0.067		

Note. **p* < 0.25, two-tailed.

^aExperiencing two or more types of violence.

In order to create the most accurate and parsimonious models for active and avoidant coping, a backward stepwise procedure was performed. In conducting this procedure, independent variables with *p* values greater than 0.05 had been removed from the models one by one. Once all variables with *p* values greater than 0.05 were removed, the final models for active and avoidant coping were created. Tables 4.9 and 4.12 indicate the final mixed linear analysis models for active and avoidant coping respectively.

4.2.3.1. Mixed linear analysis model for active coping.

Table 4.9 indicates the estimated regression coefficient for each variable that was entered into the active coping model as well as its standard error, p value and confidence interval. The coefficient indicates the number of units that the outcome variable increased or decreased for every unit that the independent variable increased. The direction of the coefficient indicates whether the relationship between the independent variable and the outcome variable (active coping) was positive or negative (Field, 2009).

Table 4.9: Active coping after the elimination of non-significant variables

Parameter	Estimate	Std. Error	p value*	95% Confidence Interval	
				Lower	Upper
Intercept	29.67	1.36	>0.0001	27.00	32.34
Internalised Stigma	-0.15	0.05	0.006	-0.26	-0.04
Self-Esteem	0.07	0.03	0.047	0.001	0.13
Knowing someone with HIV [KnowHIV=.00]	-0.87	0.34	0.014	-1.55	-0.17
[KnowHIV=1.00] ^a	0 ^a	0		.	.
Living above the poverty line [Poverty line=.00]	-0.61	0.29	0.040	-1.19	-0.02
[Poverty line=1.00] ^a	0 ^a	0		.	.
Depression	-0.05	0.01	0.001	-0.07	-0.02
Positive Support	0.18	0.021	>0.0001	0.13	0.22
Time to interview [ARVs=.00]	0.05	0.014	>0.0001	0.02	0.08
[ARVs=1.00] ^a	-1.47	0.55	0.008	-2.56	-0.37
[ARVs=1.00] ^a	0 ^a	0		.	.

Note. ^a = Reference category, Std. Error = Standard Error.

* $p < 0.05$, two-tailed.

Table 4.9 can be interpreted as follows: As internalised stigma and depression scores decreased, active coping scores increased. As scores for self-esteem, positive support, knowing someone who is HIV-positive, living above the poverty line, not taking ARVs and time increased, scores for active coping increased. Variables that relate to an increased active coping score therefore include:

- low internalised stigma
- low depression
- high self-esteem
- high positive support
- knowing someone who is HIV-positive
- living above the poverty line
- not taking ARVs
- progression of time.

Conversely, variables that relate to a decreased active coping score include high internalised stigma and depression, low self-esteem and positive support, not knowing someone who is HIV-positive, taking ARVs and living below the poverty line.

Table 4.10 indicates the estimated means scores for active coping at each interview. These estimated mean scores were calculated based on the variables included in the final mixed linear analysis model for active coping

Table 4.10: Active Coping – Estimated mean scores at each interview

Interview Time	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Baseline	32.492 ^a	0.372	31.76	33.224
6-months	33.164 ^a	0.388	32.401	33.927
12-months	33.803 ^a	0.338	33.138	34.467
21-months	33.565 ^a	0.336	32.903	34.227

Note. ^a = Based on the final model.

As part of the mixed linear analysis, pairwise comparisons were made between the estimated means scores of active coping at each time point to establish significant differences in the use of active coping over time. Because pairwise comparisons entail the comparison of several means, a Bonferroni adjustment was carried out. This was done because conducting multiple significance tests may increase the probability of a Type I error, which is the increased probability of accepting an effect that does not actually exist. The Bonferroni adjustment decreases the probability of committing a Type I error. It does so by ensuring that the Type I error rate remains 0.05 across all comparisons by controlling the level of significance for each comparison test (Field, 2009). The results of the pairwise comparisons after performing a Bonferroni adjustment for the multiple comparisons are presented in Table 4.11.

Table 4.11: Active Coping – Pairwise comparisons to compare estimated mean scores among interviews

(I) interview	(J) interview time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower	Upper
Baseline	6-months	-1.305*	.299	.000	-2.096	-.513
	12-months	-2.064*	.309	.000	-2.881	-1.247
	21-months	-1.930*	.317	.000	-2.768	-1.092
6-months	baseline	1.305*	.299	.000	.513	2.096
	12-months	-.760	.320	.107	-1.606	0.87
	21-months	-.626	.328	.342	-1.494	.243
12-months	baseline	2.064*	.309	.000	1.247	2.881
	6-months	.760	.320	.107	-.087	1.606
	21-months	.134	.333	1.000	-.749	1.016
21-months	baseline	1.930*	.317	.000	1.092	2.768
	6-months	.626	.328	.342	-.243	1.494
	12-months	-.134	.333	1.000	-1.016	.749

$p < 0.05$

It was found that the baseline estimated mean of active coping differed significantly compared to the six-, 12-, and 21-months follow-up ($p < 0.05$). To this end, the estimated mean of active coping was found to be significantly higher at all three follow-up interviews compared to the baseline interview. Note that the estimated means of active coping at six- and 12-months as well as 12- and 21-months were not significantly different.

Figure 4.5 illustrates the manner in which active coping use changed over time. Figure 4.5 can be explained as follows: The estimated mean of active coping increased significantly from baseline to six-months follow-up. Thereafter, it increased from six- to 12-months follow-up.

However, this increase was not found to be significant. From 12- to 21-months follow-up there was a slight decrease in the estimated mean of active coping. However, this decrease was not found to be significant.

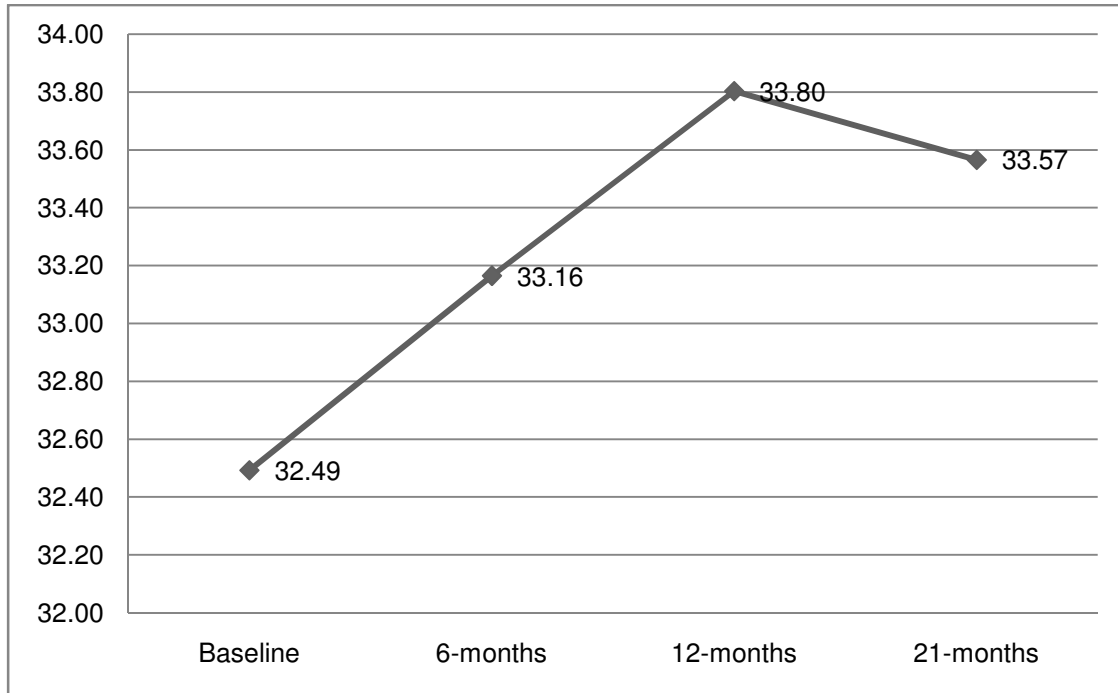


Figure 4.11: Active coping over time

4.2.3.2. Mixed linear analysis model for avoidant coping.

Table 4.12 presents the estimated regression coefficient for each variable that was entered into the avoidant coping model (parameter) as well as its standard error, *p* value and confidence interval. As mentioned previously, the coefficient indicates the number of units that the outcome variable increased or decreased for every unit that the independent variable increased. Furthermore, the direction of the coefficient indicates whether the connection between the independent variable and the outcome variable (avoidant coping) was positive or negative (Field, 2009).

Table 4.12: Avoidant coping after elimination of non-significant variables

Parameter	Estimate	Std. Error	p value*	95% Confidence Interval	
				Lower	Upper
Intercept	18.44	0.92	<0.0001	16.62	20.25
HIV-Knowledge	-0.14	0.05	0.006	-0.23	-0.04
Internalised Stigma	0.15	0.03	<0.0001	0.08	0.21
Self-Esteem	-0.12	0.02	<0.0001	-0.16	-0.07
Level of Education - below tertiary	0.54	0.26	0.039	0.03	1.05
Level of Education - tertiary	0 ^a	0	.	.	.
Depression	0.02	0.01	0.006	0.01	0.03
Interview Time	0.02	0.01	0.027	0.002	0.03

Note. ^a = Reference category.

* $p < 0.05$, two-tailed.

Table 4.12 can be interpreted as follows: As scores for HIV-knowledge and self-esteem decreased, scores for avoidant coping increased. As scores for internalised stigma, depression, education of below tertiary level and time increased, scores for avoidant coping increased. Variables that relate to an increased avoidant coping score therefore include:

- low HIV-knowledge
- low self-esteem
- high internalised stigma
- high depression
- an educational level of below tertiary
- progression of time.

Conversely, variables that relate to a decreased avoidant coping score include high HIV-knowledge and self-esteem, low internalised stigma and depression as well as educational level of tertiary and above.

Table 4.13 indicates the estimated means scores for avoidant coping at each interview. These estimated mean scores were calculated based on the variables included in the final mixed linear analysis model for avoidant coping.

Table 4.13: Avoidant Coping – Estimated mean scores at each interview

Interview Time	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Baseline	14.188 ^a	0.181	13.832	14.545
6-months	13.874 ^a	0.186	13.508	14.240
12-months	14.056 ^a	0.191	13.680	14.433
21-months	14.575 ^a	0.172	14.237	14.913

Note. ^a = Based on the final model.

As part of the mixed linear analysis, a pairwise comparison was conducted on the estimated mean scores for avoidant coping at each assessment time point. The pairwise comparison was conducted in order to detect any significant change in the use of avoidant coping over time. As mentioned previously, these estimated mean scores were calculated based on the variables included in the final mixed linear analysis model for avoidant coping. The results of the pairwise comparisons after performing a Bonferroni adjustment are presented in Table 4.14. It was found that the estimated means of avoidant coping only differ significantly between six- and 21-months follow-up ($p < 0.05$). To this end, it was found that avoidant coping increased significantly from six- to 21-months follow-up. Note that no other significant mean differences were observed.

Table 4.14: Avoidant Coping – Pairwise comparisons to compare estimated mean scores among interviews

(I) interview time	(J) interview time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower	Upper
Baseline	6-months	.314	.204	.751	-.229	.858
	12-months	.132	.221	1.000	-.456	.720
	21-months	-.387	.198	.313	-.915	.141
6-months	baseline	-.314	.204	.751	-.858	.229
	12-months	-.183	.205	1.000	-.728	.363
	21-months	-.701*	.197	.003	-1.226	-.177
12-months	baseline	-.132	.221	1.000	-.720	.456
	6-months	.183	.205	1.000	-.363	.728
	21-months	-.519	.221	.120	-1.108	.071
21-months	baseline	.387	.198	.313	-.141	.915
	6-months	.701*	.197	.003	.177	1.226
	12-months	.519	.221	.120	-.071	1.108

Note. Based on estimated marginal means.

* $p < 0.05$

Figure 4.6 illustrates the manner in which avoidant coping use changed over time. Figure 4.6 can be explained as follows: The estimated mean of avoidant coping decreased from baseline to six-months follow-up. Thereafter, the estimated mean increased somewhat from six- to 12-months follow-up. A further increase was found from 12- to 21-months follow-up. However, none of these changes in use were found to be significant.

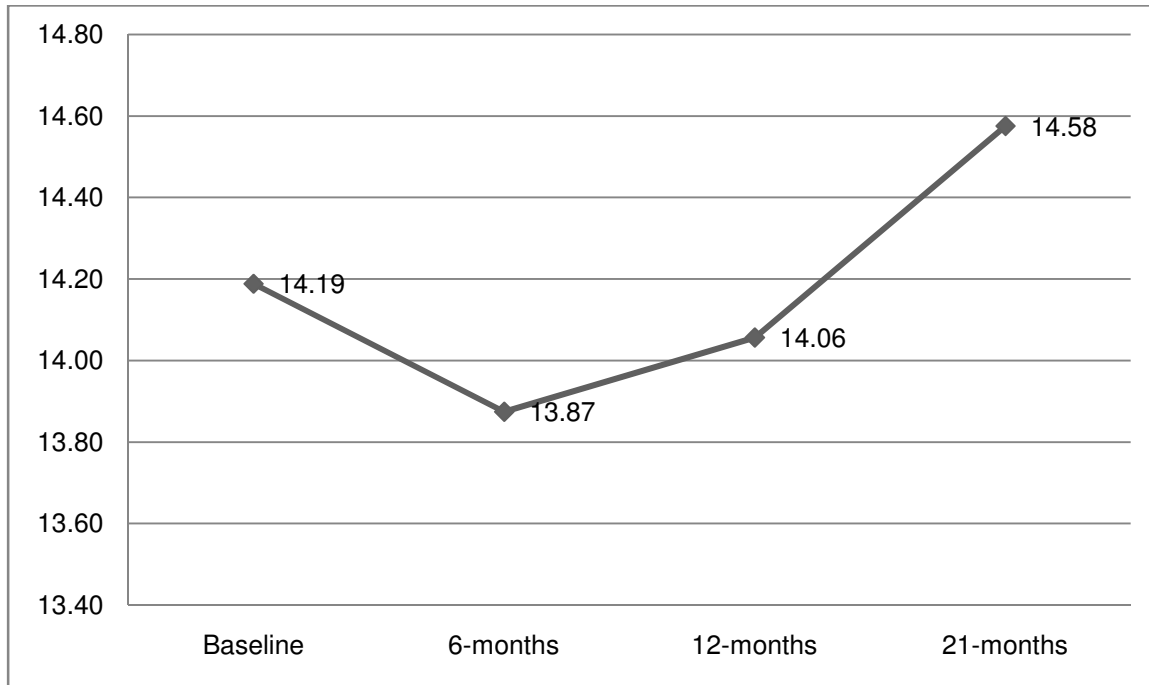


Figure 4.12: Avoidant coping over time

4.3. CONCLUSION

In this chapter, the results of the study were presented. The participant characteristics were discussed, with particular emphasis on interview attendance as well as the demographic, medical and psychological characteristics of the participant sample. The use of coping strategies at each assessment period was described and significant changes over time were noted. It was found that acceptance, direct action, positive reframing, religion and distraction, were the most frequently used coping strategies at all assessment periods. Active coping strategies were found to be consistently more frequently used compared to avoidant coping strategies. Self-blame, helping others and out-of-control were found to change the most drastically in frequency over the study period. In addition, the results of the mixed linear analysis models for active and avoidant coping were presented. The next chapter presents a discussion of the implications of the results.

CHAPTER 5 – Discussion and Conclusion

This chapter presents a discussion of the findings of the present study. The chapter commences with a brief overview of the study and a summary of the main findings. Thereafter a discussion of the results within the context of current psychological literature and theory is presented. This is followed by a discussion of possible limitations in the study. The chapter concludes with recommendations for further research, improved practice and for policy in view of the research findings.

5.1. OVERVIEW OF THE PRESENT STUDY

The present study sought to investigate how HIV-positive women, who had been diagnosed during pregnancy, cope with their HIV-positive status. With this purpose in mind, the study was aimed at answering the following research questions:

- (1) What are the coping strategies that HIV-positive women who were diagnosed during pregnancy use in the first two years after diagnosis?
- (2) Is there a developmental course in the way that HIV-positive mothers use coping strategies over time?
- (3) What demographic and psychosocial variables relate to changes in the use of active and avoidant coping over time?

The participant sample consisted of 224 recently diagnosed pregnant women who attended antenatal clinics in Mamelodi or Atteridgeville in Tshwane. Data were collected by means of four structured interviews which were conducted over a period of approximately two years. The baseline interview was conducted approximately four weeks after diagnosis at 28 gestational weeks. The first follow-up interview was conducted six months after the baseline interview at

three months postpartum. The second follow-up interview was conducted 12 months after the baseline interview at nine months postpartum. Lastly, the third follow-up interview was conducted 21 months after the baseline interview at 18 months postpartum. Each interview consisted of a series of questions regarding the women's health, socio-economic status and family relationships as well as quantitative scales measuring coping, social support, stigma, self-esteem, depression and HIV-knowledge. Two overarching coping styles were identified, namely active and avoidant coping. Active coping consisted of eight coping strategies, namely acceptance, direct action, positive reframing, religion, emotional support, instrumental support, helping others and information seeking. Avoidant coping consisted of seven coping strategies, namely distraction, escape, denial, emotional venting, out-of-control, self-blame and substance use. A descriptive analysis of the data was used to report the participant demographic characteristics as well as the frequencies of coping strategies at each assessment period. Coping strategy use differences over time were determined through paired *t*-tests and mixed linear analysis was used to determine the variables at baseline that are related to changes in active and avoidant coping.

The main findings of the study can be summarised as follows:

- Active coping was used consistently more frequently, compared to avoidant coping, throughout the study.
- The most frequently used coping strategies were found to be acceptance, direct action, positive reframing, religion and distraction.
- With regard to a possible developmental course in the use of coping strategies over time, it was found that:
 - The use of active coping strategies increased significantly in the first year after diagnosis ($p > 0.05$).
 - The use of avoidant coping strategies increased significantly from six- to 21-months after diagnosis ($p > 0.05$).
 - Self-blame decreased substantially over the two-year period after diagnosis.
 - Out-of-control also decreased markedly over the two-year period after diagnosis.
 - Helping others increased substantially over the two-year period after diagnosis.
 - In general, coping strategy use were initially more inwardly focussed, and increasingly more outwardly focussed as time progressed.

- Active coping was found to be related to the following demographic and psychosocial variables:
 - low internalised stigma
 - low depression
 - high self-esteem
 - high positive support
 - knowing someone who is HIV-positive
 - living above the poverty line
 - not taking ARVs
 - progression of time.

- Avoidant coping was found to be related to the following demographic and psychosocial variables:
 - low HIV-knowledge
 - low self-esteem
 - high internalised stigma
 - high depression
 - an educational level of below tertiary
 - progression of time.

A more in-depth discussion of these findings now follows.

5.2. DISCUSSION OF RESULTS

This section consists of a discussion of the results of the study. The psychosocial and demographic variables that were found to be related to changes in active and avoidant coping

are discussed. This is followed by a discussion of the use of active and avoidant coping over time.

5.2.1. Psychosocial and demographic variables related to changes in coping

One of the main aims of the present study was to determine what psychosocial and demographical variables are related to the use of active and avoidant coping over time. Section 4.2.3 delineates the procedure that was undertaken in the analysis of the data to arrive at these results. It was hypothesised that an increased active coping score would be related to the disclosure of HIV-positive status, high self-esteem, positive social support, high HIV-knowledge, as well as low depression and low internalised stigma scores (see Section 3.2.2.). The results confirm the hypothesis that high self-esteem, positive social support, low depression and low internalised stigma scores were related to active coping. Although HIV-knowledge was found to be related to avoidant coping, no connection between HIV-knowledge and active coping was found. In addition, the results failed to confirm a connection between active coping and HIV-status disclosure.

Regarding avoidant coping, it was hypothesised that an increased avoidant coping score would be related to the non-disclosure of HIV-positive status, low self-esteem, negative social support, low HIV-knowledge, high depression and high internalised stigma scores. The results confirm the hypothesis that avoidant coping is related to low self-esteem, low HIV-knowledge, high depression and high internalised stigma. No significant connection was found between avoidant coping and negative social support. The results were not able to confirm a connection between avoidant coping and the non-disclosure of HIV-status. Note that the connections that are discussed here are not necessarily of a causal nature. The results of the present study only indicate that an increase or decrease in psychosocial and demographic variables are related to the increase in coping, however it does not indicate to what extent the psychosocial and demographic variables play a role in causing the coping responses. As suggested by Lazarus (1999), the possibility exists that the dynamic between coping and psychosocial and demographic variables is circular. For example, having low self-esteem may cause a person to use avoidant coping strategies. Yet at the same time, the use of avoidant coping strategies such as self-blame, may contribute to the further decrease in a person's self-esteem, setting off the further use of avoidant coping strategies. In keeping with social cognitive theory (see Section

2.1), it is likely that psychosocial and demographic variables and coping influence each other bi-directionally. A discussion of the psychosocial and demographic variables that were found to be related to active and avoidant coping now follows.

5.2.1.1. Depression, self-esteem and coping with HIV.

In accordance with previous research (Chan et al., 2006; Pence et al., 2008; Prado et al., 2004), the results of the present study revealed that low depression scores are related to active coping, whereas high depression scores are related to avoidant coping. With regard to self-esteem, the results from the present study were also similar to those of previous research (Stein & Rotherham-Borus, 2004; Trevino et al., 2007). It was found that high self-esteem was related to active coping, whereas low self-esteem was related to avoidant coping. The findings of the present study therefore suggest that newly diagnosed women living with HIV, who use more avoidant coping strategies, are more likely to have low self-esteem and high levels of depression, whereas those who use more active coping strategies are more likely to have high self-esteem and low levels of depression.

5.2.1.2. Internalised stigma and coping with HIV.

In the present study it was found that low internalised stigma was related to the use of active coping, whereas high internalised stigma was related to the use of avoidant coping. Although very little research has focussed on the connection between coping and internalised stigma, it has been suggested that internalised stigma is associated with psychological distress, less social support and not knowing other HIV-positive people (Lee, Kochman, & Sikkema, 2002; Simbayi et al., 2007).

Research by Rohleder and Gibson (2006) as well as Stein (1996) has underscored the profound way in which HIV-infection can influence the personal identity of women who live with HIV. After the discovery of their HIV-positive status, the negative perceptions that the women previously had of HIV-positive people, became part of their own identity and the way they see themselves. In addition, the women have to deal with the social consequences of being HIV-positive, such as rejection by others and the loss of certain personal goals. As a result, newly diagnosed HIV-positive women face the challenge of converging their personal identity with their HIV-positive

status. In this regard, it has been found that some newly diagnosed women who live with HIV struggle with their stigmatised identity. Although some women found a way to adapt and resist their stigmatised identity, others remained in a state of turmoil and were more inclined to accept the stigmatised identity. The latter subsequently display greater internalised stigma as well as self-blaming tendencies (Rohleder & Gibson, 2006; Stein, 1996). When considering this and the findings of the present study, it can be suggested that newly diagnosed HIV-positive women who use predominantly active coping strategies, are more likely to have adapted adequately regarding the struggle between personal identity and HIV-positive status, compared to women who use predominantly more avoidant coping strategies.

5.2.1.3. Positive social support and coping with HIV.

Positive practical, affirmational and emotional support was found to be related to active coping in the present study. Women who reported receiving a high level of positive social support are thus more likely to report more frequent use of active coping strategies. It must be noted that, because emotional and instrumental social support was part of the active coping scale, it was expected that social support would correlate with those items in the active coping scale. Numerous studies have revealed the important role positive social support plays in improving the psychological well-being of people living with HIV (Deichert et al., 2008; Mellins et al., 2000; Prado et al., 2004). In addition, there is evidence that suggests that social support, including interpersonal relationships and support groups, acts as a buffer against harmful physical health outcomes and the social consequences of being HIV-positive (Ashton et al., 2005; Blaney et al., 2004). The findings of the present study therefore reaffirm the important role that social support plays in improving the well-being and active coping of women who live with HIV.

5.2.1.4. Knowing someone who is HIV-positive and coping with HIV.

Results from the present study indicate that knowing someone who is HIV-positive is related to more active coping. Previous research indicates that women living with HIV benefit greatly from engaging with other women who are also HIV-positive. Medley et al. (2009) found that because women living with HIV shared similar difficulties, engaging with one another gave them a sense of camaraderie and allowed them to accept their HIV-positive status. Knowing other people who

are also HIV-positive can therefore facilitate better adjustment to being diagnosed with HIV. Moreover, the women who participated in the present study are expected to meet increasingly more HIV-positive people as time progresses. These people may form part of a women's social support network from which they can draw strength.

5.2.1.5. Poverty, education level and coping with HIV.

The connection between poverty and HIV has received attention in recent years and has sparked interesting debates regarding the nature of the HIV pandemic globally (Gillespie, Kadiyala, & Greener, 2007; Gillespie, Greener, Whiteside, & Whitworth, 2007; Van Niekerk, 2001). The results of the present study indicate that living above the poverty line is related to active coping. In addition, level of education can be related to the issue of poverty. To this end, some studies incorporate level of education into estimated socio-economic status (Updegraff, Taylor, Kemeny, & Wyatt, 2002). In the present study, it was found that having an education level lower than tertiary level was related to avoidant coping. These findings correspond with previous research that has found that people living with HIV, who have more resources in the form of income and education, are more able to give positive meaning to their HIV-positive status and to use problem-focussed coping strategies (Updegraff et al., 2002). Similarly, Blalock, McDaniel and Farber (2002) found that people living with HIV, who were employed, reported a significantly higher quality of life compared to unemployed HIV-positive people. It has also been found that people living with HIV, with low education and income levels, are more prone to psychological distress and more often tend to turn to avoidant coping strategies (Dageid & Duckert, 2008; Koopman, et al., 2000; Reece et al., 2007; Stein, 1996). In this regard, Updegraff et al. (2002) suggest that higher income and education level aid in benefit-finding and the use of more active coping strategies in people living with HIV, by expanding their social sphere and by providing them with the opportunity to "feel stronger, [be] more compassionate, and [be] more appreciative of life" (p. 390).

This corresponds with the conservation of resources theory, which proposes that coping with stress is influenced by one's personal, social and economic resources (Hobfoll, 1989). According to the conservation of resources theory, people endeavour to preserve and increase their resources, such as income, employment and education. It is proposed that these resources play an important role in protecting people against psychological distress, as the resources are used to cope with stress. For that reason, people with more resources are

expected to cope better with stress compared to those who have fewer resources (Hobfoll, 1989; Updegraff et al., 2002). The findings of the present study therefore highlight the value of socio-economic and educational resources in improving the well-being of newly diagnosed women living with HIV.

5.2.1.6. ARV treatment and coping with HIV.

The results of the present study indicate that not receiving ARV treatment is related to active coping. Eleven percent of the women in the study reported that they had started ARV treatment at the 12-month follow-up interview. An additional 3% of women reported that they had started ARV treatment at the 21-month follow-up interview (see Table 4.6). During the time of the study, people living with HIV had to have a very low CD4 count (200 or less), before being enrolled on the Government's ARV treatment programme (Department of Health, 2004). The suggestion can thus be made that women who received ARV treatment were considerably more ill compared to women who were not on ARV treatment. Previous research has revealed that advanced HIV disease progression is associated with psychological distress (Chida & Vedhara, 2009). The marked deteriorating health of the women on ARV treatment could therefore be the reason for the observed association between not receiving ARVs and active coping. The increase in HIV-related symptoms could have contributed to an increase in psychological distress as well as a decrease in active coping strategies amongst the women who received ARV treatment.

Despite this finding, ARV treatment has been found to be associated with numerous long-term positive outcomes. Medley et al. (2009) found that ARV treatment played an important role in helping women living with HIV to live as normal and guard their identities against being changed by their HIV-positive status. To this end, ARV treatment improved the physical well-being of the women and prevented the development of recognisable signs of HIV-infection. Consequently, ARV treatment not only helped the women to become physically stronger and healthy, but also protected them against potential HIV-related stigmatisation and discrimination (Medley et al., 2009). It is suggested that the women in the present study were not on ARV treatment long enough to experience the long-term psychological benefits associated with it.

5.2.1.7. HIV-knowledge and coping with HIV.

The results of the present study indicate that low HIV-knowledge is related to avoidant coping. Although relatively little research has been done on the connection between coping and HIV-knowledge, it has been suggested that, as women living with HIV become more informed about HIV, they develop a more positive attitude towards their future (Pittiglio & Hough, 2009). Moreover, Visser and Sipsma (in press) found a negative relationship between HIV-knowledge and internalised stigma. These findings suggest that HIV-positive women with low levels of HIV-knowledge may have certain negative misconceptions about their illness and themselves and subsequently cope in a more avoidant way. Previous research indicates that increased HIV-knowledge improves health behaviours such as ARV adherence (Vervoort et al., 2009). The improvement of newly diagnosed HIV-positive women's HIV-knowledge could therefore play a critical role in helping them cope with their HIV-positive status and improve their physical and psychological well-being. Hence, the value of HIV-knowledge in improving the physical and psychological well-being of people living with HIV should not be underestimated.

5.2.1.8. The progression of time and coping with HIV.

Lastly, it was found that the progression of time is related to increases in both active and avoidant coping. Previous research findings have revealed that, as people living with HIV develop more HIV-related symptoms, the number of both avoidant and active coping strategies that they use increases (Moneyham et al., 1998). This association between the number of coping strategies used and the increase in HIV-related symptoms may explain the observed increase in active and avoidant coping over time in some of the women. The possibility thus exists that from the time of diagnosis onwards the number of coping strategies used by women living with HIV may increase in relation to the HIV-related symptoms that they develop. This will be discussed in Section 5.2.2.

5.2.1.9. Summary.

The findings of the present study suggest that changes in active and avoidant coping over the first two years subsequent to the diagnosis are related to a number of psychosocial and demographic variables, including depression, self-esteem, internalised stigma, poverty, education, HIV-knowledge, social support, knowing other people who are also HIV-positive,

ARV treatment and time. These findings reaffirm the assumption set forth by Lazarus and Folkman (1984) that coping is a response to the stressful relationship between the person and the environment and that the use of coping strategies may change in response to this changing relationship.

The value of having identified these connections between psychosocial and demographic variables and coping is that it allows for a greater understanding of active and avoidant coping. The findings aid in creating a more detailed profile of an HIV-positive woman who copes actively, versus an HIV-positive woman who copes avoidantly. In sum, a woman who is living with HIV, who copes in a predominantly active manner, is likely to have low internalised stigma, low depression, high self-esteem, high knowledge of HIV and AIDS, high positive social support, to know someone else who is also HIV-positive, to live above the poverty line and to have a high CD4 count. In contrast, a woman, who is living with HIV and copes in a mostly avoidant manner, is likely to have high internalised stigma, high depression, low self-esteem, low knowledge of HIV and AIDS and the highest education level that is below tertiary level. These findings can be of great use to mental health professionals who are interested in predicting the future coping style use of newly diagnosed HIV-positive women, and in planning psychological treatment accordingly. The present findings illustrate that coping can change in relation to certain psychosocial and demographic variables. Consequently, by helping HIV-positive women to cope in a more active way, mental health professionals can help women to experience fewer symptoms of depression and internalised stigma, and an improvement in their self-esteem. The discussion now turns to the use of coping strategies over time.

5.2.2. Coping over time

Two of the main aims of the present study were to determine what coping strategies are used by recently diagnosed HIV-positive women who were diagnosed during pregnancy, as well as how coping strategy use changes over time. It was hypothesised that, in the absence of any specific intervention, active coping strategies will be less frequently reported at the baseline interview, but will gradually increase in follow-up assessments. Furthermore, it was hypothesised that avoidant coping strategies will be more frequently reported at the baseline interview and will gradually decrease at follow-up assessments (see Section 3.2.2.). However, the results of the present study indicate that active and avoidant coping were used somewhat

differently. This section is divided into two parts. The first part focuses on active coping and the second part is devoted to avoidant coping.

5.2.2.1. Active coping.

It was found that active coping strategies were used consistently more, compared to avoidant coping strategies in all assessment periods. Avoidant coping was therefore not reported more frequently at baseline than active coping, as was hypothesised. Acceptance, direct action, religion and positive reframing were found to be the most frequently used coping strategies throughout the two-year study period. This is similar to findings of previous research on recently diagnosed people living with HIV in South Africa, that found more frequent use of active coping strategies shortly after diagnosis (Myint & Mash, 2008; Olley, 2006; Olley et al., 2006). Despite the general notion that newly diagnosed women living with HIV may initially go through a time of coping by avoidance in response to the great shock of discovering their HIV-positive status, the findings of the present study suggest that newly diagnosed HIV-positive women mostly use active coping strategies during this time.

It has been suggested that acceptance immediately after diagnosis may be a sign of overcoming denial and the motivation to face the reality of being HIV-positive (Lutgendorf et al., 1998). However, a high level of acceptance shortly after diagnosis can also be seen as a passive acceptance of an uncontrollable situation (Skinner et al., 2003). The women in the present study had to face the reality of being diagnosed with HIV while being pregnant. This may have caused them to accept the diagnosis more quickly and to take more active steps to improve their health, thus using more direct action and positive reframing. In this regard, positive reframing may facilitate the acceptance process (Lutgendorf et al., 1998). The suggestion can thus be made that the reason for active coping being used more prominently by the women in the present study could be due to the uncontrollability of their situations and the fact that their pregnancies caused greater urgency to come to terms with their HIV-infection.

The women's frequent use of religion as coping strategy in the present study is similar to findings of previous research that found high rates of religious coping amongst women living with HIV both in South Africa and internationally (Griswold et al., 2005; Myint & Mash, 2008; Olley et al., 2003). These findings suggest that spirituality remains an essential source of comfort and support to recently diagnosed women who are living with HIV. The value of

religious coping lies in its ability to aid finding meaning in suffering and gaining hope when the future seems uncertain (Plattner & Meiring, 2006; Trevino et al., 2007).

Regarding the use of active coping over time, it was found that active coping increased significantly from baseline to six-months follow-up, whereafter it increased significantly again from six- to 12-months follow-up. Interestingly, there was a slight, but statistically non-significant, decrease in active coping strategy use from 12- to 21-months follow-up. Consequently, the findings support the hypothesis that active coping increased gradually as time progressed, particularly within the first 12 months after diagnosis. The increase in active coping strategies from baseline onwards is consistent with findings of previous research on people living with HIV (Olley, 2006; Olley et al., 2006). Based on the findings discussed in Section 5.2.1, it can be suggested that the increase in active coping over time could be explained by more exposure to people living with HIV, more knowledge of HIV and receiving increasingly more positive social support. Considering the potential link between poverty and coping with HIV (as discussed in Section 5.2.1.5), the observed increase in women finding employment in the present study (see Table 4.6), could have contributed to the increase in active coping. Furthermore, the observed increase in active coping could have been due to the gradual decrease in psychological distress and internalised stigma relating to the HIV-positive diagnosis. Note that, acceptance, direct action and religion increased significantly from baseline to six-months follow-up, whereafter it remained relatively stable. Positive reframing was found to remain stable throughout the two-year study period. Previous research has found a significant increase in the use of acceptance and direct action (planning) within the first six months after diagnosis (Olley, 2006; Olley et al., 2006).

Numerous studies have underscored the fact that an integral part of coping with HIV entails seeking relationships with others (Blaney et al., 2004; Koopman et al., 2000; Prado et al., 2004; Sanders 2008). The human connectedness of coping with HIV is best reflected in the coping strategies emotional and instrumental support, information seeking and helping others. Similar to other research findings (Lieberich et al., 1997; Olley, 2006; Olley et al., 2006), emotional and instrumental support were found to be used fairly regularly and consistently over time in the present study. This finding contrasts with the findings of previous research, which found a significant increase in emotional support within the first six months after diagnosis (Olley, 2006; Olley et al., 2006). The lack of a significant increase in emotional support could be because

emotional support was already high at baseline. It can therefore be suggested that many women were already utilising emotional support to a large extent.

Instrumental support and information seeking were found to have increased significantly from baseline to six-months follow-up, whereafter it remained stable. Previous research also found an increase in instrumental support within the first six months after diagnosis (Olley, 2006; Olley et al., 2006). These findings suggest that in the first few months after diagnosis, women living with HIV are likely to increasingly seek more instrumental support and information, in order to cope more adequately with their HIV-positive status.

Helping others increased substantially throughout the study period, particularly from baseline to 12-months follow-up. Previous research findings suggest that, as time progressed and people living with HIV become better informed about HIV and AIDS, and accept their diagnosis, they develop a more intense desire to make a difference, and are more likely to reach out to others who are also living with HIV, or to educate others to protect themselves against HIV-infection (Pittiglio & Hough, 2009; Reeves et al., 1999). To this end, helping others entailed sharing one's own experiences of living with HIV, and being a role model to others (Barroso & Powell-Cope, 2000; Pittiglio & Hough, 2009; Reeves et al., 1999).

Note that the more frequently used coping strategies, namely acceptance, positive reframing, religion and direct action, are generally more self-centred, compared to the slightly less used coping strategies, such as information seeking, helping others, instrumental and emotional support, which are more focussed on reaching out to other people. As time progressed, the more outwardly focussed coping strategies were found to increase gradually. This finding corresponds with the findings of Reeves et al. (1999) who found a gradual change in the coping strategies of people living with HIV from being mostly self-centred to becoming increasingly other-centred. These findings suggest that newly diagnosed pregnant women may initially be more inwardly focussed in the use of their coping strategies, but as time progresses they may start to increasingly use more outwardly focussed coping strategies, by reaching out to others, either to support them or to receive support from them. Newly diagnosed pregnant women living with HIV may therefore not have the capacity to immediately reach out to others, but gradually

develop a more outward focus as they come to terms with their HIV-infection, and become more empowered. The discussion now turns to avoidant coping.

5.2.2.2. Avoidant coping.

Avoidant coping was found to have decreased slightly from baseline to six-months follow-up, however this decrease was not statistically significant. From six- to 21-months follow-up avoidant coping was found to have increased significantly. Ultimately, avoidant coping use increased to a higher frequency at 21-months follow-up compared to the baseline frequency, though it was not significantly higher. Note that although most avoidant coping strategies increased or remained relatively stable, feeling out-of-control and self-blame decreased markedly from baseline onwards. Consequently, the findings fail to support the hypothesis that avoidant coping in general would gradually decrease as time progressed. Instead, the findings suggest that although there may be a slight decrease in avoidant coping in the first six months after diagnosis, most avoidant coping strategies are likely to increase gradually over time. The hypothesis was only found to be supported by the results of feeling out-of-control and self-blame.

Although the initial decrease in avoidant coping from baseline to six-months follow-up was non-significant, previous research on people living with HIV in South Africa has found significant decreases in avoidant coping in the first six months after diagnosis (Olley, 2006; Olley et al., 2006). The increase in avoidant coping from six-months follow-up onwards needs to be closely considered. In the light of the present study's findings, discussed in Section 5.2.1, a number of possible explanations can be provided. The possibility exists that the women were initially more focussed on the pregnancy, and that the reality and the implications of their HIV-infection only became apparent to them from approximately three months postpartum (six months after diagnosis). As mentioned before, the initial acceptance of their HIV-positive status may have been a passive acceptance of an uncontrollable situation that needed to be dealt with urgently, due to the pregnancy. It is possible that after the birth of the infant, the mother had more time to process her HIV-positive diagnosis and the implications thereof. Consequently, the reality of the HIV-positive diagnosis may only truly have set in a few months after the diagnosis. In addition, the increase in ARV use from 12-months follow-up onwards (see Table 4.6) suggests that some women's health may have deteriorated during that time. This observed decrease in their

physical health may have contributed to the increase in avoidant coping. The gradual coming to terms with the reality of the HIV-infection and deteriorating health may explain the marked increase in depression from 12-months follow-up onwards (see Table 4.7). Although the possibility exists that the HIV-test results of the infant could have contributed to the observed increase in avoidant coping, the findings of the present study could not confirm such a connection.

Another important finding in the present study is the substantial decrease in self-blame over time. Similar to the findings of other South African studies on recently diagnosed people living with HIV (Myint & Mash, 2008; Olley et al., 2006) and specifically recently diagnosed women living with HIV (Olley, 2006), self-blame was found to be one of the least used coping strategies in the present study. The findings of the present study revealed that self-blame decreased considerably from baseline onwards, especially between 12- and 21-months follow-up. Similarly, Olley (2006) found that self-blame decreased markedly during the first six months after diagnosis in women living with HIV in Cape Town, South Africa. This suggests that, although some women living with HIV may initially blame themselves for their HIV-positive status, they gradually become more self-accepting and less likely to hold self-blaming views. This finding, along with the findings of similar previous studies (Myint & Mash, 2008; Olley, 2006; Olley et al., 2006) is encouraging, as it suggests that self-blame is not very common, and is likely to decrease over time.

The marked decrease in feeling out-of-control, particularly from six-months follow-up onwards, is particularly noteworthy. Reeves et al. (1999) also found a shift from less to increasingly more perceived control in their participant sample of women and men living with HIV. It was found that the women and men gradually became more empowered and felt more in control of their own lives (Reeves et al., 1999). Previous research has indicated that HIV-positive people's sense of control over their lives increased as they were able to gain access to medical treatment and become more actively involved in their healthcare (Barroso & Powell-Cope, 2000; Pittiglio & Hough, 2009; Vervoort et al., 2009). In view of these findings and the discussion in Section 5.2.1.7, the observed decrease in feeling out-of-control in the present study may have been due to the gradual increase in information the women gained regarding HIV, ARVs and living with HIV.

Distraction was found to be one of the most frequently used coping strategies in the present study. Similarly, in a study on the self-management of HIV-related depressive symptoms, Eller et al. (2010) found that distraction techniques were the most frequently used coping strategy. Distraction techniques included going to work, indulging in food, keeping busy, drawing, reading and listening to music (Eller et al., 2010). Distraction is often used to cope with a situation that is considered to be uncontrollable or unchangeable (Skinner et al., 2003). Consequently, by momentarily focussing on other things, distraction helps to relieve the tension created by the diagnosis. It must be noted that previous research on recently diagnosed women and men living with HIV in South Africa, has found distraction to be one of the lesser used coping strategies (Myint & Mash, 2008). The only major difference between the present study and the study by Myint and Mash (2008) is that whereas the participant sample in the present study consisted of women who were pregnant during the baseline assessment, and recent mothers during the follow-up assessments, the participant sample in the study by Myint and Mash (2008) comprised of both women and men. The possibility thus exists that pregnancy and recent motherhood may have contributed to the elevated distraction usage amongst the women in the present study. The pregnancy and recent motherhood may have contributed to increased tension in the women, due to concerns over their own health as well as the health and future well-being of the infant. The high level of distraction used amongst the women in the present study suggests that, despite being actively involved in addressing their HIV-positive diagnosis, the women still found it necessary to engage in activities that would shift their attention away from the diagnosis, and relieve the tension associated with it.

Other avoidant coping strategies that the women in the present study used, albeit to a slightly lesser extent, was escape, denial, emotional venting and substance use. Previous research has revealed that these strategies are amongst the least used coping strategies (Myint & Mash, 2008; Olley, 2006; Olley et al., 2006). It is encouraging to find that the women who participated in the present study used them quite rarely, considering the negative psychological and physical health outcomes associated with these coping strategies. The use of these coping strategies over time remained relatively stable throughout the study period. Though, denial and emotional venting increased significantly from 12- to 21-months follow-up. Previous research has found marked decreases in denial and emotional venting during the first six months after diagnosis (Olley, 2006; Olley et al., 2006). It can be suggested that the increase in denial and emotional venting observed in the present study could be due to the gradual coming to terms with the

reality of the HIV-positive infection and the social and physical health consequences thereof (as explained previously).

In conclusion, the use of active and avoidant coping over time illustrates how coping is, as Lazarus and Folkman (1984) describe it, a continuously changing process that changes in response to the changing relationship between the person and the stressful environment. Gaining better insight into the manner in which HIV-positive women cope over time is essential in determining a potential developmental course in HIV coping. Understanding the manner in which coping with HIV may change over time, especially in the first few months after diagnosis, may be of use to mental health professionals in supporting and treating newly diagnosed women who are living with HIV.

5.2.2.3. Summary.

The findings of the present study indicate that newly diagnosed HIV-positive women who were diagnosed during pregnancy, are more likely to accept their HIV-positive status, take direct action, turn to religion, positively reframe their situations and occasionally seek ways to distract themselves in order to cope with their HIV-positive status. Although previous studies on newly diagnosed people living with HIV have found a gradual shift from avoidant coping to active coping over time (Olley, 2006; Olley et al., 2006), the present study found a gradual increase in both active and avoidant coping, with active coping continuing to be the more often used coping style. Over the two-year study period relatively few drastic changes were observed in the use of individual coping strategies. Only feeling out of control, self-blame and helping others were found to have changed substantially during the two years after diagnosis. The frequency at which most coping strategies were used mostly changed within approximately the first six months after diagnosis, whereafter coping strategy use became relatively stable. These findings suggest that the first six months after diagnosis may be a critical stage in the HIV coping process, during which time a number of changes are made in order to come to terms with the HIV-positive diagnosis. The discussion now turns to the potential limitations that characterised the present study.

5.3. LIMITATIONS OF THIS STUDY

Despite the numerous methodological strengths that characterised the present study, a few shortcomings can be noted. With regard to the findings and the manner in which they should be interpreted, it must be noted that although the present study was able to find significant connections between certain psychosocial and demographic variables and coping, the causal nature of these connections remains uncertain. Care should be taken not to assume any direct causality between the variables. At best, one can conclude that these variables share a unique connection with coping, which warrants further investigation.

With regard to the reliability of the measurement instruments, it must be noted that avoidant coping and negative social support had particularly low reliability coefficients. The possibility therefore exists that there may have been a high degree of random error present in the results pertaining to avoidant coping and negative social support. Low reliability in a measure negatively affects the validity of the measure (Whitley, 2002). The accuracy of the avoidant coping and negative social support results should thus be considered with caution.

In addition, the Brief COPE (Carver, 1997) and other similar coping measurement instruments, have been criticised for being “superficial” in their approach to measuring coping (Lazarus, 1999, p. 125). Skinner (2003) describes coping as an “organisational construct”, which is “not a specific behaviour that can be unequivocally observed or a particular belief that can be reliably reported” (p. 217). By measuring coping in a purely quantitative manner, one may fail to appreciate the multifaceted nature of the construct. In this regard, the present study failed to produce deeper insight into the lived-meanings of each coping strategy and how they were practically executed. To this end, lived-meaning refers to “the way a person experiences and understands his or her world as real and meaningful” (Van Manen, 1990, p.183). Although the findings reveal what coping strategies were used, they do not provide further insight as to what the lived-meanings of these coping strategies were and how they were actualised by the women. For example, it is not certain what the acceptance of their HIV-positive status *meant* to the women, what they did to distract themselves, or what positive reaffirmations they held on to. Exploring the lived-experience of the coping strategies, that is, the meanings given to coping strategies, would aid in gaining a deeper understanding of the practical significance of the identified coping strategies.

Another limitation of the present study is that it failed to identify the main sources of stress in the women's lives. Despite knowing how the women coped, the study failed to investigate what exactly the women perceived to be stressful. Knowing what exactly the women found stressful could enhance our understanding of the stress and coping process in people living with HIV, and give further direction with regard to the manner in which the stress can be alleviated.

Lastly, the present study failed to indicate to what extent the women perceived their way of coping with HIV as being effective. As discussed earlier (see Section 2.7), literature on coping with HIV suggests the perceived effectiveness of a coping strategy plays an important role in its ultimate effectiveness regarding psychological and physical health. Consequently, when considering the effectiveness of the coping strategies used by the women in the present study, one can only rely on previous research findings. The discussion now turns to recommendations for future research and practice in view of the present study's findings.

5.4. RECOMMENDATIONS

The findings of the present study highlight the psychological needs of recently diagnosed HIV-positive women who were diagnosed during pregnancy. In order to address these needs, a number of recommendations can be made regarding psychosocial interventions and future research. These recommendations may be of interest to social scientists, policy makers as well as health care professionals, whose work involves recently diagnosed HIV-positive women who were diagnosed during pregnancy. This section is divided into two parts. The first part focuses on recommendations regarding psychosocial interventions, whereas the second part is devoted to recommendations pertaining to future research.

In view of the present study's findings that HIV-knowledge, socio-economic status and positive social support are related to coping, it is recommended that interventions aimed at improving the psychological well-being of HIV-positive mothers should focus on:

- the improvement of HIV and AIDS knowledge
- the provision of financial and educational empowerment through skills development and job creation
- social support groups, where women can receive ongoing, positive social support and meet other women who are also HIV-positive.

It is also suggested that interventions be developed that are specifically targeted at encouraging active coping strategy use by newly diagnosed HIV-positive mothers. Considering the present study's findings, that active coping is related to low depression, low internalised stigma and high self-esteem, it is possible that by encouraging active coping use in newly diagnosed HIV-positive mothers, it could lead to improved psychological well-being in the mothers. Previous research has found positive outcomes in people living with HIV who attended programmes that promoted use of active coping strategies (Fife, Scott, Fineberg, & Zwickl, 2008; Mundell et al., in press). Consequently, it is suggested that coping interventions entail a series of interactive sessions that are aimed at achieving the following:

- the acceptance of themselves and their new identities as mothers, and being HIV-positive
- reappraising their HIV-positive status more positively
- learning how to take direct action in solving the problems in their lives (for example, by presenting social skills training that focuses on planning, decision-making, parenting and conflict management)
- opportunities to engage other HIV-positive mothers.

The findings of the present study reveal certain temporal aspects regarding the way HIV-positive women, who were recently diagnosed with HIV during pregnancy, cope with their HIV-status. These findings, particularly the observation that there may be an increase in avoidant coping at approximately six months after diagnosis, the shift from more inward to more outward coping, and the gradual decrease in self-blame and feeling out of control may have important implications for counselling. VCT counsellors and mental health professionals who work with HIV-positive women need to be aware of these changes in the use of coping strategies and be prepared to deal with these changes as they take place over time.

With regard to recommendations for future research, it is suggested that research be conducted to explore connections between the identified psychosocial and demographic variables and coping. Future research should not only attempt to confirm the observed connections between

psychosocial and demographic variables and coping, but also strive to determine whether there are any possible causal connections between these variables and coping.

As mentioned previously, the present study failed to consider the sources of stress and perceived coping effectiveness of the women. For this reason, it is suggested that future research take a closer look at the specific sources of stress, and the coping strategies used to deal with each stressor. It is also suggested that future research consider the perceived effectiveness of coping strategies.

Additionally, longitudinal research over a longer period should be conducted in order to gain an understanding of change in active and avoidant coping strategies over the long-term, and of the reasons why avoidance coping increases after six months post-diagnosis. In view of the present study's finding that active and avoidant coping increased in the first two years after diagnosis, it is suggested that future research consider this finding further, and determine what the cause of the increase in coping, especially avoidant coping, might be.

Lastly, it is recommended that future research on HIV coping should utilise a mixed methodology by incorporating both quantitative and qualitative methods into the investigation. It has been suggested by various authors, including Lazarus (1999), Power (1998) and Tischler (2009), that research on coping, especially when focussed on the coping strategies of marginalised populations, should make use of qualitative methods or at least mixed methodology. To this end, Tischler (2009) maintains that using qualitative methods to study the coping strategies of marginalised populations "can reveal information about the context, meaning, and process of coping" (p. 191). Adding a qualitative segment to the research may aid in gaining insight into the lived-experiences of coping strategies, as they are used by women who are living with HIV.

5.5. CONCLUSION

This dissertation consisted of five chapters. The first chapter presented a brief overview of the present study. The second chapter presented a discussion of academic literature pertaining to coping with HIV within the context of the cognitive-phenomenological theory of stress and coping by Lazarus and Folkman (1984). The third chapter presented a discussion of the

methodology that was used in the study, and the fourth chapter presented the results of the study. In this chapter, chapter five, a discussion of the present study and its findings is presented.

The findings of the study illustrate the fact that coping does not occur in a social vacuum, and that numerous psychosocial and demographic variables can be associated with the use of active and avoidant coping over time. The findings remind us once more that HIV is embedded in a variety of societal problems, most notably poverty. The findings of the study reveal how coping with HIV consists of a complex interplay of various coping strategies over time. Lutgendorf et al. (1998) maintain that over time the process of coping with HIV necessitates the repeated and ongoing use of various coping strategies in response to different disease-related concerns. It can therefore be expected that, as time progresses and women living with HIV face new HIV-related challenges, they will utilise a variety of coping strategies in response to these changing challenges. Ultimately, the findings of the present study underscore the importance of good psychological health for newly diagnosed mothers who are living with HIV.

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APPENDIX
