COMPLIANCE AMONG MEMBERS REGISTERED FOR THE ASTHMA DISEASE RISK MANAGEMENT PROGRAMME OF A PARTICULAR MEDICAL AID SCHEME

by

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DECLARATION

I declare that COMPLIANCE AMONG MEMBERS REGISTERED FOR THE ASTHMA DISEASE RISK MANAGEMENT PROGRAMME OF A PARTICULAR MEDICAL AID SCHEME is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

NTOMBOMBUSO OPEDUN

30/11/2007

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ABSTRACT

The study sought to identify reasons for non-compliance among a particular medical aid scheme's members and their dependants registered for the asthma disease risk management (DRM) programme.

A quantitative descriptive study was undertaken, using postal questionnaires.

The research results indicated that most asthma patients were not compliant with the DRM programme because they lacked knowledge about the programme. Asthma patients' compliance with the DRM programme can be enhanced by health providers' and case managers' positive attitudes, better promotion of the programme, and by involving the patients in managing their illnesses.

Asthma patients require education about healthy lifestyles, empowering them to successfully manage their condition, preventing asthma attacks and/or hospital admissions. When asthma is well-managed the patients' quality of life and general wellbeing will improve and the medical aid scheme's costs will be contained.

Keywords:

Asthma; compliance; disease risk management programme; medical aid scheme

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Dedication

This work is dedicated to my three lovely children

Nelisa, Daniel and Mark

Your perseverance, during the period when you needed me, contributed to my success.

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List of abbreviations

The following is a list of abbreviations which will be used in the study.

- BA ßeta adregenic
- BP Blood pressure
- CM Case manager
- COPD Chronic obstructive pulmonary disease
- DM Disease management
- DRM Disease risk management
- ED Emergency department
- HBM Health Belief Model
- LFT Lung function test
- MDI Metered dose inhalers
- MIMS Monthly Index of Medical Specialities
- PEF Peak expiratory flow
- PMB Prescribed minimum benefits
- RMR Routine monthly report
- RSA Republic of South Africa
- UK United Kingdom
- USA United States of America
- WHO World Health Organization

CHAPTER 1

Overview of the study

1.1 INTRODUCTION

Asthma is one of the world's most common long-term disease conditions according to the Global Burden of Asthma Report. The disease is estimated to affect as many as 300 million people worldwide – a number that could increase by a further 100 million by 2025 (The Global Burden of Asthma Report 2004:1).

According to the Department of Health of the Provincial Government of the Western Cape (2004) asthma is a highly prevalent disease in South Africa. Elliott (2006:223) states that the prevalence of asthma worldwide is estimated to be 150 million and is increasing in most developed countries. She also states that there is poor adherence to asthma medication by both adults and children.

The contradiction in the global figures, mentioned by the World Asthma Day (2004), as 300 million, and by Elliott (2006:223) as 150 million, has been noted but could not be explained on the basis of the available literature.

Asthma attacks are usually triggered by allergies to airborne particles of tobacco smoke and open fires, house dust mites, pollen and skin flakes as well as hair from cats and dogs. Certain foods and additives in the form of colourings, flavourings and preservatives can also trigger asthma attacks.

The most cost-effective management of asthma is inhaled corticosteroids, commonly known as preventer pumps and inhaled $ß_2$ agonists known as reliever pumps. Beta-adrenoceptor agonists ($ß_2$-agonists) bind to ß-receptors on cardiac and smooth muscle tissues. They also have important actions in other tissues, especially bronchial smooth muscle (relaxation), the liver (stimulate glycogenolysis) and kidneys (Klabunde 2005) Asthma is one of the five chronic diseases identified for the disease risk management (DRM) programmes of most South African medical aid schemes. Asthma is regarded as an expensive illness to treat in terms of preventative treatment, and especially in terms

of hospitalisations, where preventative measures fail to prevent asthma attacks in sufferers of this condition.

1.2 BACKGROUND AND RATIONALE

Non-compliance is a major problem among patients with chronic illnesses. Tettersell (1993:108) agrees that non-compliance is high among patients suffering from chronic illnesses. Many medical aid schemes and their administrators have adopted the DRM programme as a tool to educate members and their dependants about their chronic illnesses. Case managers, usually professional nurses, are employed by medical aid schemes as coordinators between the medical aid scheme and the patient. Their functions are to educate the clients about their illnesses, assisting them to set targets and goals to manage their diseases effectively, to reduce the number of hospital admissions and to improve the health of their clients. (Disease management (DM) will be used interchangeably with DRM in this study).

Foltz-Gray (1997:50) defines disease management as a healthcare delivery method which coordinates patient care by disease throughout a healthcare system. Chronic diseases such as diabetes mellitus, hypertension, hyperlipidaemia, depression and asthma, incur huge costs to the healthcare system. Through DM these diseases can be managed more effectively, resulting in lowered incidences of hospitalisation (Marietti 1999:44), and reduced medical expenses.

The basic steps of DRM, as cited by Foltz-Gray (1997:48) are:

- Patient identification, which is the first step where high risk members are identified.
- Disease identification where the most prominent and manageable diseases are identified.
- Setting protocols, where treatment protocols, clinical protocols, guidelines and treatment algorithms are set. Decisions are made to encourage patients with specific diseases to have specific laboratory tests done, for example, the lung function test is done on asthma patients.
- Patient education is the most integral part of DRM programmes. Patients receive information and are taught how to handle their chronic illnesses.

- Outcomes are measurable indications of a programme's success. For example, a patient with severe hypertension can achieve and maintain blood pressure (BP) readings which are within normal limits.

Javors and Bramble (2003:170) believe that DRM helps to control costs incurred by the chronic diseases. Although DRM is of benefit to both the patients and the medical aid schemes, non-compliance on the part of the patient is common. Non-compliance occurs when patients fail to follow the recommendations of the case managers, clinicians and treatment protocols.

Juniper (2003:8) believes that patient compliance can be improved through better clinician-patient communication and an improved therapeutic alliance between professionals and patients, emphasising shared goals. DM emphasises the short- and long term benefits of patients' self-management, increased preventative care, awareness of wellness programmes and shifting health care delivery to outpatient departments, homes and other non-hospital settings (Harvey & DePue 1997:42).

1.3 STATEMENT OF THE RESEARCH PROBLEM

It has been noted that most principal (main) members of a particular medical aid scheme and/or their dependants, who have been identified for the asthma DRM programme, do not comply with the set treatment standards. Some members decline DRM enrolment, whilst others enrolled and then defaulted by being non-compliant to standards such as regular exercises, healthy eating programmes, stop smoking programmes, medication compliance, regular visits to the treating doctors and regular laboratory tests prescribed for their individual chronic illnesses stipulated by their treatment protocols such as a Prescribed Minimum Benefit (PMB) care plan. Undertreatment of persons with asthma might lead to increased mortality, hospitalisation and morbidity. Except for the influence on the lives of the persons suffering from the disease and their family members, it also has economic consequences for the medical aid scheme. The problem therefore is that in spite of the existence of the DM programme of the medical aid scheme for asthma members/dependants, it is observed by case managers that these members/ dependants often fail to comply with the guidelines of the asthma programme.

1.4 PURPOSE OF THE STUDY

The purpose of this study is to contribute towards an effective DRM programme which would benefit the members of the scheme and their dependants and the industry by identifying the reasons for non-compliance and to establish recommendations for enhancing compliance among the members/dependants enrolled for the asthma DRM programme.

1.5 RESEARCH QUESTION

The following research question will direct this study:

What are the reasons for non-compliance among members/dependants identified for the asthma DRM programme of a particular medical aid scheme?

1.6 RESEARCH OBJECTIVES

The specific objectives for this study are to:

- determine the reasons for non-compliance among members identified for the asthma DRM programme of the particular scheme
- identify organisational factors related to the non-compliance among members identified for the asthma DRM programme of the particular scheme
- develop guidelines to improve the adherence of asthma patients to the asthma DRM programme

1.7 SIGNIFICANCE OF THE STUDY

When the reasons for non-compliance among members identified for the asthma DRM programme of the particular scheme are known, guidelines can be developed to improve the adherence of this group. This will improve the cost-effectiveness of the asthma DRM programme, as well as the quality of life and wellbeing of the clients.

1.8 THEORETICAL FRAMEWORK OF THE STUDY

The Health Belief Model (HBM) provided the framework of this study. The HBM "a cognitive theoretical model developed during the 1950s, is a set of interrelated variables which, when accurately measured and multiplicatively correlated, suggests which people might be motivated to engage in health-seeking behavior" (Frankish, Lovato & Poureslami 2006:9).

The HBM was developed by psychologists Hochbaum, Rosenstock and Kegels working in public health services. It is a psychological model that attempts to explain and predict health behaviours by focusing on attitudes and beliefs (Glanz, Rimer & Lewis 2002:52).

The HBM has become an important tool in motivating the public to engage in positive health behaviours. Frankish et al (2006:9) mention that the HBM is composed of four constructs, namely perceived personal susceptibility (a negative health condition), perceived severity of the condition, perceived benefit(s) of taking a particular action against the threat, and perceived barrier(s) to taking such actions. Glanz et al (2002:52) state that the HBM is based on series of assumptions and concepts that create a motivational, health related framework.

1.8.1 Assumptions underlying the Health Belief Model

Rosenstock (1982:184) describes the HBM as "a specification of the first axiom, which holds that people are likely to follow health recommendations if they are motivated about their health and if they believe that they are susceptible to an illness; that the occurrence of that condition would have a serious impact on their lives; that following a particular set of health recommendations would be beneficial in reducing either their susceptibility to or the severity of the condition; and that the psychological benefits of following the health recommendations outweigh the costs".

The HBM is based on an assumption that a person will take a health related action, for example regular administration of medicines, if that person:

- Feels that a negative health condition, such as complications (the occurrence of an asthma attack) can be avoided.

- Has a positive expectation that by taking a recommended action he/she will avoid a negative health condition, for example taking medicines regularly will prevent asthma attacks as well as asthmatic complications impacting negatively on his/her quality of life.
- Believes that he/she can successfully take recommended health actions, for example he/she can comply with prescribed treatment protocols.

1.9 DEFINITION OF KEY CONCEPTS

The following concepts are defined for enhancing understanding among the author and readers.

Asthma

Asthma is a chronic condition of the airways with reversible airway obstruction due to inflammatory oedema and bronchospasm. It is characterised by wheezing, shortness of breath (dyspnoea), cough (usually non-productive) and tends to vary in intensity. Acute attacks may be caused by exposure to allergens, viral diseases and non-specific irritating substances (Department of Health 1998:28).

Compliance

To comply means to consent, yield, do as asked, to comply with an order or rule (Collins Easy Learning Dictionary & Thesaurus 2007:166). Compliance implies that patient behaviour is congruent with healthcare providers' recommendations (Elliott 2006:225). In this study compliance means acting according to certain accepted standards. It is a state of being in accordance with established guidelines of the specific medical aid scheme. Compliance and adherence will be used synonymously in this study.

Disease risk management (DRM) programme

This is a wellness programme, developed by the medical aid scheme, that aims to improve the medical care and self-management of patients with chronic illnesses, for instance diabetes, hypertension, asthma, hyperlipidaemia and depression through patient education. In this study DRM refers specifically to the DRM for members of a

specific medical aid scheme suffering from asthma and/or their dependants who suffer from asthma.

Reasons

Reasons are causes or motives (Collins 2000:459). In this study reasons will refer to the explanation why some of the members of the medical scheme on the asthma DRM programme do not adhere to the guidelines of the programme.

Medical aid scheme

A medical aid scheme is a business which is registered by the registrar of medical schemes, with the concurrence of the Council for Medical Aid Schemes under certain terms and conditions (South Africa 1998:20).

Member

Collins Easy Learning Dictionary and Thesaurus (2007:547) defines members simply as individuals belonging together, making up a body or society, or any part of a complex whole. De Villiers, Van der Merwe and Van Wyk Kotze (2004:25) consider a member (of a medical aid scheme) as a person who makes contributions to the medical aid scheme based on his/ her income and/or the number of his/her dependants.

In this study, a member means a person who has been enrolled or admitted as a member of the medical aid scheme, or who, in terms of the rules of a medical aid scheme is a member of such a medical aid scheme (South Africa 1998:8).

Dependant

A dependant is one for whose maintenance another is responsible, someone who depends on another person for financial assistance (Collins Easy Learning Dictionary & Thesaurus 2007:227). Dependant, according to De Villiers et al (2004:21) is a family member or a beneficiary of the principal member of a medical aid scheme.

In this study dependant means the spouse or partner, dependant children or members of the member's immediate family in respect of whom the member is liable for family care and support or any person who, under the rules of a medical aid scheme, is recognised as a dependant of such a member and is eligible for benefits under the rules of the specific medical aid scheme (South Africa 1998:8).

Prescribed minimum benefits (PMB)

Prescribed minimum benefits are the specified minimum benefits which medical aid schemes have to provide, by law, for most life-threatening chronic conditions such as asthma, diabetes and hypertension. Asthmatic patients who are on chronic medications are entitled to have a treatment plan which allows them two visits to a pulmonologist per year, two visits to a general practitioner or physician and tests such as the peak flow evaluations. The treatment plan also allows asthmatics to have one influenza vaccination per year.

1.10 RESEARCH METHODOLOGY

The research methodology provides an overview of the methods and instruments used in this study. The focus of this descriptive research is to examine the reasons why members/dependants on the asthma DRM programme of the specific medical aid scheme do not adhere to the guidelines.

1.10.1 Research design

Burns and Grove (2007:237) describe a research design as a blueprint for conducting a study, with the purpose of maximising control over factors that can interfere with the validity of the findings.

A quantitative research paradigm with a descriptive design was used to obtain the information about the reasons for non-compliance on the part of the members/dependants of the asthma DRM programme of the participating medical aid scheme's members.

1.10.2 Population

A population comprises all elements (individuals, objects, or substances) that meet the inclusion criteria for a study (Kerlinger & Lee 2000 in Burns & Grove 2007:40).

In this study all valid (active) members and/or dependants who have been identified for the asthma DRM programme during the year 2007, comprised the population. All these members will be valid members of the medical scheme during sampling. The routine monthly report (RMR), commonly known as the monthly statistics, was used as a sample frame to obtain membership numbers for all members and/or their dependants who were identified for the asthma DRM programme of the specific medical aid scheme.

1.10.3 Sample and sampling techniques

Systematic sampling was used for this study. Burns and Grove (2003:246) state that the process of the systematic sampling involves selecting every *k*th individual on the list starting point selected randomly.

The researcher selected children and adults with asthma. Parents of asthmatic children were asked to complete the questionnaire on behalf of their children younger than 18 years of age. People (main members and/or their children) older than 18 years had to complete the questionnaire themselves.

The target group encompassed both the children, whose parents will complete the questionnaire on their behalf, and the adults, over 18 years of age, so that they will complete the questionnaire themselves even if they are dependants (not necessarily the main members of the medical aid scheme).

The researcher used the spreadsheet of members of the particular medical aid scheme registered for the asthma programme as a sampling frame. There were 1,039 persons registered for the asthma DRM programme. Twenty out of the first thirty members were selected for pre-testing the questionnaire. Then 200 members and/or their dependants were selected by choosing every fifth member from the spreadsheet. A non-clinical staff member assisted with obtaining the postal and e-mail addresses. The questionnaires were mailed to the members to their postal addresses and four weeks later follow up

was done through the electronic mail to prompt members to complete and return the questionnaires to the researcher.

1.10.4 Method of data collection

A self reporting method was followed. A structured questionnaire was developed after a literature review had been conducted. An envelope, containing the following documents was mailed to all respondents:

- A letter, requesting the respondents to participate in the study
- A consent form
- A questionnaire to be completed by the respondent
- A self-addressed and stamped envelope in which the consent form and the questionnaire should be returned to the researcher.

1.10.5 Measures to ensure validity and reliability

Two factors which have a big influence on the quality of research is reliability and validity. Brink, van der Walt and van Rensburg (2006:165) regard them as closely related. The researcher is challenged to develop measuring techniques which enhance the quality of the data collected.

Reliability

Reliability involves the consistency with which the measurement technique measures a variable or concept while validity is the extent to which the instrument actually reflects or measures what it is supposed to measure (Burns & Grove 2007:40). Both closed- and open-ended questions and rating scales in the form of Likert scales were used to structure the questionnaire.

Reliability of a measure denotes the consistency of measures obtained in the use of a particular instrument and in the measurement method (Burns & Grove 2005:374).

Validity

The quality and character of this study will focus on compliance. Construct validity will be used to examine the conceptual definition and operational definition of a variable (Burns & Grove 2005:217). After construction of the questionnaire, the questionnaire was given to three experts (case managers from different medical aid schemes) to evaluate the items in the instrument to determine the relevance of each item.

1.10.6 Method of data analysis

Statistical analysis was used to summarise the results of the study and to reduce, organise and give meaning to the data (Burns & Grove 2005:43). The researcher made use of a statistician to analyse the data with the help of the computer, using Statistica 7.1 programme.

1.10.7 Ethical considerations

The researcher adhered to the conditions under which permission was obtained to study the members of the scheme. The rights of the respondents were respected at all times. The principles of beneficence, justice and respect for persons were taken into consideration, as will be discussed in more detail in chapter 3 of this dissertation.

1.11 SCOPE AND LIMITATIONS OF THE STUDY

The researcher conducted the study with limited funds, so only 200 out of 1039 members/dependants identified for the asthma DRM programme were studied. Only one medical scheme was studied, so the results are relevant only to this participating medical aid scheme.

Burns and Grove (2005:401) believe that the response rate to questionnaires is generally lower that other forms of self-reporting methods, particularly if the questionnaires are mailed out.

1.12 OUTLINE OF THE STUDY

The dissertation is presented in the following five chapters:

Chapter 1: Overview of the study
Chapter 2: Literature review
Chapter 3: Research design and methodology
Chapter 4: Data analysis and findings
Chapter 5: Conclusion, limitations, guidelines and recommendations

A list of sources provides details about sources consulted and quoted throughout the text. The annexures include letters requesting and granting permission to conduct the study, an example of a letter of consent to be signed by the respondents, the questionnaire and a letter providing information to the respondents.

1.13 CONCLUSION

This chapter provided an overview of the study and discussed the background and rationale as well as the research problem and the purpose of the study. The significance of the study was highlighted and a brief overview of the research methodology was given. The literature review will be presented in the next chapter.

CHAPTER 2

Literature review

2.1 INTRODUCTION

Literature reviewed about compliance and non-compliance among asthma patients will be discussed in this chapter. Polit and Hungler (1999:645) state that a literature review involves the systematic identification, location, scrutiny and summary of written material that contains information about a specific research problem. The purpose of this literature review is to determine how much has been studied about compliance among asthma patients, and to obtain information on compliance and factors contributing to non-compliance among asthma patients.

2.2 THE HEALTH BELIEF MODEL (HBM)

The Health Belief Model (HBM) formed the conceptual framework for this study. The HBM is one of the most widely used conceptual frameworks for understanding, explaining and predicting health behaviour. The HBM is a psychological model which was first developed in the 1950s by the psychologists Hochbaum, Rosenstock and Kegels working in the United States. The HBM integrates psychological theories of goal setting, decision making and social learning. It postulates that health seeking behaviour is influenced by a person's perception of a threat posed by a health problem and the value associated with actions aimed at reducing the threat (Polit & Hungler 1999:128).

2.2.1 Assumptions of the Health Belief Model

The HBM has several assumptions related to one taking a health related action. The HBM is based on the understanding that a person will take a health-related action if s/he:

- feels that a negative health condition can be avoided
- has a positive expectation that by taking a recommended action, s/he will avoid a negative health condition
- believes that s/he can successfully take a recommended health action

The HBM has spelt out the constructs representing the perceived threat, net benefits and cues to action. These include perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self efficacy.

2.2.1.1 Perceived susceptibility

This explains one's opinion of chances of getting a condition. A person's perception that a health problem is personally relevant will contribute to the taking of the required action by the individual.

2.2.1.2 Perceived severity

This is one's opinion of how serious a condition and its consequences are. When one recognises one's susceptibility to a certain problem or condition, it does not necessarily motivate one to take the necessary action/s unless one realises that getting the condition would have serious implications.

2.2.1.3 Perceived benefits

This is one's belief in the efficacy of the advised action to reduce risk or seriousness of impact. The person needs to believe that by taking a certain action it will help him/her to avoid or prevent a problem from occurring.

2.2.1.4 Perceived barriers

This is one's opinion of the tangible and psychological costs of the advised action. There could be barriers that affect people's decisions to take particular actions. These barriers include costs, duration, complexity of the desired behaviour and accessibility to services that would support taking and maintaining the required action(s) (Polit & Hungler 1999:128).

2.2.1.5 Cues to action

These are strategies to activate readiness. This is when the individual feels the desire to take the necessary actions after believing that s/he has the capacity to do so. The

required action will benefit the individual by knowing how to deal with the barriers. Polit and Hungler (1999:129) state that it requires motivation on the part of the person to have the desire to comply with a prescribed action or treatment, to be concerned about health matters, to be willing to seek and accept health care and to engage in positive health activities.

2.2.1.6 Self-efficacy

Self efficacy refers to confidence in one's ability to take action. One should feel that s/he is capable of taking the necessary action correctly because it is that confidence that would motivate one to initiate and sustain the action.

2.3 THE NATURE OF ASTHMA

Asthma is one of the most common respiratory conditions in the world. It is highly prevalent in South Africa. Asthma can occur for the first time at any age even in adulthood, although it usually commences before the age of five. Half of the children will outgrow it during their teenage years, but it usually persists if contracted in adulthood. This chronic disease tends to run in families, and there is no cure, but it can be controlled and those affected can live normal lives (Jeena, Morris & Luyt 2004). Asthma is characterised by narrowing of the bronchi caused by:

- Swelling of the mucosa.
- Increased sticky mucous or secretions called inflammation in the airways/bronchi.
- Muscles go into spasm only when there is inflammation of the bronchi.

The symptoms of asthma develop when the bronchi become too narrow or partially obstructed from inflammation and spasms. Signs and symptoms of asthma include:

- Coughing which occurs more frequently at night and with increased activity; coughs can be dry or mucoid and are persistent.
- A wheezy chest or a whistling noise in the chest.
- Tightness of the chest with breathing difficulty.
- Shortness of breath especially after exercise (Jeena et al 2004).

These signs and symptoms may vary from patient to patient.

2.3.1 Treatment of asthma

There is no known cure for asthma. The aim of treatment should be directed at making the lungs and airways as normal as possible. Asthmatic patients should be encouraged to avoid triggers of asthma attacks, such as pollen, cold air and smoking (Elliott 2006:224).

Asthma patients should be encouraged to take regular medications. Berkow, Beers, Bogin and Fletcher (1998:176) state that drug treatments allow most people with asthma to lead relatively normal lives. “Beta-adrenergic receptor agonists are bronchodilators and are the best drugs for relieving sudden attacks of asthma and preventing attacks that may be triggered by exercise” (Berkow et al 1998:175). These drugs stimulate beta-adrenergic receptors to widen the airways. There are two types of bronchodilators, the ones that act on all beta-adrenergic receptors, such as adrenalin and those that act mainly on beta2-adrenergic receptors, which are found on the cells in the lungs, such as albuterol. Two main types of anti-asthma medication are preventer and reliever ($ß_2$ agonists) medications (Jeena et al 2004).

Bronchodilators that act on all beta-adrenergic receptors cause side effects such as tachycardia, restlessness, headache and muscle tremors. Bronchodilators that act mainly on $beta_2$-adrenergic receptors cause fewer side effects. Most bronchodilators act within minutes, but the effects last only for 4 to 6 hours. Some bronchodilators can also be taken orally.

Corticosteriods also play an important role in the treatment and prevention of asthma attacts. Murphy (2005:149) states that inhaled corticosteroids are an effective and versatile treatment for people with asthma and for patients with varying degrees of asthma severity. “Inhaled corticosteroids are now the preferred treatment for asthma, especially in young children and pregnant women” (Murphy 2005:149).

Pulmonary function may be checked by the use a spirometric test (Berkow et al 1998:177). “Spirometry is essential for a complete respiratory evaluation, not only for curative purposes, but also for screening, early detection and surveillance programmes”

(Mash & Blitz-Lindeque 2006:93). The peak expiratory flow (PEF) meter is a useful tool in the diagnosis and assessment of asthmatic patients. The PEF meter is used for the assessment of

- severity and response to treatment in an acute asthmatic attack
- severity and monitoring of control in chronic persistant asthma
- reversibility of lower airway obstruction and differentiation of asthma from chronic obstructive airway disease
- home monitoring of symptoms and control of asthma (Mash & Blitz-Lindeque 2006:96)

Asthma has a significant impact on individuals, their families and society. Goals for successful management of asthma are to:

- achieve and maintain control of symptoms
- maintain pulmonary functions as close to normal as possible
- prevent asthma exacerbations
- avoid adverse effects from medications
- prevent asthma mortality (National Guideline Clearinghouse)

2.3.2 Research about compliance to the treatment programmes

Research evidence indicates that non-compliance is a multidimensional and complex concept, and is a widespread problem. Non-compliance is high in chronic diseases (Tettersell 1993:108). Evidence consistently suggests (Elliott 2006:224) that adherence to asthma medication is poor in adults and children. Non-adherence causes unscheduled hospital admissions, and non-adherence to medication is thought to contribute to between 18% and 48% of asthma deaths. The World Health Organization (WHO), as cited by Elliott (2006:225), describes non-adherence as a multidimensional phenomenon determined by the interplay of five sets of factors such as patient-related factors, condition-related factors, therapy-related factors, health system-related factors and socio-economic factors.

- Patient-related factors, for example fear of adverse effects. Some patients are very concerned about side effects, tolerance and addiction (Juniper 2003:9) and therefore they might not take treatment as prescribed.
- Condition-related factors, for example depression. Elliott (2006:226) states that depression in various diseases, not just asthma, has been linked to non-compliance. Up to 18% of asthmatic patients may have psychological co-morbidity including depression leading to reduced medicine adherence.
- Therapy-related factors, for example route of treatment administration and the dosage. According to Juniper (2003:9) some cultural groups do not like to use inhaled medicines, while others prefer to take oral medication.
- Health system-related factors, for example patient-provider relationships. Elliott (2006:228) believes that active participation in clinical decision-making with the prescriber leads to increased compliance.
- Socio-economic factors, for example cost of medication combined with costs incurred by attending appointments. Some asthma patients may experience problems with child care and transport costs and lack of sick pay that may lead to poor compliance to asthma guidelines (Elliott 2006:226).

Gonda, Schuster, Rubsamen, Lloyd, Cipolla and Farr (1998:269) believe that non-compliance with the prescribed medication is a major reason for poor therapeutic outcomes, leading to unnecessary escalations in healthcare costs. Non-compliance often occurs in asthma therapy where the route of prescribed medicine is by inhalation.

2.4 DISEASE MANAGEMENT

Disease management (DM) became widespread during the 1990s to control health budgets. DM aims to improve the medical care and self-management of targeted populations and its aim is to improve care and is available to all members with relevant diagnoses such as asthma, diabetes, hypertension, hyperlipidaemia, pregnancy, oncology and depression. DM programmes are designed using combinations of the following components:

- clinical practice guidelines for effective care
- clinical education in both theory and practice

- patient identification and outreach to inform both patients and their physicians of these programmes, their benefits and referral procedures
- identification of high risk patients
- patient education in managing their conditions to reduce adverse outcomes
- telemanagement/telemonitoring based on the severity of the illness
- correction of barriers to optimal care
- community outreach to enhance public awareness and provide community access to screening and care

The best practice model for asthma care incorporates a multidisciplinary approach, using asthma care specialists and case managers to target high-risk asthmatics. The key interventions include incorporating clinical pathways developed from evidence-based guidelines, patient education and removal of obstacles to care and adherence. Assessment of outcomes and continuous efforts to improve quality are needed to make the programme cost effective (O'Dowd & Panettieri 1998:243).

2.4.1 Programmes and guidelines

DM programmes direct and provide care to individuals with a specific disease or set of symptoms, by establishing a group of providers and treatment protocols to ensure that the care required to treat the disease is provided effectively and efficiently (Arthur, Baldwin, Milliman, Robertson, Seattle & Walsh 1999).

DM is perceived as an effective way to help control escalating healthcare costs while improving medical outcomes. DM programmes should

- provide a comprehensive approach including data analysis, compliance and education components
- offer patient education in conjunction with compliance programmes
- include physician and pharmacist education
- address the course and cost of each disease
- develop treatment guidelines for the specific disease
- have guidelines which are recognised by experts
- address the role of a case manager (CM) working with patients to ensure compliance and quality of care

- provide for the tracking and measuring of results (Drug Benefit Trends 1999:57)

The National Guideline Clearinghouse believes in an asthma management programme which includes the following five components:

- develop patient/ doctor relationship
- identify and reduce exposure to risk factors
- assess, treat and monitor asthma
- manage asthma exacerbations
- special considerations of personal asthma action plans

2.4.2 Factors contributing to the compliance of clients to the programme

There are a number of factors contributing to the compliance of clients to the programme. Improvement in the patient compliance requires effective doctor/patient communication (Juniper 2003:8) and a good professional collaboration between the members of a multidisciplinary team and patients, emphasising shared goals. Juniper (2003:9) believes that successful management of asthma depends on patients' willingness to comply with their prescribed asthma treatment regimens. Other factors contributing to compliance include the relationship between the practitioners and the patients; clients' attitudes, psychological factors such as moods, beliefs and knowledge, motivation and ability of the patient and social factors such as age, marital and socio-economic status and level of education (Clark, Jones, Kellers & Vermeire 1999:856).

Piette, Heisler and Wagner (2004:1783) believe that affordability and availability of medication contribute to compliance. Out-of-pocket costs and inadequate prescription coverage may lead to adherence problems. Many patients with chronic diseases take less of their prescribed medication due to cost concerns, especially patients with low incomes, multiple chronic health problems or no prescription drug coverage. Increasing drug coverage may improve medication adherence and health outcomes for large numbers of chronically ill adults (Piette et al 2004:1789).

Printed materials for patient-self education are cost-effective, flexible and potentially useful aids for dealing with chronic diseases. Medical aid schemes often invest a large amount of money in the development of information and educational materials for

patients. Harris, Smith and Veale (2005:711), however, warned that "Printed interventions appear to produce, at best, modest benefits." According to Elliott (2006:229) asthma adherence can be enhanced by:

- supporting improved understanding to allay misgivings and correcting mistaken beliefs such as side effects
- providing modified/simplified regimens, such as oral regimens, where possible fewer inhalers and appropriate inhaler devices
- increasing emphasis on self-management and providing patients with the desired level of autonomy
- involving families or other social support systems
- removing communication and/or financial barriers to access the medication

2.5 THE ROLE OF THE CASE MANAGER

Case managers (CMs) play a vital role in the DRM programme. Most CMs are registered/professional nurses. The role of the CM is to contact each client on a regular basis. They set goals jointly and targets to help clients with the self-management of their illnesses on a daily basis (Breitenbach & Aldridge 2004:23). Bodenheimer, Lorig, Holman and Grumbach (2002:2469) are of the opinion that self-management education teaches patients problem-solving skills giving them confidence to manage their own illnesses to achieve their desired goals. Programmes teaching self-management skills are more effective than information on asthma only. Patient education in improving clinical outcomes can reduce costs for asthma patients. Case manager-based interventions are costly and are applied to high risk patients only. The CM is responsible for the self-management education of clients supporting patients to enjoy the best possible quality of life despite their chronic conditions.

2.6 THE EFFECTS OF NON-COMPLIANCE

Non-compliance has adverse effects on the patients and the medical aid schemes. It is true that the cost of asthma, both in social and economic terms to the individual and his/her family, society and health and social services are extensive (Tettersell 1993:104).

2.6.1 The effect of non-compliance for the asthma patients/dependants

Non-compliance has adverse effects on the patient in that if the patient's asthma condition is not well controlled, the patient may be admitted to the emergency department (ED) or be hospitalised. The patient's family will suffer, especially if the patient is a breadwinner because he/she might not be paid for the days he/she has not worked. This trend is common among unskilled workers. The patient may not enjoy his/her life to the fullest extent possible because of the poor quality of life. Severely uncontrolled asthma attacks may lead to death. The study conducted by Elliott (2006:224) indicates that non-adherence of the patient may lead to poor outcomes such as unscheduled admissions and asthma deaths. According to the study by Elliott (2006:224), 30% of all admissions in the United Kingdom (UK) are due to non-compliance to medication for chronic illnesses. The study also indicates that in the UK, non-adherence to medication is thought to contribute to between 18% and 48% of asthma deaths. Poor compliance in children can double the rate of hospitalisation and can lead to restricted activities. Children will miss classes leading to suboptimal academic performance at school. White *et al* (1989) as cited by Tettersell (1993:104) indicate that "quality of life facing an asthmatic patient can be compromised".

2.6.2 The effects of non-compliance on the medical aid scheme

The medical aid scheme is also affected by the effects of non-compliance of asthma patients. The ED and hospital claims have to be settled by the medical aid scheme, and extra medications, prescribed for the patient when admitted also have to be paid for.

Treatment of asthma in ED or hospitals accounts for a significant portion of total treatment costs. Patients visiting ED could either be treated and discharged or admitted to the hospital. A study which was conducted in the USA in 1996 – 1997 shows that out of the 2149 patients who visited the ED, the average cost per visit was $234 and for hospitalised patients the average length of stay was 3.8 days and the cost was $3,102.53 (Stanford, McLaughlin & Okamoto 1999:211).

Similarly, in the UK 12 203 studied asthma patients showed that the overall healthcare expenditure was estimated at £2.04 million. The average cost per patient who had an asthma attack was £381 compared with £108 for those who did not have asthma

attacks (Hoskins, McCowan, Neville, Thomas, Smith, Silverman 2000:19). No similar statistics could be traced for the treatment and hospitalisation of patients in the Republic of South Africa (RSA). Similar results can be expected where poorly controlled asthma patients may have a considerable impact on healthcare costs.

2.7 CONCLUSION

This chapter discussed asthma and its treatment, the research about compliance to the programme, the disease management programmes and guidelines, factors contributing to compliance, the role of the case manager and the effects of non-compliance both on the patient and for the medical scheme.

According to the HBM, it can be assumed that persons suffering from asthma will take the necessary actions to avoid asthma attacks if they believe that asthma attacks could be avoided if they take the necessary actions. The perceptions of persons suffering from asthma about their chances of an asthma attack, the possible complications and the perceived benefits of the asthma DRM programme will encourage them to follow the asthma DRM programme. The perceived barriers the asthma sufferers have about the asthma DRM programme, might impede their interest in the asthma DRM programme. When members of the asthma DRM programme are motivated and have confidence that they will be able to take action, they will use the asthma DRM programme more effectively.

Chapter 3 will discuss the research methodology that was used in this research including the research design, setting, sampling, data collection and data analysis processes.

CHAPTER 3

Research design and methodology

3.1 INTRODUCTION

This chapter discusses the basic strategies adopted “to develop information that is accurate and interpretable” (Polit & Beck 2004:162). The research design used in this study, the population, sampling method and research instrument as well as ethical considerations are discussed in this chapter.

The study was guided by the following question:

What are the reasons for non-compliance among members/dependants identified for the asthma DRM programme of a particular medical aid scheme?

The purpose of this study was to contribute towards an effective DRM programme which would benefit the members of the scheme and their dependants and the industry by identifying the reasons for non-compliance and to establish recommendations for enhancing compliance among the members/dependants enrolled for the asthma DRM programme.

The study was guided by the following objectives:

- To determine the reasons for non-compliance among members identified for the asthma DRM programme of the particular scheme.
- To identify organisational factors related to the non-compliance among members identified for the asthma DRM programme of the particular scheme.
- To develop guidelines to improve the adherence of asthma patients to the asthma DRM programme.

3.2 RESEARCH DESIGN

The research design is a blue print for conducting the study that maximises control over factors that could interfere with the validity of the findings (Burns & Grove 2005:211).

The researcher followed a non-experimental, quantitative, descriptive design to identify the reasons of non-compliance among members registered for the asthma DRM programme with this particular medical aid scheme

3.2.1 Non-experimental research

The study used the non-experimental research design because data collection was done without introducing any new treatment or changes to the subjects. According to Polit and Beck (2004:188) most studies in nursing involve human subjects and are therefore not suitable for experimental manipulation. As this is a descriptive study, experimental research was also inappropriate. The researcher requested the participants to respond to items in a self-completion questionnaire regarding their knowledge and self-care actions.

3.2.2 Quantitative approach

Burns and Grove (2005:44) describe the quantitative approach as “the formal, objective, systematic process used to describe and test relationships and examine cause-and-effect among variables”. Quantitative designs tend to be fairly structured (Polit & Beck 2004:164), so the researcher used a structured questionnaire to obtain data. In this study the researcher was measuring the knowledge and attitudes of asthma sufferers from the specific medical aid scheme regarding their chronic condition. The researcher made use of a statistician for data analysis.

3.2.3 Descriptive research

The purpose of descriptive research is the exploration and description of the phenomena under investigation (Burns & Grove 2005:44), in this study non-compliance to asthma treatment regimen. Burns and Grove (2005:231) state that a descriptive design examines variables in their natural environments (settings) and do not include research-designed treatment. A descriptive design involves the identification of a phenomenon of interest and of the variables within the phenomenon, the development of the conceptual and operational definitions of variables and the description of variables (Burns & Grove 2005:233). According to Polit and Beck (2004:192) the

purpose of the descriptive study is to observe, describe and document aspects of a situation as it naturally occurs.

The strength of a descriptive design is that it has the potential to be generalised to large populations if an appropriate sampling design is implemented. Mouton (2001:153) maintains that the weakness of this design is the lack of depth and insider perspective which can sometimes lead to criticisms of a surface level analysis. The descriptive design assisted the researcher to achieve the research objectives as set out earlier in this chapter.

3.3 RESEARCH METHOD

This section discusses the methodology, population, sample and the sampling procedure. As this is a quantitative study, the researcher followed the steps of the quantitative methodology.

3.3.1 Research population

Burns and Grove (2005:40) define the population as “all the elements (individuals, objects or substances) that meet certain criteria for inclusion in a given universe”. The population of this study comprises both the male and female asthma patients of all ages who are currently (themselves or their dependants) registered for the asthma DRM programme of a particular medical aid scheme. The population for this study comprises the 1039 members/dependants identified for the asthma DRM programme in 2007.

3.3.2 Sample and sampling

A sample is “a subset of the population that is selected for a particular study” (Burns & Grove 2005:40). The members of a sample are called the subjects. The sample for this research comprised 200 asthma patients registered for the DRM programme of a particular medical aid scheme.

Sampling consists of the selection of a group of people (in this case the asthma patients on the DRM programme of a specific medical aid scheme) (Burns & Grove 2007:324).

In this research, a probability sampling method was used, where each “member (element) of the population has a probability higher than zero of being selected for the sample” (Burns & Grove 2007:330). By selecting the sample randomly, systematic bias is reduced and the validity of the study increase.

A systematic sampling method was used as a sampling method for this study as an ordered list of all the members of the particular medical aid scheme was available. Systematic sampling can be conducted when an ordered list of all members of the population is available. The process involves selecting every *k*th individual on the list, using a starting point selected randomly (Burns & Grove 2003:246).

3.3.3 Sampling procedure

There were 1 039 members registered for the asthma DRM programme of the particular medical aid scheme. The researcher used the spreadsheet of members of the particular medical aid scheme registered for the asthma programme as a sampling frame. Twenty out of the first thirty members were selected for pre- testing the questionnaire. Then 200 members and/or their dependants were selected by choosing every fifth member from the spreadsheet. A non-clinical staff member assisted with the determination of the sample and their postal and e-mail addresses. The questionnaires were mailed to the members’ postal addresses. Four weeks later follow-up reminders were sent through electronic mail to prompt members to complete and return the questionnaires to the researcher.

3.4 SAMPLE SIZE

Burns and Grove (2005:355) believe that large samples are difficult to obtain in nursing studies, require long data collection periods and are costly. Two hundred, out of 1 039 members registered for the asthma DRM in 2007, of a particular medical aid scheme were selected to participate in this study. A sample of 200 was considered adequate in terms of the cost to print and despatch the questionnaires to the respondents by mail, as the study was self-funded by the researcher.

3.5 DATA COLLECTION

Burns and Grove (2005:42) describe data collection as the precise, systemic gathering of information relevant to the research purpose, or the specific objectives, questions, or hypothesis of a study. Data collected in quantitative studies are usually numerical. Polit and Beck (2004:32) define data as “pieces of information obtained in the course of the investigation”.

3.5.1 Research instrument

Polit and Beck (2004:720) define an instrument as “a device used to collect data (for example a questionnaire, test or observation schedule)”. For this study a structured questionnaire with closed and open-ended questions was developed following the literature review. A questionnaire is “a printed self-report form designed to elicit information that can be obtained through the written responses of the subjects” (Burns & Grove 2005:298).

The questionnaire (see Annexure D) was mailed to the respondents in an envelope containing the letter explaining the purpose of the study and asking the respondents to participate in the study, as well as an informed consent form and a self- addressed stamped envelope in which the questionnaire and the consent form had to be returned to the researcher.

3.5.1.1 Advantages of questionnaires

Advantages of using a questionnaire to gather data identified by Polit and Beck (2004:350) include that

- it is an easy method of data collection and can be distributed to respondents who are geographically dispersed via the internet, electronic mail or by post
- the researcher does not need to be present when questionnaires are being completed enhancing the anonymity and confidentiality on sensitive issues
- respondents are at liberty to be as objective as they can be without the interference of the interviewer limiting bias
- it is a rapid and effective way of collecting data

Other advantages using questionnaires to collect data as reported by other authors include:

- Bless and Higson-Smith (1995) as cited by Daka (2005:55) believe that questionnaires are easy to record, score and quantify the results.
- Self-administered questionnaires make the collecting of a large amount of data feasible (Babbie & Mouton 2001:263).
- Questionnaire surveys are particularly useful in describing the characteristics of a large population (Babbie & Mouton 2001:263).

3.5.1.2 Disadvantages of questionnaires

However, questionnaires also have disadvantages:

- Low response rates, sometimes as low as 25-30% (Burns & Grove 2007:382).
- Slow response rate as people can take their time to respond.
- No control over the nature of respondents as interviewers cannot probe for additional information or interpret the questions to respondents (Polit & Beck 2004:366).
- Responses could be biased, inaccurate or incomplete.
- Not possible to observe behaviours as the researcher is not available when completing questionnaire.
- Are generally weak on validity and strong on reliability (Babbie & Mouton 2001:264).
- Cannot measure social actions (Babbie & Mouton 2001:263).
- Surveys are inflexible (Babbie & Mouton 2001:263).

3.5.2 Format of the questionnaire

The questionnaire consisted of 32 main questions under the following headings:

Section A: Demographic data and medical history from question 1 to question 25.
Section B: Feelings about the asthma DRM programme of the medical scheme from question 26 to question 32.

3.5.3 Reliability of the questionnaire

Burns and Grove (2005:374) state that reliability of a measure denotes the consistency of measures obtained in the use of a particular instrument and in the measurement method. The closed and open-ended questions and the Likert rating scale were used to structure the questionnaire. Reliability takes into account such characteristics as stability, internal consistency and equivalence (Polit & Beck 2004:416).

Stability is the degree to which the instrument will yield the same results on two separate administrations. The stability of the instrument can be established by using the test-retest reliability. Due to time constrains, it was not possible to use the test-retest method to assess the stability of this instrument.

Internal consistency is defined by Polit and Beck (2004:721) as “the degree to which the subparts of an instrument are all measuring the same attribute or dimension”. The instrument was assessed by experts, such as the asthma DRM case managers in the field, who critically evaluated the instrument to establish whether it measured the attitudes of patients on a DRM programme on asthma.

The researcher made use of a statistician to rule out misinterpretation of questions by making sure that the research questions and answers can be analysed by the Statistica 7.1 programme. The questions in the questionnaire were mostly close-ended, which implies that the subject may respond in the same way if retested by another researcher. The instrument was also developed based on an extensive literature study on asthma.

3.5.4 Validity of the questionnaire

The validity of an instrument is “a determination of the extent to which the instrument actually reflects the abstract construct being examined” (Burns & Grove 2005:376), “the measure of the truth or accuracy of a claim” (Burns & Grove 2005:214). In this study the researcher used two types of validity, namely content validity and construct validity.

3.5.4.1 Content validity

"Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured "(Polit & Beck 2004:423). Questions about asthma and the asthma DRM programme were asked because this research is about compliance among members registered for the asthma DRM programme of one medical aid scheme. A literature review was done on asthma and the compliance of patients on asthma therapy and programmes. The questionnaire was developed on the findings of the literature review.

After construction of the questionnaire, the questionnaire was given to three experts (case managers from different medical aid schemes) to evaluate the items in the instrument to determine the relevance of each item to clients' compliance with their asthma treatment regimes. The feedback from these experts was used to make alterations in phrasing some questions on the questionnaire.

3.5.4.2 Construct validity

Construct validity examines the fit between the conceptual definitions and the operational definitions of variables. The fit between definitions, such as compliance or adherence, used in this study was examined (Burns & Grove 2005:217). The questions asked assisted the researcher to identify the reasons for non-compliance among the members registered for the asthma DRM programme of this particular medical aid scheme.

3.5.5 Pretesting of the questionnaire

When developing a new instrument it is mostly subjected to pretesting. According to Polit and Beck (2004:328) pretesting an instrument serves the following purpose:

- To determine the time it takes to complete in order to allow respondents to complete the questionnaire within acceptable time limits.
- To identify any items of the instrument which pose difficulties for the respondents to understand or may be misinterpreted by them.
- To identify any questions that the respondents might find offensive.

- Determine if the sequence of the questions were sensible.

The draft questionnaire was discussed with the supervisor and joint supervisor as well as the statistician. The final draft was then pre-tested among twenty members of the same medical aid scheme who were excluded from the main study. From the feedback received from the respondents in the pretest, it appeared that they understood the questions. It was therefore not necessary to make any changes on the questionnaire.

3.5.6 Administration of a questionnaire

Self-completion questionnaires were mailed to the sample of valid members who registered for the asthma DRM programme of the particular medical scheme, in May of the year 2007. A letter explaining the purpose of the study, a consent form and a self-addressed and stamped addressed envelope (in which the respondents had to return the completed questionnaire) were mailed to each participant.

3.6 ETHICAL CONSIDERATIONS

Polit and Hungler (1999:131) define ethics as "a set of moral principles which are suggested by an individual or group, subsequently widely accepted, and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects and respondents, employers, sponsors, other researchers, assistants and students."

In this study the following moral principles were taken into consideration:

- A letter of permission was acquired from the Research and Ethics Committee of the Department of Health Studies, University of South Africa to conduct the research (see Annexure A) and the medical aid scheme (see Annexure C).
- Respondents were clearly informed about the purpose of the study (see Annexure E).
- Informed consent: participants had to sign a consent form (see Annexure F) to either agree or disagree to take part in the study. Polit and Beck (2004:151) state that informed consent means that participants have adequate information and

have the power of free choice, enabling them to consent to or decline from participating voluntarily.

- Principle of beneficence: the principle of "do no harm" was taken into consideration as there was no harm done to the respondents. The respondents were also informed that any information obtained during the study would not be used against them by the medical aid scheme.
- Principle of self-determination was adhered to in that respondents were given an opportunity to either agree or disagree to participate in the study. Respondents were not coerced to participate in the study. No disadvantage was incurred by refusing to complete the questionnaire.
- Principle of justice: In this study the respondents' right to fair treatment and the right to privacy were adhered to. Respondents' identity was protected and the name of the medical aid scheme was kept confidential. All information obtained from the respondents was kept confidential.

3.7 DATA ANALYSIS

Data analysis is a technique used to reduce, organise and give meaning to data (Burns & Grove 2007:41). In most of the cases it is necessary to make use of computers to analyse the data. In this case the researcher was assisted by a statistician with the data analysis. The statistician made use of the Statistica 7.1 programme.

3.8 CONCLUSION

This chapter discussed the research methodology used in this research including the research design, setting, sampling, data collection and data analysis. Chapter 4 presents the data analysis, and discusses the interpretations and findings of the data.

CHAPTER 4

Data analysis and findings

4.1 INTRODUCTION

This chapter presents and discusses the results of the study. The purpose of this study was to contribute towards an effective asthma DRM programme which would benefit the members of the medical aid scheme and their dependants and the industry by identifying the reasons for non-compliance and to establish recommendations for enhancing compliance among the members/dependants enrolled for the asthma DRM programme.

The specific objectives for this study were to

- determine the reasons for non-compliance among members identified for the asthma DRM programme of the particular scheme
- identify organisational factors related to the non-compliance among members identified for the asthma DRM programme of the particular scheme
- develop guidelines to improve the adherence of asthma patients to the asthma DRM programme

The researcher mailed 20 questionnaires for pretesting the questionnaire, and five completed questionnaires were returned to the researcher. For the main study 200 questionnaires were mailed to the principal members of the scheme. The return rate was disappointing as 54 (27.0%) completed questionnaires were returned to the researcher by the respondents by the set return date. The data obtained from the 54 returned questionnaires were analysed and will be discussed in this chapter.

The following section will present the demographic data. This will be followed by the knowledge of the respondents about asthma, medication compliance, asthma treatment, stress levels, feelings about the DRM programme and opinions about certain aspects of the asthma DRM programme of a particular medical aid scheme. All figures were rounded off to the nearest first decimal point for example 55.68% became 55.7%.

Due to the rounding off of numbers, the total percentage does not always compute up to 100.0% but sometimes to 99.9% or 100.1%.

4.2 DEMOGRAPHIC DATA

4.2.1 Age

Asthma is one of the most common respiratory conditions in the world today. It is highly prevalent in South Africa. Asthma can occur for the first time at any age even in adulthood, although it usually commences before the age of five. Smeltzer and Bare (2004:587) also state that asthma can occur at any age and is the most common chronic disease of childhood. Lalloo, Bateman, Feldman, Bardin, Plit, Irusen and O'Brien (2000:541) state that one of the features of asthma is the young age of onset.

The ages of the respondents ranged from infancy to old age as portrayed in table 4.1. Parents of minor children (children under the age of 18) had to complete the questionnaire on behalf of their children. It appears that quite a number (38.9%; n=21) of the respondents were younger than 20 years of age. It is important that they be influenced to adopt healthy lifestyles that will be beneficial to their health. For most patients it is a disruptive disease affecting school and work attendance, occupational choices, physical activities and general quality of life (Smeltzer & Bare 2004:587).

Table 4.1 Age distribution of the respondents (n=54)

Age	**N**	**%**
Younger than 5 years	2	3.7
5 - 10 years	11	20.4
11 – 17 years	7	13.0
18 – 20 years	1	1.9
21 – 30 years	2	3.7
31 – 40 years	6	11.1
41 – 50 years	10	18.5
51 – 60 years	6	11.1
61 years and older	9	16.7
Total	**54**	**100.1**

4.2.2 Gender

More males 55.6 % (n=30) than females 44.4% (n=24) participated in the study. Gender does not have an impact on the results of the study because asthma affects both male and female alike and the difference, in number of males and females who participated in the study, does not have a great impact on the results because the sample represents both genders. Some asthma medications are contra-indicated in pregnant and lactating women and young children. Examples of such medications include Singulair and Flixonase which are contraindicated to pregnant and breastfeeding women because safety in pregnancy and lactation has not been not established. Symbicord is contra-indicated in children under the age of 12 because safety in children under 12 years has not been established. Symbicord is also contraindicated in pregnancy and lactation for the same reason (MIMS 2007:228).

4.2.3 Family history of chronic illnesses

“Asthma is a familial disorder and over 20 genes have been identified that may play a role in the susceptibility and pathogenisis of asthma” (McCance & Huether 2006:1222). This is supported by this research as 68.5% (n=37) of the respondents indicated that they had a family history of asthma. Other illnesses reported by the respondents were a history of hypertension 35.2% (n=19 and a family history of diabetes (26.0 %; n=14). Other illnesses like cerebro-vascular incidents 11.1 % (n=6), angina (9.3%; n=5) and chronic obstructive pulmonary disease (COPD) (5.6%; n=3) seemed to be less prevalent than asthma.

Kurukulaaratchy, Matthews and Arshad (2004:345) findings that indicated that “inheritance seems to be of prime significance in the cause of persistent childhood wheeze” is also in line with the responses to this question.

4.2.4 Lifestyle

Lifestyle, for the purpose of this study, includes healthy eating, smoking versus non-smoking behaviour, annual flu vaccinations and exercise. Smeltzer and Bare (2004:94) state that lifestyle provides information about health related behaviours. These

behaviours include patterns of sleep, exercise, nutrition and recreation, as well as personal habits such as smoking and the use of alcohol and caffeine.

4.2.4.1 Eating habits

Asthma patients should follow a healthy eating pattern which will help them with maintaining a normal body weight. Evidence is mounting that obesity is also a risk factor for asthma. Reports have shown that nearly 75% of emergency room visits for asthma have been among obese individuals and studies have shown that obesity pre-dates asthma (*Medical News Today*, 10 May 2007). Most of the respondents (68.5%; n=37) indicated that they followed a healthy eating plan.

4.2.4.2 Smoking

Most people with asthma are sensitive to a variety of triggers. One of the most common triggers for asthma is smoke. A patient's asthma condition will change depending upon the environment, activities, management practices and other factors (Smeltzer & Bare 2004: 587). The asthma DRM case managers motivate smokers to stop smoking and educate the patients about the adverse effects of smoking on their asthma condition.

Of the respondents, 14.8% (n=8) were smokers and 27.8 % (n=15) lived with smokers. This corresponds with Ayres (2006:41) who indicates that 15 to 20 percent of asthma patients smoke. Smoking triggers an asthma attack in many asthmatic patients. Children of smoking parent are prone to have more frequent asthma attacks than those of non-smokers.

4.2.4.3 Exercise

Physical fitness is an important component of health promotion. The relationship between health and physical fitness indicates that a regular exercise programme can promote health by improving the function of the circulatory system and the lungs, decreasing cholesterol and low density lipoprotein concentration, lowering body weight by increasing calorie expenditure and delaying degenerative changes in the human body (Smeltzer & Bare 2004:54).

In children, exercise is often blamed for precipitating asthmatic symptoms, while breathlessness might be attributed to being unfit rather than to asthma (Ayres 2006:18). Promtussananon (2003:75) also observed the misconception that too much exercise can cause asthma. An asthma attack can be triggered by allergens like grass pollen rather than by exercise.

Table 4.2 The number of exercise sessions per week of the respondents (n=54)

Exercise per week	n	%
Do not exercise	20	37.0
Less than three times	18	33.3
Three to five times	14	26.0
Six and more times	2	3.7
Total	**54**	**100.0**

A high percentage (37.0%;n= 20) of the respondents indicated that they did not exercise while 33.3% (n= 18) mentioned that they exercised less than three times a week It is encouraging that 26.0% (n = 14) of the respondents exercised three to five times a week and 3.7% (n=2) six and more times a week.

Answering the question about the duration of exercise sessions, 40.7% (n=22) admitted that they did not exercise, 33.3 % (n=18) exercised for 15 -29 minutes, 20.4 % (n=11) exercised for 30 to 59 minutes and 5.5 % (n=3) exercised for 60 minutes and more. To benefit one's health, duration of exercises should be at least 30 minutes three times a week (Mackinnon 2000:S369).

4.2.5 Annual check-ups

It is important that asthma patients do visit their pulmonologist or general practitioner every six months to assess respiratory functions and to determine the extent of any dysfunctions.

This question was answered by 53 of the 54 respondents. Most of the respondents 41.5% (n=12) had their medical check-ups done once a year, whereas 22.6% (n=12) did not go for check-ups. Another 20.8% (n=11) of the respondents went every six months for their check-ups and 15.1% (n=8) went every three months. Since respondents did not go for medical check-ups yet they had a care plan (treatment plan)

which covered two visits to a general practitioner, a physician or a pulmonologist per year.

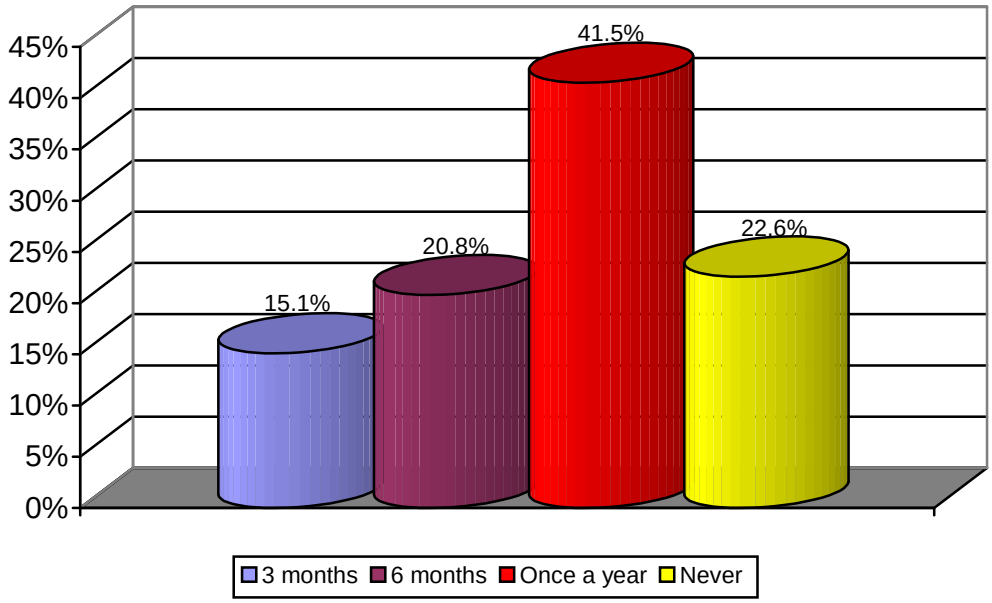

Figure 4.1

Yearly medical check-ups of respondents (n=53)

4.2.6 Laboratory tests

Asthma patients should have laboratory tests done at least once a year. Tests usually include:

- Lung function tests (LFT's) used in patients with chronic respiratory disorders to assess the respiratory function and to determine the extent of dysfunction.
- Spirometry tests include measurements of lung volumes and ventilatory function and the mechanics of breathing, diffusion and gas exchange.
- Peak flow rate reflects maximum expiratory flow.
- Arterial blood gas studies are used to measure the acid-based (pH) of blood of arterial oxygen and carbon dioxide tensions (Smeltzer & Bare 2004: 483 – 484).

Many respondents (57.4%; n=31) did not go for laboratory tests, while 35.2% (n=19) went once a year only. Two respondents, 3.7% (n=2) indicated that they went every six months for laboratory tests, while another two (3.7%) indicated that laboratory tests

were done every 3 months. The lung function tests are usually done in severe asthma cases. Expiratory peak flow reading and the spirometry tests can be done by either a general practitioner and/or a pulmonologist. Many medical aid schemes approve the purchase of peak flow meters (from their medical appliance limit) so that the patients can monitor their peak flow readings at home and save on costs of doctors' visits.

Although these laboratory tests seem to be expensive, this provides valuable information to the treating medical practitioner about the progression or resolution of the illness (McCance & Huether 2006:1200).

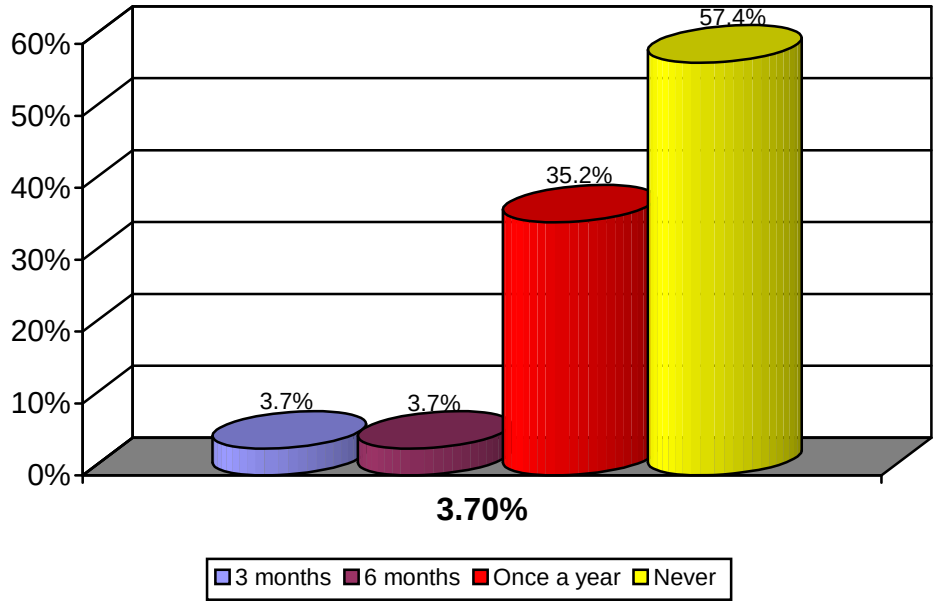

Figure 4.2

Yearly laboratory tests (n=21)

4.2.7 Asthma status

An asthma attack, also known as an asthma episode or flare, is any shortness of breath which interrupts the asthmatic's wellbeing and requires either medication or some other form of intervention for the asthmatic to breathe normally again.

An asthma attack usually occurs because a patient does not take her/his medication as prescribed, or is smoking. Asthma attacks often compel the patient to visit an

emergency department at a hospital. Medical aid schemes pay a high cost for the admission of asthma patients to the emergency departments and to hospitals. It is therefore beneficial for the medical aid scheme to keep the asthma patient free from asthma attacks.

Fifty percent (n=27) of the respondents indicated that they did not experience asthma attacks, whereas 37.0% (n=20) had attacks 1-5 times a year, 7.4% (n=4) had asthma attacks 6-10 times a year and 5.6% (n=3) had 11 or more attacks per year.

The number of asthma attacks experienced by the respondents corresponded with the number of visits made by them to their private doctors. Just more than a half (53.7%; n=29) did not visit a private doctor, 38.9% (n=21) visited their doctor 1-5 times a year, 3.7% (n=2) visited the doctor 6-10 times a year and another 3.7% (n=2) visited their doctor 11 or more times a year. Asthma patients should visit their doctors every six months even if they feel well.

4.3 KNOWLEDGE ABOUT THE DISEASE

Patients will cooperate better with the health care providers if they have knowledge about the disease and its treatment. According to Huber (2006:370) one of the strategies of disease management (DM) is to “help identify knowledge deficits and counselling needs”. Questions were asked to the respondents to establish their knowledge level about asthma. The first question was to determine if they knew what asthma is.

The majority of the respondents (83.3%; n=45) knew that asthma is a chronic disease of the airways, 9.3% (n=5) said asthma is the disease of the lungs, 3.7% (n=2) said it is chest infection and 3.7% (n=2) said the disease affects smokers.

The second question asked whether there is a cure for asthma and 54 respondents answered this question. Of these 54 respondents 88.9% (n=48) knew that there is no cure for asthma, yet 11.1% (n=6) thought there is a cure for asthma.

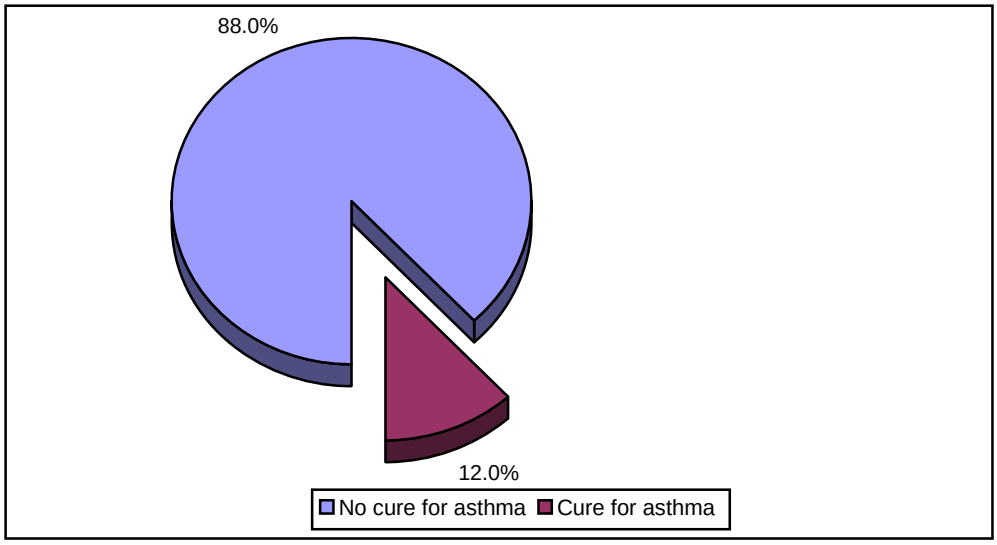

Figure 4.3

Cure for asthma (n=54)

Question 3 asked whether the respondents thought persons affected by asthma could live normal lives. The majority (92.6%; n=50) of the respondents understood that one could live a normal life when taking medication as prescribed while 53.7% (n=29) said one could live a healthy life if one stopped smoking. Another 18.5% (n=10) believed that one could live a normal life by taking medication when ill. Respondents could choose more than one answer when answering this question.

Question 4 asked the respondents what triggered asthma attacks. The respondents could again choose more than one answer.

The majority of respondents (83.3%; n=45) indicated that an asthma attack is triggered by allergies, while 63.0 % (n=34) said by dust mites, 44.4% (n=24) said by smoking and 42.6 % (n=23) said by cats and dogs.

Respondents were asked what causes the narrowing of the airways during an asthma attack. The narrowing of the airway during an asthma attack caused by swelling of the inner lining of the breathing tubes was selected by 81.5% (n=44) of respondents, while 40.7% (n=22) indicated that the narrowing is caused by the increased sticky mucus, whereas 37.0 % (n = 20) said it was caused by muscles spasms.

The respondents did not understand what happened during asthma attacks and more education was needed to empower these asthma patients with knowledge about their illness. It is imperative that asthma patients have the necessary knowledge about their condition so that they can be able to comply with the asthma DRM programme.

Taylor, Auble, Calhoun, Mesesso and Mesesso (1999:1645) mention that the outpatient management of most asthma patients presenting to the ED did not comply with the consensus guidelines and their asthma knowledge was poor.

4.4 MEDICATION COMPLIANCE

It is important for asthma patients to take medication even if they do not feel ill because it places patients in control of their condition rather than letting the asthma control them. Asthma medications are available as either inhalers or tablets. Most asthma medicines are given in the form of inhalers. There are three main groups of inhalers namely:

- aerosol inhalers, also called metered dose inhalers (MDIs) or puffers
- breath-actuated inhalers
- dry powder inhalers

Most asthma sufferers take their treatment through an inhaler, but there are additional medications that can be given in the form of tablets. “The route of choice for administration of these medication is the MDI because it allows for topical administration” (Smeltzer & Bare 2004:589). Lalloo et al (2000:541) state that inhaled corticosteroids are the mainstay of treatment for patients with chronic persistent asthma. The inhaled route is preferred because delivery direct to the lungs permits the use of lower doses.

Some respondents indicated that they took more than one medication for asthma. Some patients took their treatment once a day only, others twice, thrice and some even four times daily. It takes determination and commitment on the part of the patient and a good support system from the patient’s family, the treating doctor and the case manager to assist the patient to comply with medication routines, especially if these need to be taken more than once per day.

The majority of the respondents (68.5%; n=37) used preventer pumps, 50.0% (n=27) used reliever pumps, 20.4 % (n=11) took oral tablets, 5.6% (n=3) took no medication and 3.7% (n=2) took aminophyllin. Fourteen respondents (7.5%) did not answer this question.

The majority of the respondents 53.7% (n=29) took their treatment as prescribed, 18.5% (n=10) took treatment when they felt ill, 13.0% (n=7) did not take treatment at all and 5.6% (n=3) forgot to take their treatment.

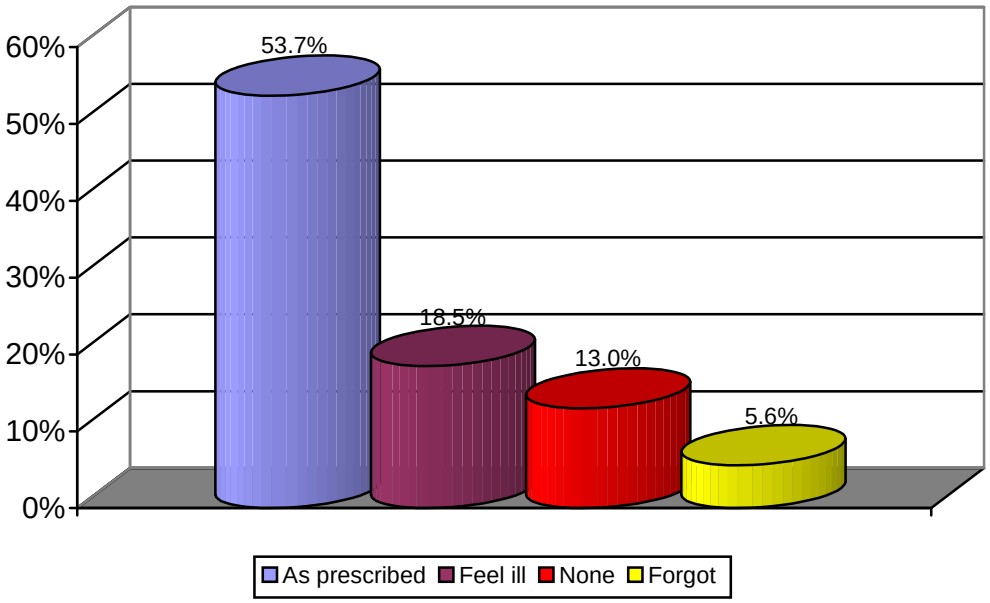

Figure 4.4

How asthma treatment is taken (n=49)

4.5 ASTHMA TREATMENT

As many as 66.7% (n=36) of the participants indicated that they used preventer pumps while 33.3% (n=18) said they did not use preventer pumps. Out of the 66.7% (n=36) respondents who used preventer pumps, 27.7 % (n=15) claimed to know how to use these correctly and 5.5% (n=3) admitted that they did not know how to use preventer pumps correctly.

Patient teaching is a critical component of care for the patient with asthma. Multiple inhalers, different types of inhalers, anti-allergy therapy, anti-reflux medication, and avoidance measures are all integral for long term control of asthma (Smeltzer & Bare

2004:594). Patient teaching is a critical component of care for the patient with asthma. Multiple inhalers, different types of inhalers, anti-allergy therapy, anti-reflux medication, and avoidance measures are all integral for long term control of asthma (Smeltzer & Bare 2004:594).

4.6 STRESS LEVELS

Smeltzer and Bare (2004:54) state that stress management and stress reduction are important aspects of health promotion for patients living with asthma. Studies have shown the negative effects of stress on health and the cause-and-effect relationship between stress and infectious diseases, traumatic injuries and most chronic illnesses, including asthma. Klinnert (2003:574) states that severe negative life events increase the risk of children's asthma attacks over subsequent weeks. Stress is a common asthma trigger and life events that occur in the context of stress exacerbates asthma in children.

Stress plays a major role in chronic illnesses. The more stressed the patient is, the harder it is to keep the illness under control. Most of the respondents (46.3%; n=25) indicated that they experienced moderate stress levels, whereas 44.4% (n=24) reported mild stress levels and 9.3% (n=5) experienced severe stress levels.

4.7 OPINIONS ABOUT THE ASTHMA DRM PROGRAMME

To establish respondents' perceptions regarding the services of the medical aid scheme, two sets of questions on a Likert scale were asked, followed by three open-ended questions, inviting the respondents to air their views on the asthma DRM programme in their own words.

4.7.1 Perceptions of the respondents about the asthma DRM programme

The respondents' perceptions about the asthma DRM programme are portrayed in table 4.3. The total number of responses per item differed and is indicated in the right hand column).

In response to the question asking whether the DRM programme provided sufficient information on asthma as a disease, 21.9% (n=7) disagreed, 28.1% (n=9) agreed and 50.0% (n=16) were unsure.

Answers to the question asking whether the programme offered enough information on asthmatic medications revealed that 27.7% (n=15) disagreed, 30.6% (n=11) agreed and 41.7% (n=16) were unsure.

Asked whether the DRM programme explained the prescribed minimum benefit services of the respondents, 34.3% (n=12) disagreed, 31.4 % (n=11) agreed and 34.3% (n=12) were unsure.

To the question asking whether the DRM programme provided sufficient information about the importance of regular check-ups, 38.2% (n=13) disagreed, whereas 29.4% (n=10) agreed and 32.4% (n=11) were unsure.

In response to whether the DRM programme helped to understand the triggers of asthma and their avoidance 44.1% (n=15) disagreed, 26.5% (n=9) agreed and 29.4 % (n=10) were not sure.

As many as 41.2% (n=14) disagreed, 29.4% (n=10) agreed and another 29.4% (n=10) were unsure whether or not the DRM programme helped patients to understand how to use preventer pumps effectively.

Asked whether the DRM programme helped patients understand how to use reliever pumps, as many as 42.4% (n=14) of the respondents disagreed, 30.3% (n=10) agreed and 27.3% (n=9) were unsure.

There were 40.6% (n=13) respondents who disagreed, 28.1% (n=9) who agreed and 31.3 % (n=10) who were unsure whether the DRM programme helped patients to understand the importance of regular exercise to control asthma attacks.

Table 4.3 Respondents' perceptions regarding the asthma DRM programme of the medical aid

(see the total for each row in the last column as the number of respondents differed for different items)

The asthma DRM programme of the medical aid	Disagree		Unsure		Agree		
	n	%	n	%	n	%	Total
1. Gives enough information on asthma as a disease	7	21.9	16	50	9	28.1	32
2. Gives enough information on asthma medication	10	27.7	15	41.7	11	30.6	36
3. Gives an understanding of the PMB services	12	34.3	12	34.3	11	31.4	35
4. Gives knowledge about the importance of regular check-ups	13	38.2	11	32.4	10	29.4	34
5. Helps patients understand triggers of asthma and how to avoid them	15	44.1	10	29.4	9	26.5	34
6. Helps patients understand how to use the preventer pump effectively	14	41.2	10	29.4	10	29.4	34
7. Helps patients understand how to use the reliever pump effectively	14	42.4	10	30.3	9	27.3	33
8 Helps patients understand the importance of regular exercises	13	40.6	10	31.3	9	28.1	32
9. Helps patients understand the importance of maintaining a normal body weight	15	44.1	10	29.4	9	26.5	34
10. Gives patients an understanding of a healthy eating plan	15	44.1	10	29.4	9	26.5	34
11. Helps patients understand how asthma medications work	15	44.1	10	29.4	9	26.5	34
12. Gives patients guidance and assistance to effectively manage asthma and prevent hospitalisation for asthma attacks	15	42.9	10	28.6	10	28.6	35

The results of this study indicated that the respondents had different views about the DRM programme as others disagreed, others were unsure and others agreed with questions asked on a Likert scale.

Harvey and DePue (1997:42) believe that to successfully implement a disease management programme, a tightly integrated continuum of care, sophisticated information systems, and disease management support systems must be in place.

4.7.2 Perceptions of the respondents about the case managers of the asthma DRM programme

Respondents answered the question about their perceptions of the case managers of the asthma DRM programme although all 25 respondents who answered indicated that they had not been aware that there was such a programme and/or that there were case managers for such a programme.

The questions about the case manager of the asthma DRM programme were also on a Likert scale. Table 4.4 presents the responses to these questions, varying from disagree, unsure to agree.

The response to the statement that the case manager is knowledgeable about asthma as a disease was that 23.3% (n=7) respondents disagreed, 60.0% (n=18) respondents were unsure and 16.7% (n=5) respondents agreed with the statement. Answering the question that the case manager phones patients at regular intervals to monitor progress on their condition 39.3% (n=11) disagreed, 46.4% (n=13) were unsure and 14.3% (n=4) agreed with the statement. Eleven respondents (39.3%) disagreed with the assertion that the case manager sends patients PMB treatment plans on time, 46.4% (n=13) were not sure and 14.3% (n=4) agreed with the statement.

Table 4.4 Respondents' perceptions regarding the case managers of the asthma DRM programme of the medical aid (see the total for each row in the last column as the number of respondents differed for different items)

The case manager (sister) of the asthma DRM programme of the medical scheme	Disagree		Unsure		Agree		
	n	%	n	%	n	%	Total
1. Is knowledgeable about asthma as a disease	7	23.3	18	60.0	5	16.7	30
2. Is approachable when patients feel uncertain about their treatment	8	25.8	18	58.1	5	16.1	31
3. Helps patients understand the PMB and the settlement of such claims	9	30.0	16	53.3	5	16.7	30
4. Gives patients an opportunity to make decisions regarding their condition	9	31.0	15	51.7	5	17.2	29
5. Reminds patients to send a new prescription in due time	9	31.0	15	51.7	5	17.2	29
6. Refers patients to relevant people to settle their PMB accounts	10	35.7	14	50.0	4	14.3	28
7. Helps patients understand the Peak Flow reading	10	35.7	14	50.0	4	14.3	28
8. Helps patients understand the importance of a healthy lifestyle	10	35.7	14	50.0	4	14.3	28
9. Phones patients at regular intervals to monitor progress on their condition	11	39.3	13	46.4	4	14.3	28
10. Is willing to answer patients' questions to the ability of her/his knowledge	11	39.3	13	46.4	4	14.3	28
11. Sends patients PMB treatment plans on time	11	39.3	13	46.4	4	14.3	28
12. Communicates with patients in a language that is easily understood by them.	11	39.3	13	46.4	4	14.3	28

4.7.3 General feelings of the respondents about the asthma DRM programme

There were three open-ended questions which asked the respondents about their perceptions of the asthma DRM programme.

4.7.3.1 Hassles experienced by the respondents while on the asthma DRM programme

The first question asked what hassles the respondents experienced while on the asthma DRM programme. Out of 54 respondents, only 46.3% (n=25) answered this question and all of them stated that they were not aware that there was such a programme. The 25 respondents did not indicate any hassles. They indicated that they knew nothing about the asthma DRM programme.

News letters are a source of information for members of the medical aid scheme. One respondent (4.0%) indicated he/she got the information about the DRM programme from a pamphlet. Case managers also introduced and promoted the programme when they contacted or received calls from the patients with chronic illnesses such as asthma.

4.7.3.2 Benefits that the asthma DRM programme have for the respondents

The second question asked what benefits the asthma DRM programme had for the asthma patients. Only 17 respondents answered this question, out of which 76.5% (n=13) were unsure, 17.6% (n=3) said there were no benefits and 5.9% (n=1) said that the programme prevented asthma attacks.

According to Harvey and DePue (1997:38, 40, 42) the disease management (asthma DRM management in the case of this study) is an approach to patient management, customer satisfaction, and cost containment that comprises disease modelling; patient segmentation and risk assessment; clinical protocols; and wellness, self management and education.

4.7.3.3 Respondents' views on what can be done to improve compliance among asthma patients

Twenty two respondents (40.7%) answered the question asking what could be done to improve compliance among asthma patients as follows:

- Eight respondents (36.4%) suggested that patients should be contacted and be made aware of the DRM programme.
- Three other respondents (13.6%) suggested that information and knowledge should be given to patients, and that the electronic mailing system should be used to convey the information to patients.
- Two respondents (9.1%) suggested that the relationship between the case manager and the patient should be improved and patients should be motivated to take care of their illnesses.
- Another respondent (4.5%) did not want to comment.
- Education about chronic medication was suggested by one respondent (4.5%) as the means to improve the compliance of asthma patients.
- Another respondent (4.5%) suggested that asthma patients should be enrolled in the DRM programme.
- Improvement of communication between case managers and patients would according to one respondent (4.5%) improve the compliance of asthma patients.
- It was suggested by one respondent (4.5%) that the DRM programme should address the cost of chronic medication.
- Knowledge about the PMB and its impact on the patient was regarded by one (4.5%) respondent as a means to improve compliance of asthma patients.
- One respondent (4.5%) highlighted that the DRM programme needed to be better promoted so that all patients should be aware of it and have a better understanding of how to enrol in the programme and what benefits the programme has for the patients.

4.8 CONCLUSION

The results of the analysis of the data obtained by the questionnaires were presented in this chapter.

The respondents in this study portrayed that asthma affects all age groups. The age groups 5-10 years (20.4%) and 41-50 years (18.5%) were the best represented, while there were slightly more males (55.6%) males than females (44.4%) in the sample.

The results in this study support the other research findings that asthma is a familial disorder where 68.5% of the respondents indicated that they had a family history of asthma.

It seems as if most respondents were following average healthy lifestyles as 68.5% indicated that they followed healthy eating plans and only 14.8% smoked. Exercise did not play a significant part in the lives of these respondents as 40.7% acknowledged that they did not exercise.

More than one fifth (22.6%) of the respondents disclosed that they omitted visiting their general practitioners or pulmonologists for their yearly check-ups while more than half (57.4%) did not have laboratory tests done annually. A reason for this might be that 50% of the respondents revealed that they did not experience asthma attacks.

The respondents appeared to be knowledgeable about asthma as a disease in general. However, they did not know what actually happened during an asthma attack. Although the majority (53.7%) of the respondents indicated that they took their treatment as prescribed, some (18.5%) only took their medication when ill and 5.6% admitted that they forgot to take their medicines.

Stress was experienced at moderate (46.3%), mild (44.4%) and severe (9.3%) levels by the respondents.

Two questions on the asthma DRM programme, and the case managers of the asthma DRM programme, were answered by about 60% of the respondents. In most of the cases the patients disagreed or were unsure whether the asthma DRM programme was helpful in managing asthma, and many respondents were reportedly unaware of the asthma DRM programme, and thus also unsure about the case managers in the asthma DRM programme.

Most respondents failed to answer the question on hassles experienced while on the asthma DRM programme because they were unaware of such programme. They were equally unsure (76.5%) about any benefits of the asthma DRM for themselves.

The respondents seemed to appreciate the value that an asthma DRM programme might have. Of the respondents, 36.4% suggested that patients who enrol on the asthma DRM programme, might maintain improved treatment compliance.

Various factors might influence asthma patients' treatment non-compliance These factors will be contextualised within the HBM's major tenets in chapter five.

The next chapter will present the conclusions, limitations and recommendations of the study as well as proposed areas for future research.

CHAPTER 5

Conclusions, limitations, guidelines and recommendations

5.1 INTRODUCTION

The main purpose of the study was to contribute towards an effective asthma DRM programme which would benefit the members of the medical aid scheme and their dependants and the industry. The identification of the reasons for non-compliance and recommendations for enhancing compliance among the members/dependants enrolled for the asthma programme would add to the purpose.

The conclusions are based on the data analysis and discussion in Chapter 4 of this dissertation and will be used to answer the research question which was formulated in Chapter 1 to direct this study namely:

- What are the reasons for non-compliance among members/dependants identified for the asthma DRM programme of a particular medical aid scheme?

The objectives were formulated in terms of the HBM's major tenets addressing participants' perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy. The objectives of the study were evaluated to determine whether they had been attained. Each objective will be listed and the conclusions given in relation to that specific objective.

The objectives of the study were to

- determine the reasons for non-compliance among members identified for the asthma DRM programme of the particular scheme
- identify organisational factors related to the non-compliance among members identified for the asthma DRM programme of the particular scheme
- develop guidelines to improve the adherence of asthma patients to the asthma DRM programme

5.2 CONCLUSIONS BASED ON THE HEALTH BELIEF MODEL

Several conclusions have been reached in this study based on the research results that were analysed in Chapter 4. The findings have been contextualised within the HBM's major tenets.

5.2.1 Perceived susceptibility

The findings of the study revealed that members registered for the asthma DRM programme who participated in this study, perceived themselves as being at risk of getting attacks as 14.8% (n=8) were smokers and 27.8 % (n=15) lived with smokers. An asthma attack usually occurs because a patient does not take her/his medication as prescribed, or is smoking. The majority of the respondents 53.7% (n=29) indicated that they took their treatment as prescribed. However 18.5% (n=10) took their asthma treatment when they felt ill, 13.0% (n=7) did not take treatment at all and 5.6% (n=3) forgot to take their treatment.

5.2.2 Perceived severity

The results showed that the respondents realised the severity of their risk to asthma attacks. This was evident in the study where (46.3%; n=25) of the respondents indicated that they experienced moderate stress levels, 44.4% (n=24) reported mild stress levels and 9.3% (n=5) severe stress levels.

5.2.3 Perceived benefits

Most respondents (46.3% (n=25) were unaware of the asthma DRM programme. One respondent (1.8%) was contacted by the DRM case manager while another received information from a pamphlet. The respondents believed in the efficacy of the advised actions to comply with the asthma DRM programme, including healthy lifestyle habits, healthy eating patterns, not smoking, regular exercises, medication compliance and regular medical check-ups.

5.2.4 Perceived barriers

Respondents perceived some barriers which prevented them from accessing medications. One barrier was the lack of knowledge about the DRM programme. Most respondents indicated that they were not aware of the DRM programme. One respondent (1.8%) perceived the high cost of medicines as a barrier to compliance. Some service and service provider-related factors also acted as barriers such as annual check-ups and the attitude of the case managers. Eight (25.8%) of the respondents disagreed with the statement that the case manager is approachable when patients feel uncertain about their treatment whereas 39.3% (n=11) disagreed with the statement that the case manager communicates with patients in a language that is easily understood by them. Another perceived barrier was that the case manager was unable to answer patients' questions according to the patients' comprehension abilities as indicated by 39.3% (n=11) of the respondents.

5.2.5 Cues to action

The respondents suggested several interventions that could motivate more asthma patients to comply with the asthma DRM programme. Eight (36.4%) suggested that the DRM programme should be well promoted, sending the necessary information to patients/members via the electronic mailing system and ordinary post. Another suggestion was that the programme should also assist members to understand the PMB and its impact on patients. Other proposals made by the respondents were that patients' involvement in managing their conditions should increased, they should be educated about asthma and be assisted to formulate realistic goals to manage their illness. Patients should be contacted at regular intervals by asthma case managers to discuss relevant topics.

5.2.6 Self-efficacy

Eight (36.4%) of the respondents mentioned that more information on the asthma DRM programme should be provided. By having more information about the asthma DRM programme, asthma patients would be able to make informed decisions to implement required actions, in this case managing their asthma condition effectively.

5.3 LIMITATIONS OF THE STUDY

The limitations that were identified during the course of the study included that:

- The research results might be limited to one medical aid scheme whose members participated in the study.
- Only self-completion questionnaires were used to collect data. Individual interviews might have revealed different reasons for non-compliance with asthma treatment.
- Two hundred questionnaires were mailed to the valid members of a particular medical aid scheme of which fifty four (27.0%) returned the completed questionnaires to the researcher.
- The consent form, which the respondents were requested to complete, might have contributed to the low response rate. The inclusion of the signed letter of consent, with the completed questionnaire, might have jeopardised the anonymity of the respondents. The researcher should have assumed that completion of the questionnaire implied consent on the part of the respondent.

5.4 GUIDELINES FOR IMPROVING THE ADHERENCE OF ASTHMA PATIENTS TO THE ASTHMA DRM PROGRAMME

Improvements for the asthma DRM programme based on the research results, might be enhanced if the following guidelines were implemented. It is recommended that:

- Patients should be educated about their condition and the triggers of asthma. Smokers should be discouraged from smoking around asthma patient and be motivated to stop smoking. Asthma patients should be educated about the importance of taking medication and be encouraged to take medication as prescribed by the doctor (see 5.2.1).
- All asthma patients should be educated about the effects of stress in aggravating their condition and be educated about stress management techniques so as to prevent the severity of the condition (see 5.2.2).
- Asthma patients should be educated about how to effectively manage their condition actively involved in decision-making regarding the management of their

chronic condition. Their involvement should be at all levels that is at the physician-patient level and case manager-client level (see 5.2.3).

- The asthma DRM programme should address barriers such as the cost of asthma medication and regular check ups by a doctor. Patients should be informed about their care plan (treatment plan) and what it entails. Efforts should be put in place to improve and/or promote the asthma DRM programme by ensuring that case managers have an approachable attitude towards their clients and should be willing to answer patients' questions to the ability of their knowledge (see 5.2.4).
- More information about the asthma DRM programme should be provided to members of the medical aid scheme through the electronic mailing system and by post. Asthma patients should be educated about the PMB and its impact and benefits to asthma patients. Asthma patients should be involved in managing their condition. Case managers should contact asthma patients at regular intervals by telephone to discuss the progress in disease management and to give guidance where necessary (see 5.2.5).
- The asthma DRM programme should be well promoted and patients should receive the necessary information about their condition so that they can have knowledge to manage their condition effectively. Asthma patients should be included in decision-making on how to manage their chronic condition, allowing them to set reasonable goals for themselves (see 5.2.6).

5.5 RECOMMENDATIONS FOR FURTHER STUDIES

The findings of this study suggest that future researchers could investigate the following:

- Duplication of this study in other medical aid schemes prior to generalisation of these research results.
- Investigating the role of case managers in motivating and empowering asthma patients to comply with the DRM programme.
- Further investigate the perceptions of the asthma patients towards asthma as a chronic condition, preferable by using qualitative in-depth interviewing.
- Identify and implement interventions that could be put into place to improve compliance among asthma patients of medical aid schemes.

- Explore the impact of the asthma DRM programme on behavioural changes among asthma patients.

5.6 CONCLUSIONS

The study revealed that most asthma patients were not compliant to the DRM programme because of lack of knowledge about the programme. The DRM programme should be better promoted and the patients be involved in goal setting and management of their illness to comply to the programme.

There is a need for patient education regarding regular exercises, healthy eating habits, importance of not smoking, regular visits to a treating doctor, taking medication as prescribed and regular laboratory tests. Members of the medical aid scheme should be empowered with the necessary knowledge so that they can successfully manage their condition and, by so doing, prevent asthma attacks and admissions to emergency departments and/or hospitals. When the condition is well-managed the patients' quality of life could improve and the medical aid scheme's costs contained.

The importance of enabling more asthma patients to comply with the DRM programme of this particular medical aid scheme cannot be overemphasised in the struggle to prevent complications, reduce hospital admissions and improve quality of life. Not only will the asthma patients themselves benefit from the DRM programme, but also their dependants and/or family members.

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ANNEXURE A

Permission from the Department of Health Studies Research and Ethics Committee to conduct the study

Annexure A

UNIVERSITY OF SOUTH AFRICA
Health Studies Research & Ethics Committee (HSREC)
Faculty of Humanities and Social Sciences
CLEARANCE CERTIFICATE

Date of meeting: 25 Januray 2007 Project No: 33187525
Project Title: Compliance among members registered for the asthma disease risk management programme of a particular medical aid scheme
Researcher: N Opedun
Supervisor/Promoter: Dr JH Roos
Joint Supervisor/Joint Promoter: Dr VJ Ehlers
Department of Health Studies
Degree: Master of Arts (Health Studies)

DECISION OF COMMITTEE

Approved ☐ √ **Conditionally Approved** ☐

Date: 25 January 2007

Prof TR Mavundla
RESEARCH COORDINATOR

ANNEXURE B

Permission from the Department of Health studies Research and Ethics Committee to conduct the study

Annexure B Letter requesting information to conduct a study on asthma patients

8 Broxburn Road
Southfield
7800

The Manager
Disease Risk Management
……. Medical aid scheme

REQUEST FOR PERMISSION TO CONDUCT RESEARCH AMONG ASTHMA PATIENTS BELONGING TO YOUR MEDICAL AID SCHEME

I am a case manager, working for your medical aid scheme. It has been noticed that some members and/or their dependants do not comply to a healthy lifestyle. Your medical aid scheme offers a free program known as the Disease Risk Management (DRM) programme which is run by case managers.

I am also a registered master's student with the Department of Health Studies, University of South Africa. My student number is 3318 752 5 and the title of my dissertation is NON-COMPLIANCE AMONG MEMBERS REGISTERED FOR THE DISEASE RISK MANAGEMENT PROGRAMME OF A PARTICULAR MEDICAL AID SCHEME

I am hereby requesting permission to send questionnaires to a sample of the above patients in an effort to identify factors influencing patients' non-compliance and to recommend ways of improving the situation. Enhanced compliance will improve the quality of life of the patients concerned and reduce the claims lodged with the medical aid scheme.

The name of the medical aid scheme will not be mentioned in the research report, nor in any publication that might be based on it. Only the two Unisa supervisors of my study need to see the original letter of granting permission to conduct this study.

Thank you for considering this request

Yours sincerely

Ntombombuso (Nombuso) Opedun

ANNEXURE C

Letter from the medical aid scheme granting permission to conduct research

Annexure C

LETTER FROM MEDICAL AID SCHEME GRANTING PERMISSION TO DO RESEARCH

Mrs. N Opedun
…….
……..
…….

16 February 2007

Dear Ntombombuso

Research Proposal: Non-compliance among members registered for the Disease Risk Management (DRM) program of a particular medical aid scheme.

This letter serves to confirm that you will be allowed to contact identified members of an administered scheme to perform your research. We are currently running an Asthma Disease Management Programme for the ….. Scheme. There are three hundred and thirty three patients registered on the programme and you can choose a sample of one hundred members.

Yours sincerely

ANNEXURE D

Questionnaire

COMPLIANCE AMONG MEMBERS REGISTERED FOR THE ASTHMA DISEASE RISK MANAGEMENT PROGRAMME

All information herewith provided will be treated confidentially. It is not necessary to indicate your name or any contact number in this questionnaire.

INSTRUCTIONS

1 Please answer all questions by providing an "X" in the box corresponding to the chosen alternative or by writing your opinion in the space provided.
2 Please answer all questions as honestly, frankly and objectively as possible.
3 Answer according to your own personal opinion and experience. If the persons suffering from asthma are children **under 18 years of age**, the parents/caretakers of the children should please complete the questionnaire. The "you" and "I" in the questionnaire therefore refers to the child with asthma.
4 Please return the questionnaire by **22 July 2007**.

Answer the questions by placing an "X" in the box corresponding to the answer that is applicable to you, or write down your response in the space provided.

SECTION A: DEMOGRAPHIC DATA AND MEDICAL HISTORY

1. How old are you?

For official use only

Age at your previous birthday		ANSWER		
1.1	5 years or younger	1		
1.2	5 -10 years	2		
1.3	10 -17 years	3		
1.4	17 - 20 years	4		
1.5	21- 30 years	5		
1.5	31- 40 years	6		
1.5	41- 50 years	7		
1.5	51- 60 years	8		
1.5	61 years and older	9		4

2. What is your gender?

For official use only

		ANSWER		
2.1	Male	1		
2.2	Female	2		5

3. Do you have a family history of one or more of the following conditions?

For official use only

Conditions		YES	NO		
3.1	Asthma	1	2		6
3.2	Diabetes	1	2		7
3.3	Hypertension (High blood pressure)	1	2		8
3.4	Angina	1	2		9
3.5	Chronic obstructive airway disease	1	2		10
3.6	Stroke	1	2		11

Lifestyle

4. Please indicate which of the following is applicable

For official use only

		YES	NO		
4.1	Do you smoke?	1	2		12
4.2	Are you living with people who often smoke in your presence?	1	2		13
4.3	Do you follow a healthy eating plan or programme	1	2		14
4.4	Do you receive your flu vaccination annually?	1	2		15

5. Indicate how many times do you exercise per week

For official use only

Number of exercise sessions per week		ANSWER		
5.1	Never	1		
5.2	Less than three times a week	2		
5.3	Three to five times a week	3		
5. 4	Six and more times a week	4		16

6. For how long do you exercise on average during each exercise session?

For official use only

Length of exercise session		ANSWER		
6.1	I do not exercise	1		
6.2	15 – 29 minutes	2		
6.3	30 – 59 minutes	3		
6.4	60 minutes and more	5		17

Annual check ups, laboratory tests and asthma status

7. How often do you go for your medical check up?

For official use only

		ANSWER		
7.1	Every 3 months	1		
7.2	Every 6 months	2		
7.3	Once a year	3		
7.4	Never	4		18

8. How often do you go for your laboratory tests?

For official use only

	ANSWER		
8.1 Every 3 months	1		
8.2 Every 6 months	2		
8.3 Once a year	3		
8.4 Never	4		19

9. When last did you have your peak flow reading checked?

For official use only

	ANSWER		
9.1 It has never been done	1		
9.2 The past 1 – 3 months	2		
9.3 The past 4 – 6 months	3		
9.4 The past 7-9 months	4		
9.5 The past 10 – 12 months	5		
9.6 More than a year ago	6		20

10. Indicate the number of asthma attacks you suffered during the past 12 months.

For official use only

Number of asthma attacks during the past 12 months.	ANSWER		
10.1 No attacks	1		
10.2 1 – 5 attacks	2		
10.3 6 – 10 attacks	3		
10.4 11 and more attacks	4		21

11. Indicate the number of visits to private doctors or emergency departments with an asthma attack during the past 12 months.

For official use only

Number of visits to private doctor or emergency department with an asthma attack during the past 12 months	**ANSWER**		
11.1 No visits	1		
11.2 1-5 visits	2		
11.3 6 – 10 visits	3		
11.4 11 and more visits	4		22

Knowledge about the disease

12. What is asthma? **(Mark only one answer)**

For official use only

	ANSWER		
12.1 Disease of the lungs	1		
12.2 Chronic disease of the airways (breathing pipes or tubes)	2		
12.3 Chest infection	3		
12.3 Disease affecting smokers	4		23

13. What triggers asthma attacks?

For official use only

	YES	**NO**		
13.1 Dust mites	1	2		24
13.2 Allergies	1	2		25
13.3 Cats and dogs	1	2		26
13.4 Smoking	1	2		27

14. Is there presently any cure for asthma?

For official use only

	YES	**NO**

	1	2		28

15. People with asthma can live a normal life when they …

For official use only

	YES	NO		
15.1 stop smoking	1	2		29
15.2 take medication only when they feel ill	1	2		30
15.3 Take medication as prescribed by the doctor	1	2		31

16. When one has an asthma attack one should use a preventer pump?

For official use only

	YES	NO		
	1	2		32

17. The narrowing of the airways (breathing tubes or pipes) during an asthma attack is caused by the following:

For official use only

	YES	NO		
17.1 swelling of the inner lining of the airways	1	2		33
17.2 increased sticky mucus or secretions in the airways produced by mucous glands	1	2		34
17.3 muscles going into spasm	1	2		35

Medication compliance and asthma treatment

18. What medication do you take for the treatment of your asthma?

For official use only

	YES	NO		
18.1 No medication	1	2		36
18.2 Preventer pump e.g. Seretide inhaler	1	2		37
18.3 Reliever pump e.g. Berotec inhaler	1	2		38
18.4 Oral tablets e.g. Theophyllin	1	2		39
18.5 Aminophyllin suppositories	1	2		40
18.6 Other (specify)				41

Please indicate if you experience any of the following possible side effects of your asthma medication.

- If you strongly agree with the statement, mark 5.
- If you agree to some extent with the statement, mark 4
- If you are unsure, mark 3.
- If you disagree to some extent, mark 2.
- If you disagree completely, mark 1.

19. Possible side effects of asthma treatment

For official use only

My asthma treatment gives me							
19.1 headaches	1	2	3	4	5		42
19.2 insomnia	1	2	3	4	5		43
19.3 nausea	1	2	3	4	5		44
19.4 palpitations	1	2	3	4	5		45
19.5 diarrhoea	1	2	3	4	5		46
19.6 dizziness	1	2	3	4	5		47
19.7 loss of appetite	1	2	3	4	5		48

20. How do you take your asthma treatment/medication?

For official use only

	YES	NO		
20.1 I do not take any asthma medication	1	2		49
20.2 Only when I feel ill	1	2		50
20.4 I often forget to take medication	1	2		51
20.5 As prescribed by the doctor	1	2		52

21. How many times a day are you supposed to take your asthma treatment / medication?

For official use only

21.1 I do not take any asthma medication	1		
21.2 Only when I feel ill	2		
21.3 Once a day	3		
21.4 Twice a day	4		
21.5 Three times a day	5		
21.6 Four times and more a day	6		53

22. How often do you need to have asthma prescriptions renewed?

For official use only

22.1 I do not take any asthma medication	1		
22.2 Every month	2		
22.3 Every 3 months	3		
22.4 Every 6 months	4		
22.5 Every year	5		54

23. The use of the inhalers

For official use only

	YES	NO	Do not use it		
23.1 Do you know how to use the reliever pump effectively?	1	2	3		55

23.2 If your answer is yes, please explain exactly how you use the reliever pump.

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	YES	NO	Do not use it		
23.3 Do you know how to use the preventer pump effectively?	1	2	3		56

23.4 If your answer is yes, please explain exactly how you use the preventer pump.

……
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Please indicate your feelings towards the following statements of your asthma treatment

- If you strongly agree with the statement, mark 5
- If you agree to some extent with the statement, mark 4
- If you are unsure, mark 3
- If you disagree to some extent with the statement, mark 2
- If you disagree completely, mark 1

24. Statements about my asthma treatment.

For official use only

24.1 My doctor is easily accessible whenever I want to consult him / her	1	2	3	4	5		57
24.2 It is easy for me to collect my medicine from the pharmacy	1	2	3	4	5		58
24.3 It is easy for me to go to the emergency department of the hospital	1	2	3	4	5		59

24.4 I have the necessary transport available when I want to visit the doctor	1	2	3	4	5		60
24.5 I have the necessary transport available when I want to collect my medicine	1	2	3	4	5		61
24.6 The financial burden of the asthma medicine prevents me from taking it as prescribed by the physician	1	2	3	4	5		62

25. Experience of stress levels

For official use only

	Mild	Moderate	Severe		
25.1 How do you experience your stress levels?	1	2	3		63

SECTION B: FEELINGS ABOUT THE ASTHMA DISEASE RISK MANAGEMENT (DRM) PROGRAMME OF THE MEDICAL AID SCHEME

Please indicate your feelings towards the *Asthma DRM programme* of the specific medical aid scheme.

- If you strongly agree with the statement, mark 5.
- If you agree to some extent with the statement, mark 4.
- If you are unsure, mark 3.
- If you disagree to some extent, mark 2.
- If you disagree completely, mark 1.

26. *Feelings about the asthma DRM programme of the medical aid scheme*

For official use only

The Asthma DRM programme of the medical scheme							
26.1 gives me enough information on asthma as a disease	1	2	3	4	5		64
26.2 gives me enough information on the medication that an asthma patient should take	1	2	3	4	5		65
26.3 gives me an understanding of the prescribed minimum benefit services	1	2	3	4	5		66

26.4 gives me knowledge about the importance of regular checkups	1	2	3	4	5		67
26.5 helps me understand the triggers of asthma and how to avoid them	1	2	3	4	5		68
26.6 helps me understand how to use the preventer pumps effectively	1	2	3	4	5		69
26.7 helps me understand how to use the reliever pumps effectively	1	2	3	4	5		70
26.8 helps me understand the importance of regular exercises	1	2	3	4	5		71
26.9 helps me understand the importance of maintaining a normal body weight.	1	2	3	4	5		72
26.10 gives me an understanding of a healthy eating plan.	1	2	3	4	5		73
26.11 helps me understand how asthma medication work	1	2	3	4	5		74
26.12 gives me guidance and assistance to effectively manage my condition and prevent me from being hospitalised for asthma attacks.	1	2	3	4	5		75

27. *Feelings about the case managers of the asthma DRM programme of the medical aid scheme*

Please indicate your feelings towards the case managers of the asthma programme of the specific medical aid scheme.

- If you strongly agree with the statement, mark 5.
- If you agree to some extent with the statement, mark 4.
- If you are unsure, mark 3.
- If you disagree to some extent, mark 2.
- If you disagree completely, mark 1.

For official use only

The case manager (sister) of the Asthma DRM programme of the medical scheme							
27.1 is knowledgeable about asthma as a disease	1	2	3	4	5		76
27.2 is approachable when I feel uncertain about my treatment	1	2	3	4	5		77
27.3 helps me understand the PMB and the settlement of such claims	1	2	3	4	5		78
27.4 gives an opportunity to make	1	2	3	4	5		79

decisions regarding my condition							

27.5 reminds me to send a new prescription in due time	1	2	3	4	5		80
27.6 refers me to relevant people to settle my PMB accounts	1	2	3	4	5		81
27.7 helps me understand the Peak Flow reading to see how effective the medication works	1	2	3	4	5		82
27.8 helps me understand the importance of a healthy living / lifestyle	1	2	3	4	5		83
27.9 phones me at regular intervals to monitor progress on my condition	1	2	3	4	5		84
27.10 is willing to answer my questions to the ability of her/ his knowledge	1	2	3	4	5		85
27.11 sends me my prescribed minimum benefit treatment plan on time	1	2	3	4	5		86
27.12 communicates with me in a language that is easily understood by me	1	2	3	4	5		87

28. Indicate the number of contacts that you have with the case manager (sister) of the asthma DRM programme of your medical aid scheme during the past 12 months.

For official use only

Number of contacts during the past 12 months	**ANSWER**		
28.1 No contact	1		
28.2 1-2 contacts	2		
28.3 3-5 contacts	3		
28.4 6 and more contacts	4		88

29. How did you receive health education about asthma from the asthma DRM programme?

For official use only

	YES	NO		
29.1 I did not receive any health education about asthma from the DRM programme	1	2		89
29.2 I received pamphlets on asthma from the asthma DRM programme	1	2		90
29.3 I received phone calls on asthma from the asthma DRM programme	1	2		91

29.4	I received e-mails on asthma from the DRM programme	1	2		92

Please write down your own opinion about the following aspects of the asthma Disease Risk Management programme of the medical aid scheme.

30. What hassles do you experience while you are on the *asthma disease risk management programme?*

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31 What benefits does the *asthma disease risk management programme* have for you as an asthma patient?

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32 What can be done to improve the compliance among asthma patients to the asthma DRM programme?

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THANK YOU FOR YOUR PARTICIPATION

ANNEXURE E

Letter of information for asthma patients

Annexure E
COVER

Disease Risk Management
……. Medical aid scheme
1/03/2007

Dear member

I am a case manager, working for your medical aid scheme. It has been noticed that some members and/or their dependants do not comply to a healthy lifestyle. Your medical aid scheme offers a free program known as the Disease Risk Management (DRM) programme which is run by case managers. The aim of this programme is to provide knowledge, guidance and assistance to members with chronic illnesses such as diabetes, hyperlipidaemia (high blood cholesterol), hypertension (high blood pressure) and asthma. The goal of these programmes is to encourage members to live a healthy lifestyle and have their illnesses well controlled, to prevent hospitalisation, complications and deterioration of health and early deaths.

Prescribed Minimum Benefit care plans are mailed to members with chronic illnesses to encourage them to have regular visits to their doctors and to have specific test done at the medical aid scheme's expense. Case managers contact members telephonically, on regular basis, to assist members to set goals for themselves and to monitor their progress.

Some members do not utilise this service, either by declining to join the program, or join and then fail to follow a healthy eating plan, do regular exercises and stop smoking. They neglect to take their treatment regularly, have regular tests done or visit their doctors and other service providers regularly as stipulated by their individual care plans.

A survey is being conducted to determine factors that contribute to non-compliance to the programme. The purpose of the study is to contribute towards an effective DRM program which will benefit members and their dependants and the scheme as a whole by identifying the reasons for non-compliance and making recommendations for enhancing compliance.

We need your help to establish the reasons why some of the members of this medical aid scheme fail to comply with the asthma DRM programme. You are, hereby requested to contribute towards the survey by completing the attached questionnaire and to return it together with the consent form in the enclosed stamped, addressed envelop.

Participation in the survey is voluntary, and every participant's identity will be treated confidentially.

Your contribution is highly appreciated.
Yours truly,
Ntombombuso (Nombuso) Opedun

ANNEXURE F

Consent form

Annexure F

CONSENT FORM

I,……, have read the contents of the letter regarding a survey on compliance with asthma treatment. The letter clearly states that participation is voluntary and no compensation is available for participating in this survey.

I hereby agree to participate in the survey which will contribute towards a more effective DRM Program, to benefit members of the medical aid scheme and their dependants, as well as the medical aid scheme itself.

Signature: ……. Date……..