



UNIVERSITY *of*  
RWANDA

**ASTHMA SEVERITY, PERCEPTION AND SELF-CARE PRACTICES  
AMONG ASTHMA PATIENTS IN RWANDA**

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**ASTHMA SEVERITY, PERCEPTION AND SELF-CARE PRACTICES  
AMONG ASTHMA PATIENTS IN RWANDA**

**By**

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A dissertation submitted in partial fulfillment of the requirements for the degree

of

**MASTER OF SCIENCE MEDICAL SURGICAL NURSING**

In the College of Medicine and Health Sciences

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September, 2019

## DECLARATION

I do hereby declare that this dissertation entitled “**Asthma severity, perception, and self-care practices among asthma patients in Rwanda**” submitted in partial fulfillment of the requirement for the Master’s degree in medical surgical track, in UR/CMHS/school of nursing and midwifery, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

KABANYANA Pauline 217292208

Signature.....

## **DEDICATION**

I dedicate this dissertation to Almighty God for everlasting love. I can't forget to dedicate it to my husband Jean Bosco MUNYEMANA, my children Ora Sheila CYIZERE and Oran Shalom IZERE, my mother Evelyne MUKAGAKWAYA, my lovely brothers, family members, all friends and colleagues.

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## **ABSTRACT**

**Background of the study:** Asthma affects more than 358 million people worldwide. Although the mortality rate is not increasing in high income countries, asthma continues to be problematic in low-income countries. It is a health threatening condition and affects many people, especially in Sub Saharan countries where Rwanda is located. Unfortunately, paucity of reports on this condition about patient's perception, asthma severity, and patient self-care for better patient outcome is evident in Rwanda.

**Aim of the study:** To assess the association between asthma severity, perception and self-care practices among asthma patients in Rwanda.

**Methodology:** A cross-sectional study was used in this study. This study was conducted at selected District Hospital and Health Centers among patients with asthma who visited these health facilities during the study period. Eighty participants (80) were recruited and included in this study using total population sampling strategy and the data was collected using questionnaires and analyzed with SPSS version 22 by descriptive and inferential statistics. A letter for ethical clearance was guaranteed by the IRB/UR/CMHS. Before data collection, the researcher explained the nature of the study to the participants and the participation was voluntary. The consent was signed and the questionnaires didn't bear the patient name, the data will be used only for the purpose of this research.

**Results:** This study found that most of the participant had mild persistent asthma with 65%, followed with mild moderate 15%, intermittent 7.5% and persistent severe with 6.3 %.

72.5% of the participants had moderate perception with asthma. In addition to that, it was found that many participants (56.3%) had a moderate self-care practices while 33.8% had good self-care practices.

Statistical analysis has found a statistically significant association between asthma severity and self-care practices (p.value= 0.046,) and correlation analysis revealed a negative correlation between asthma severity and self-care practices (r=-0.165). However, there was no statistical significant association between asthma severity and perception (p.value=0.749).

**Conclusion:** There is an association between asthma severity and self-care practices. Avoiding pollen exposure could potentially reduce asthma exacerbation. However, the habit of drinking alcohol can exacerbate this chronic disease.

**Key words:** asthma, asthma severity, perception, self-care practice, asthmatic patients, Health Center, District Hospital, Rwanda.

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## **LIST OF SYMBOLS AND ACRONYMS / ABBREVIATIONS**

**CMHS:** College of Medicine and Health Sciences

**DALYs:** Disability Adjusted Life Years

**Dr.:** Doctor

**IRB:** Institutional Review Board

**GINA:** Global Initiative for Asthma

**GOAL:** Good Outcomes for Asthma Living

**MOH:** Ministry of Health

**NSAIDs:** Non –Steroidal Anti Inflammatory Drugs

**NCDs:** Non-Communicable Diseases

**REALISE:** “REcognise Asthma and LInk to Symptoms and Experience

**SPSS:** Statistical Package for Social Sciences

**UR:** University of Rwanda

**USA:** United State of America

**WHO:** World Health Organization

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# CHAPTER 1. INTRODUCTION

## 1.1.INTRODUCTION

The first chapter highlights the description of asthma as non-communicable disease in different countries including Rwanda.

It describes the aim of the study, specific objectives, and research questions, significance of the study and subdivision of the study.

## 1.2. BACKGROUND

Asthma is a chronic respiratory disease and approximately affects 358 million worldwide as reported in 2015 (Joan *et al.*, 2017). Reports show the reduction of mortality rate in high income countries but asthma continues to be a health threatening condition in low income countries (GINA, 2018).

In a study conducted in USA including 200 asthmatic patients using a prospective chart review, 56/200(28%) had mild persistent asthma while many patients (64/200(32%) had intermittent asthma. and 58/200(29%) had moderate persistent and (Poowuttikul,*et al.*, 2017). While in a study done in Poland about the adherence and illness perception of patients diagnosed with asthma, 45.6% believe that even if asthma is an incurable disease but to take the medication as prescribed help in promoting the living condition of the patient living with asthma (Olszanecka and Almgren, 2014).

However, some of the patients believe on the simplicity of disease, due to the seasonal occurrence, while others have poor perception about the way of living with asthma as chronic disease, others forget to take the daily medicine which leads them to asthma exacerbation(Peláez, *et al.*, 2015),in addition to that Pose et al in their study on asthma exacerbation and risk factors for readmission, found that asthma severity is associated with lack of mixture of drugs after discharge, having co morbidities, decreased functioning of lungs, winter period, non-adherence to medication ,lung with decreased function, and being elderly (Pose and Muñoz, 2017).

This chronic disease continues to be problematic in Sub Saharan countries and the study conducted in Democratic Republic of Congo found a high frequency of asthma in adult in the city of Kinshasa and regarding severity of asthma,76% had intermittent asthma,8.1% had persistent asthma,5.4% had moderate asthma while 10.8% had severe persistent asthma In addition to that, they have found that presence of cat in house is the most trigger of asthma

exacerbation among participant (Obel *et al.*,2017). In the management of asthma, with the aim of reducing its severity, corticosteroids and bronchodilators should be used as treatment and would be better to give both treatments rather than giving bronchodilators alone (Donner and Visconti, 2014). Patient self-care management is one of the way of asthma management, that could contribute in it severity prevention.(Airedale, 2016).

In Rwanda, Asthma is more prevalent in urban than in rural, increased in female than male, and is a concern to the country due to its onset that require emergency interventions (Muhimpundu and Binagwaho, 2015).However, there is still few data, especially, focusing on severity related to patient's perception and self-care practices among patients with asthma in Rwanda.

### **1.3.PROBLEM STATEMENT**

Asthma continues to be a problem with an increasing prevalence (Jose and Craig, 2016 p.232). In study conducted in three districts of Rwanda, (Kayonza, Burera and Kirehe) it is founded that 27.8% of NCDs were asthmatic patients (Habineza *et al.*, 2017). The prevalence of asthma is around 18.5 million in the USA where adults account for two third of them and 4000 deaths occurs each year due to asthma and associated causes while the cost of asthma treatment is about 56 billion US dollars per year (Poowuttikul *et al.*, 2017).

A better management of asthma can contribute in reduced asthma severity onset, promotion of the wellbeing and reduction treatment related cost. In a study conducted in Zambia, among the interviewed participants,36.9% perceive that; being hospitalized is preventable in asthmatic patients while 54.7% of them believe that; symptoms of asthma can be prevented using drugs, especially inhaler controllers which is the good medication (Marsden and Somwe, 2016) However, the poor self-care is the key reason of asthma severity leading to poor quality of life, privation of housework activities, leisure time and decreased physical effort (Pinnock,*et al.*, 2015).

In Rwanda, asthma is among the diseases affecting respiratory tract, which are ranked at the first line of causing high mortality rate (MOH, 2017). The government of Rwanda has decentralized NCDs management including asthma, at District Hospital level and Health Centers and nurses are trained on NCDs management prior to working in NCD clinic (Habineza,*et al.*, 2017). Although the implementation of this policy is very important in prevention of asthma complications. Patients' self-care is paramount to its management and positive patient perception has an impact in its severity (Baiardini, *et al.*, 2015). According to

Global Initiative for Asthma, around 50% of patients do not adhere to medications as prescribed ,especially the controllers which could be intended or non-intended(GINA, 2018). A study on asthma severity, patients' perception and self-care practices among patients with asthma is yet to be conducted in Rwanda hence the researcher decide to embark of the study in the above mentioned area.

#### **1.4.AIM OF THE STUDY**

To assess the association between asthma severity, perception and self-care practices among asthma patients in Rwanda.

#### **1.5. RESEARCH OBJECTIVES**

1. To identify asthma severity among asthma patients in Rwanda.
2. To determine the perception of asthma among patients with asthma in Rwanda
3. To determine the self-care practices in patients with asthma in Rwanda.
4. To establish relationship between asthma severity, perception and self-care practices.

#### **1.6. RESEARCH QUESTIONS**

1. What is the severity of asthma among patients with asthma?
2. What is the level of perception among patients regarding asthma?
3. What are the self-care practices among patients with asthma with regard to asthma attacks prevention?
4. Is there any relationship between asthma severity, perception and self- care practices?

#### **1.7. SIGNIFICANCE OF THE STUDY**

In nursing practice this study will contribute a lot by increasing the awareness of asthma severity, current perception and self-care practices of patients with asthma. In education and research, the knowledge of accurate information about asthma will be of great importance it can be baseline especially for further research.

Furthermore, for Ministry of Health, the findings of this research and recommendations will be of great value for decision makers for example in evaluation of decentralization, inauguration and implementation of NCDs services at District Hospital and Health Centers in Rwanda.



## **1.8. DEFINITION OF CONCEPTS**

### **1.8. 1. Conceptual definitions**

**Asthma:** Asthma is a chronic inflammatory disease of the respiratory tract, concomitant with airway hyper sensitivity but inconstant, airflow blockage in the lung which is reversible, on treatment or without treatment (WHO, 2014).

**Asthma severity:** Asthma may be classified as intermittent, persistent mild, moderate or severe asthma; this classification will be measured by the days of exacerbation of symptoms per a week, nocturnal awakenings due to asthma exacerbation, if there is a limitation of normal activities or not due to asthma (GINA, 2018).

**Perception:** Perception is the way in which something is viewed subjectively (Dictionary, 2015).

**Self-care practices:** Self-care practices are duties performed by individuals on him or herself or by assistance with health care personnel. Patients must be encouraged to perform self-care practice in order to promote their health (Dictionary, 2015).

### **1.8. 2. Operational definitions**

**Asthma severity:** In this study asthma severity will be classified as intermittent, mild persistent, moderate persistent and severe persistent asthma.

**Perception:** In this study perception will be the way in which asthma is viewed by patients.

**Self-care practices:** In this study, self-care will be activities or duties performed by individuals on him or herself in relation to reducing asthma attacks and promoting self-care.

## **1.9 STRUCTURE/ORGANIZATION OF THE STUDY**

This dissertation is subdivided into two main parts, the first one includes title of the study, declaration, dedication, acknowledgement, abstract, table of contents, list of symbols and abbreviations, list of tables, list of figures and list of annexes.

While the second part include chapter one which is introduction, chapter two which is literature review, chapter three which is methodology, chapter four which is result and interpretation, chapter five which is discussion and the last one is chapter 6 which is discussion and recommendation.

## **1.10. CONCLUSION OF CHAPTER ONE**

In this chapter the researcher found that there is a need to conduct research about asthma, due to few researches done in this field in Rwanda. Thus, there is a need to understand the asthma severity, patient perception and self-care practices in Rwanda.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1. INTRODUCTION

The chapter of literature review includes the nature or burden of asthma severity, patient's perception about asthma and what patients do in self-care practices. To search this information, Google search, Google scholar, PubMed, Hinari and others have been used.

This literature review includes empirical and theoretical literature review, critical review and research gap identification as well as conceptual framework.

### 2.2. THEORETICAL LITERATURE REVIEW

#### 2.2.1 Overview about asthma

Patients with asthma used to have period of exacerbation, it may be due to additional respiratory infections caused by different pathogens or specific allergens such as: dusty area, fumes, smoke and sprays perfumes. To evaluate the exacerbation patients past history is a paramount adding physical examination and investigation including spirometry.(Jose and Craig, 2016 p.225)

Asthma severity is classified into four categories including intermittent, persistent mild, persistent moderate and persistent severe. The table below explain those 4 levels of asthma severity.

**Table 1. Asthma classification**

SEVERITY COMPONENTS	Intermittent	Persistent		
		Mild	Moderate	Severe
Symptoms	<= 2d/week	>= 2d/week but NOT every day	Every day	All day
Nocturnal awakenings	None	1-2x/month	3-4x/month	>= 1x/week
Salbutamol for controlling symptoms	<= 2x/week	>= 2d/week but NOT every day	Every day	Several times a day
Limitations on normal activities	None	Minor limitations	Some limitations	Extremely limited
Exacerbations requiring oral corticosteroid therapy (prednisolone)	0-1x/year	>=2 exacerbations in 6 months requiring oral corticosteroid therapy, or >= 4 episodes/year with wheezing during >= 1d WITH risk factors for persistent asthma		

(MOH, 2014 p.242)

### 2.2.3. Signs and symptoms

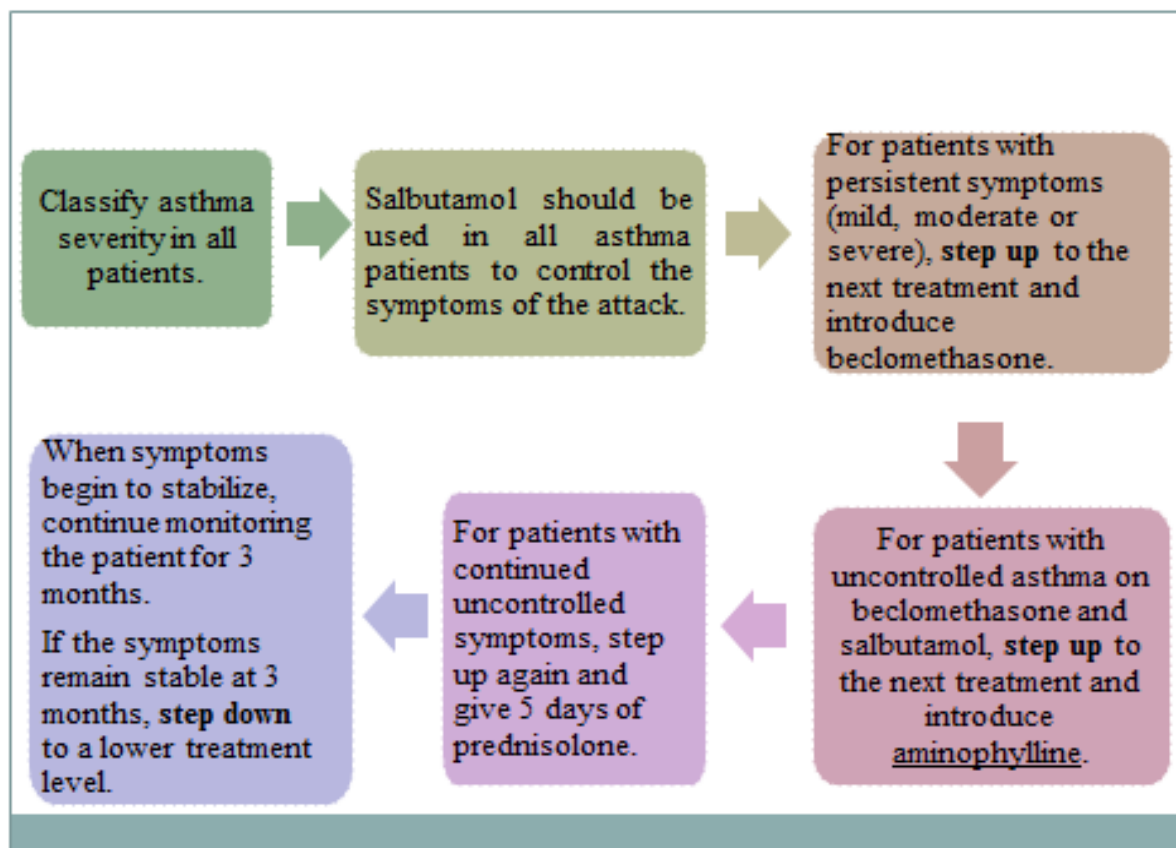
Signs and symptoms of asthma are due to inflammation, swelling which lead to diminution of the lumen of bronchi and bronchiole and result to dyspnea, increased respiratory rate, decreased saturation in oxygen, wheezing dry cough and chest tension. (Still and Dolen, 2016).

Therefore, the precise cause of asthma is not well known. However, the patient are supposed to prevent asthma triggers, and get treatments on time in case of signs and symptoms of asthma exacerbation (WHO, 2014).

### 2.2.4. Asthma treatment

Treatment of asthma use two category of medications including controllers and relievers and there are some steps to follow as shown below.

**Figure 1. Steps to follow for asthma treatment**



(MOH, 2016 p.111)

In chronic disease including asthma, self-care practice is a part of daily life including taking medication as prescribed, being in collaboration with your doctor frequently, take measure in cold weather because is among the common trigger of asthma, take the required diet and the balanced one with a lot of fruits and vegetables. Also keeping normal body mass index and to not smoke also can contribute in controlling asthma exacerbation. The overall self-care practice highlight avoiding asthma triggers (Jose and Craig, 2016 p.244).

### **2.2.5. Global Initiative for asthma management.**

The goal of asthma management is aimed to control symptoms and decrease the risk of getting attacks or exacerbation and they recommend the following:

**Medication adherence:** every patient has to use a controller drugs (regular low dose of inhaled steroids) regardless the frequency of symptoms in order to promote good lung function.

**Treatment and prevention of adaptable risk factors and associated diseases:** Prevent allergens and treat comorbidities that may worsen patients living conditions.

**Use of non-pharmacological treatments in management of asthma:** such as smoking cessation, regular physical exercise, avoid drug inducing symptom like NSAIDs (aspirin)

**Asthma due to occupation:** the history of onset of symptoms is a core stone to identify this type of asthma because this have adult onset. The better management is to quit the occupation which induces asthma (GINA, 2018).

## **2.3. EMPIRICAL LITERATURE REVIEW**

### **2.3.1 Global burden of asthma severity**

Asthma severity are dependent on the patients' perception and self-care practices (Byrne, and Bateman, 2017). In USA 18.5 million of people suffer from asthma and adult are two thirds of them, the high rate of asthma was observed from 1940-2010 and the cost of asthma treatment is around 56 billion USA dollars per year and the increase of this chronic disease continue to be a problem in industrialized countries but especially in urban area (Jose and Craig, 2016 p.244). The study done in USA, among 200 asthmatic patients using a prospective chart review, where the data were collected from December 2008 up to March 2010, the finding has demonstrated that 56/200(28%) had intermittent asthma, 64/200(32%) had mild persistent asthma and 58/200(29%) had moderate persistent (Poowuttikul, *et al.*, 2017).

In a cross-section study conducted in two countries Spain and Italy by general practitioner using questionnaires, 37% of respondents said that poor adherence to medication is the key reason of severity of asthma, they found that the reason behind is the cost of medication which is not affordable with some patients another thing is many drugs and doses which will lead to errors, for this points inhaler will decrease dose and errors and will facilitate adherence and the adherence to medications, in asthmatic patients when they feel better they stop drugs (Magnoni and Manuela, 2017). Also it was found that the risk factors contribution to asthma severity are rhinitis severity (0.48). Pulmonary physiology (-0.51), environment tobacco smoke exposure(0.30) allergens and allergic inflammation (0.22) contact had a remarkable contribution on asthma severity, while vitamins D had no significant relationship (Andrew *et al.*, 2017). Furthermore in a study done in Germany the most trigger of asthma was animals 82.1% followed with pollen allergen 40.4% (Thomas Ritz, 2016). The contributory factors found worldwide read to asthma severity was smoking (14.6%) and occupational triggers (18.7%) (Joan B Soriano, *et al* 2017).

In Australia climate change in patients with chronic lung disease, the predominant triggers for asthma exacerbation among respondents was pollen, followed with house dust and animals with 88%,58%,49% respectively. (Mertsch,and Kneidinger, 2017). Moreover ,in a study conducted in USA about asthma triggers,they have found that odors is the most trigger for asthma exacerbation (Jaén and Dalton, 2014).

This chronic disease continues to be problematic in sub Saharan countries and the study conducted in Democratic Republic of Congo found a high frequency of asthma in adult in the city of Kinshasa. Regarding severity of asthma, in a cross sectional study using a random stratified multi stage sampling''45% had asthma attacks in the 12 months preceding survey,7% were taking drugs every day,51% had not taken any medicine for a year,76% had intermittent asthma,8.1% had persistent asthma,5.4% had moderate asthma while 10.8% had severe persistent asthma. In addition to that, they have found that presence of cat in house is among the risk factors of asthma exacerbation (Obel *et al.*,2017).

In Rwanda in a retrospective study done using health care record from January 2007 to December 2012 in 3 districts Kayonza, Burera and Kirehe, it was found that on admission 142(40.1%) had mild asthma ,188(53.1%) had moderate asthma while 24(6.8%) had severe asthma. (Habineza *et al.*, 2017). Furthermore, asthma becomes more predominant and severe in women after puberty, signifying a role for Sex hormones in asthma origin.(Zein, *et al*,

2016) Habineza et al findings has shown that in his study 66.7% were female and 33.3% were male (Habineza,*et al.*, 2017) and his findings were the same like Sastre et al findings (Sastre,*et al.*,2016).

### **2.3.2. Perception about asthma in patients with asthma**

Patients perception about asthma is subjective view about the product of an event or situation,those event may trigger or worsen asthma symptoms such as viral infection, non-adherence to medication (GINA, 2017) also in a study done in Poland about the adherence and illness perception of patients diagnosed with asthma 45.6% believe that even if asthma is an incurable disease but to take the medication as prescribed help in promoting the living condition of the patient living with asthma (Olszanecka and Almgren, 2014).

Patient perception about symptoms have been shown to be linked on asthma severity in metanalysis done to explore the role of psychological factors associated with optimal levels of asthma control unsuccessfulfulfilment (Baiardini, *et al.*, 2015). In addition to that, disease outcomes are dependent on the patients' perception about that disease and self-care practices (Byrne and Bateman, 2017).In a qualitative study done about the perception of asthma severity ,they have found that many factors influence the perception of asthma severity in adults such as intellectual capacity, age and gender (Still and Dolen, 2016).

They are different perception about the way of living with asthma as chronic disease.Some believe on the simplicity of disease due to the seasonal occurrence and drug dependence,The others forget to take the daily medicine which lead them to power adherence on medication and disease exacebation (Peláez,*et al.*, 2015). In addition to that ,patients with asthma believe that climate change exacerbate asthma.This was found in a study done Australia where 48.6% of respondants thought that climate change would have very negative consequences,while 48.9% thought that positive and negative consequences were similarly significant (Mertsch *et al.*, 2017).

In a prospective study among 2902 patients and 231 physician it was identified that;the risk of exacerbation of asthma symptoms may be due to client and health care provider misunderstanding or lower perception. This was found in 27.2% of all population (Crespolessmann and Plaza, 2017).Forthermore, the cross sectional study done about the knowledge and perception of asthma, in 4 urban health centers in a period of 9 months from July 2011 to Match 2012 in zambia, has found that 36.9% of partipants perceive that being hospitalized is preventable in asthmatic patients and 54.7% of them believe that symptoms of asthma can be

prevented using drugs especially inhaler which is the good medication, this was reported by over 76% of the whole population (Marsden and Somwe, 2016).

Lastly, many patients believe that asthma is controlled when they have between 3 to 4 increase in symptoms or severity per year, and taking drugs daily lead to reduction of signs and symptoms. (Sastre *et al.*, 2016).

### **2.3.3. Self-care practices among patients with asthma**

Self care in asthma is important and this is supported by the randomized trial of self management education in asthmatic patients. (Airedale, 2016).

In a survey done among health care providers using questionnaire in a period of a month they reported that management of asthma in order to reduce the symptoms of severity, inhaled corticosteroids and bronchodilators are used as treatment, better to take both treatments rather than taking bronchodilators only. (Donner and Visconti, 2014). The poor self-management was associated with age, smoking and severity of asthma (Magnoni *et al.*, 2017).

A study conducted in Japan to evaluate the effectiveness of newly developed written asthma action plan in order to improve patients self care, after the completion of the study, the findings demonstrate that 83% of the whole population experience a reduced asthma exacerbation due to self care practices using the provided tool, which help in knowing the early signs of asthma attack and what to do as soon as possible and provide also relevant education accordingly (Lakupoch and Manuyakorn, 2018).

Patient with asthma have to do physical exercise because it enhances lung function, shapes overall strength and decreases the time that takes a somebody to feel breath out, aid in weight loss, which can lessen the risk of asthma exacerbation, recover immune system function, which decrease the risk of upper respiratory infections that can activate asthma attack and patient with asthma have to do regular physical exercise that help a person to take a short periods of rest in between and exercising in this way allows a person to be active and improve their strength without pushing too much tension on the lungs, such as swimming, yoga, volley ball, basketball, tennis... (GINA, 2018).

Orem self care model used in nursing care can be used to improve asthma outcome in asthmatic patients, a study done among adolescents in order to evaluate the effect of orem self care model on self esteem of patients with asthma has found that this model is good approach



to control and manage asthma, when they apply self-care practices behavior mentioned with this model (Hemati and Mosaviasl, 2015).

Self management as a core stone in asthma managemnt, nurses have the willing of helping patients to live with asthma, in a study done with mixed method to evaluate the effectiveness of achieving good outcomes for asthma living as tool, nurses reported that they have time boundaries in implementing GOAL tool which is helpful in self management. (Hoskins *et al.* 2016) this also is the same as the finding of the study done in UK indicate that self care in asthmatic patient is a work of a nurse. to help the patient to becomeself managed when challenges like time, decreased attending the health facilities, lack of personnel have been eliminated (Susan Morrow, *et al.*, 2017). Additionally to that, education has been found to be a basic role of health care provider especially in freshly diagnosed clients about the way of knowing triggers, sign and symptoms ,what to do as soos as possible as self care and how to use home materials like inhaler or spacer (Damon and Tardif, 2015).

The effectivness of treatment in patient with asthma will be evaluated by assessment of sleeping pattern when hospitalized, if not the patient may report about the adequatness of sleeping (Pereira, Sole and Avila, 2015). In Australia a study done about the comparative effectiveness of long term drug treatment strategies to asthma exacerbations has shown that joined inhaled corticosteroids and  $\beta$  agonists as maintenance, have a good care shape and is well in avoiding overall asthma attack than low dose inhaled corticosteroids alone (Damon and Tardif, 2015). In addition to that, most patients have to take mantainance treatment (short-acting b2-agonist ) in order to prevent asthma exacerbation (Bateman, 2014).

The risk of asthma is greater than before in patient with increased body mass index and many meta-analysis have associated overweight and obesity with an increased risk of developing asthma and prevention of obesity is a paramount especially in patients with asthma (Baiardini *et al.*, 2015) not only that patients with asthma have to quit smoking in order to decrease symptoms exacerbation, it have shown in study conducted among asthmatic patients in Canada where finding demonstrate an association between asthma severity reduction and smoking cessation (Teresa To, *et al.*, 2014). In addition to that regarding drinking alcohol and asthma condition, in France they found a dangerous relationship between alcohol consumption and lung damage which induce asthma exacerbation (Arvers, 2018).

## 2.4. CRITICAL REVIEW AND RESEARCH GAPS IDENTIFICATION

Different articles used in this literature review have used quantitative and qualitative approach and focus on the living condition of asthmatic patients. The various authors indicate that patients do not adhere to medications as prescribed (GINA, 2018) and recommend to do further research about the input of self-care practices in order to prevent asthma exacerbation (Habineza *et al.*, 2017). The country (Rwanda) prevalence of asthma is needed in terms of severity, further research also is needed to know the estimation of perception level (Joan B Soriano *et al.*, 2017). Other researchers has demonstrated that also there is a need of more research about the risk factors and patients self care practices (Poowuttikul *et al.*, 2017). More research also are needed to investigate more assessment about asthma control, poor adherence to drugs, asthma triggers and the technic of inhalation (Magnoni *et al.*, 2017).

## 2.5. CONCEPTUAL FRAMEWORK

The conceptual framework is an assembly of comprehensive thoughts and philosophies coming from pertinent arenas of survey for practice in arranging succeeding demonstration. The conceptual framework is generally defined and prepared to deliver a foundation or arrangement for the clarification of data and fact in conducted study (Ingham-broomfield, 2015).

In this study of identifying the association between asthma severity, perception and self-care practice of asthmatic patients the researcher adapt health believe model.

**Health belief model** date back to the 1950s, when researchers and health care providers try to explain how attitude, practice and perception lead to decision making in health, without patient's participation the outcome will be futile. The health belief model use six components:

- (1) **Perceived susceptibility:** patient perception about the effectiveness of different action that can be taken to decrease the danger of the condition.
- (2) **Perceived severity:** The patient perception about the gravity of the condition.
- (3) **Perceived benefits:** the patient perception about the action that can be taken to reduce the seriousness of the condition.

(4) **Perceived barriers:** Patient perception about the difficulties that can interfere the planned health care management.

(5) **Cue to action:** Those are the motivation that help patient to perform good action

(6) **Self-efficacy:** Patient level of assurance to perform recommended action.

In this study the health belief model was adopted as follow:

**1. Perceived susceptibility of asthma condition may be related to** age, sex, marital status, occupation, level of education and year of suffering asthma and those are the sociodemographic characteristics in this study.

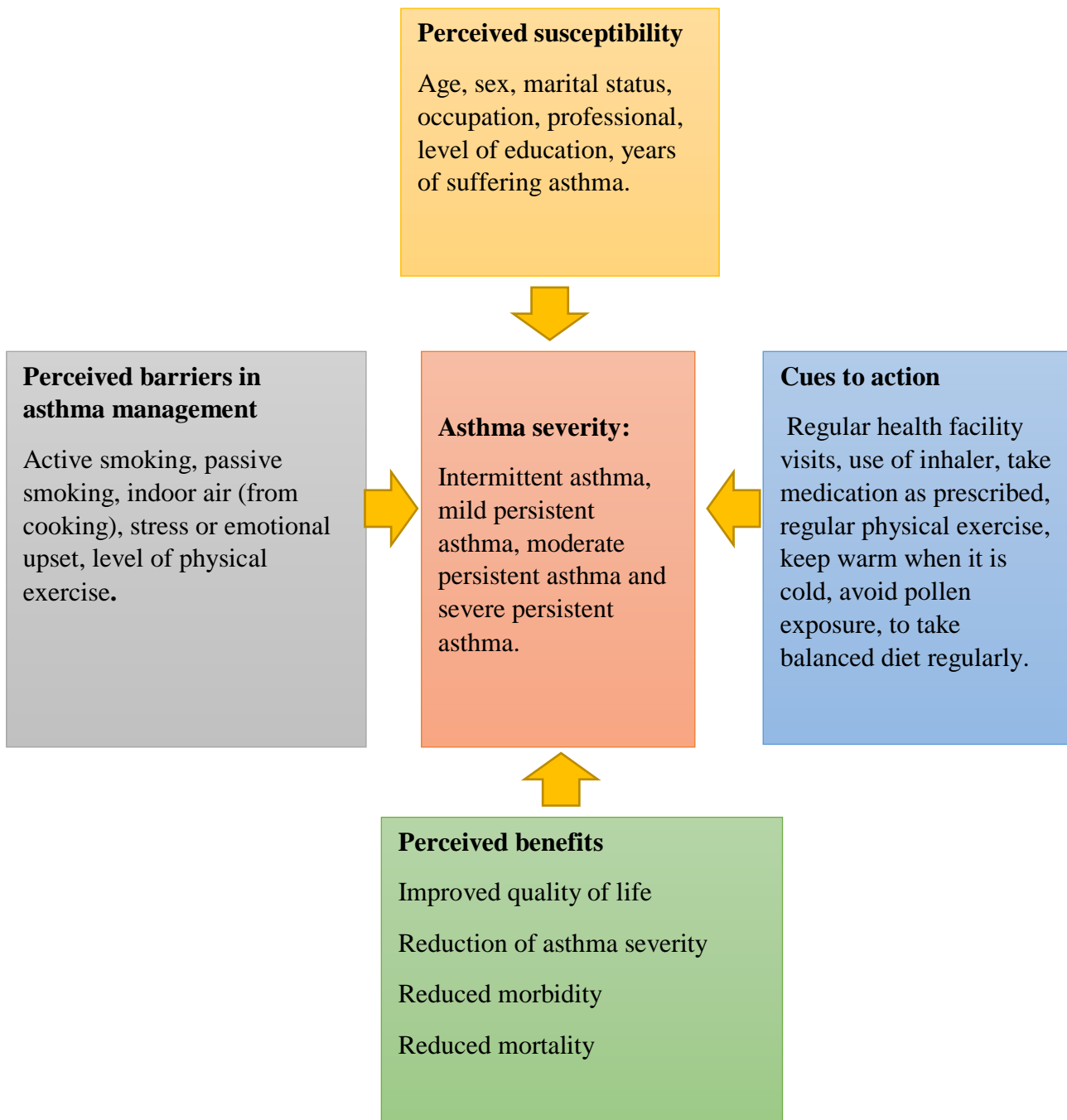
**2. Perceived asthma severity:** Patients living with asthma experience different levels of asthma severity including intermittent, mild persistent, moderate persistent and severe persistent.

**3. Perceived barriers related to asthma:** There are several barriers that interfere the patient living condition like, active smoking, passive smoking, indoor air (from cooking), stress or emotional upset and level of physical exercise.

**4. Cues to action:** Patient living with asthma in order to improve their wellbeing they have to put in action different practices behavior like regular health facility visit, use of inhaler, take medication as prescribed, regular physical exercise, keep warm when it is cold, avoid pollen exposure, to take balanced diet regularly.

**5. Perceived benefits:** improved quality of life, reduction of asthma severity, reduced morbidity and reduced mortality.

**Figure 2. Application of Conceptual framework**



## 2.6. CONCLUSION

In this literature asthma was discussed using several empirical and theoretical reviews globally and in different countries until in our country Rwanda. Asthma severity, perception and self-care practices were founded among those articles and books. Finally, conceptual framework has been used and the health belief model has been adopted.

## **CHAPTER 3. METHODOLOGY**

### **3.1. INTRODUCTION**

This chapter describes introduction, research design, research approach, research setting population, sampling, sample size, sampling strategy, validity and reliability of research instruments, data collection, data analysis, ethical considerations, data management, data dissemination, limitations and challenges and conclusion of three.

### **3.2. RESEARCH DESIGN**

The study design was a descriptive cross-sectional, which established the association between asthma severity, perception and self-care practices.

### **3.3 RESEARCH APPROACH**

In this study a quantitative approach was used, which is the procedure of describing and analyzing associations and changes, cause and effect as well as connections among variables. (Creswell, 2014)

### **3.4 RESEARCH SETTING**

This study was conducted at selected 4 health facilities in Rwanda, Kibagabaga District Hospital, and the Health Centers in its catchment area including Kagugu Health Center, Kinyinya Health Center and Remera Health Center.

#### **3.4.1 Description of the settings**

Kibagabaga Hospital is one of the hospitals of Districts of the Kigali City. This hospital is located in Gasabo District, Kimironko Sector, Kibagabaga Cell, Rugero Village. It is located in North of the City of Kigali, regarding its geographical location, it is surrounded in South by Kicukiro and Nyarugenge Districts; on the north there is Gicumbi and Rulindo Districts on West; on the east we found Rwamagana District. Kibagabaga District hospital receives patients from its catchment area and those who come in other surrounding districts (Kicukiro, Nyarugenge) and elsewhere. Kibagabaga District hospital covers a population of 742566 with six Health Centres. The research was conducted among three of them; Kagugu, Kinyinya and Remera Health Centre.

### 3.5. POPULATION

Population study is defined as entire group of participants on which the researcher is interested on and in which the sample size is withdrawn from (Creswell, 2014). The entire population was adult patients with asthma who visited the selected health facilities (Kagugu, Kinyinya, Remera health centers and Kibagabaga District Hospital) during the study period. The whole population was 102 patients.

#### 3.5.1. Expected number of participants per setting

According to monthly report at the selected health facilities, we have estimated the average number of asthmatic patients who can visit the health facility during the study period. The table below shows the average number of asthma patients per health facility.

**Table 2. Expected number of participants per setting**

Settings		Asthma Patients who visited the health facility per month	Mean	Expected Patients per 2 months of study period
Kibagabaga hospital	Emergency service	Between 10-15	12	24
	NCDs service	Between 5-10	7	14
Kinyinya HC		Between 8-12	10	20
Kagugu HC		Between 8-12	10	20
Remera HC		Between 10-15	12	24
Total				102

#### 3.5.2. Inclusion criteria

All participants who were diagnosed as asthma patients at least in the last 3 months were recruited. We only included participants who were 18 years of age and above because this study intended to investigate asthma severity, perception and self-care practices in adult patients with asthma. The participants who voluntarily agreed to sign the informed consent and accept to participate in the study were considered and were provided the study questionnaires.

### **3.5.3. Exclusion criteria**

The participants who were diagnosed with asthma below 3 months were excluded from this study, those who refused to sign the consent form for participating in the study as well as those who were below 18 years of age were excluded too.

## **3.6 SAMPLING**

### **3.6.1. Sample size**

All adult patients with asthma who fulfilled the inclusion criteria and who have visited the selected health facility during the data collection period were included in this study. In this study, the researcher has used the total population as a sample size due to small number of patients who have visited the health facilities. During the period of two months of data collection, the researcher has recruited and included into the study 80 participants. The researcher expected to have 102 participants. However, 3 participants have refused to sign the consent form and were excluded from the study. One participant was below 18 years of age and was excluded from the study. Lastly, additional 18 participants were expected to visit the health facility but the researcher did not meet them because they came in night hours' others did not come at the health facilities in the period of data collection. Among 80 participants included in this study, 30 participants were recruited from Kibagabaga District Hospital (4 in NCD service and 26 at emergency service), 18 participants were recruited from Kagugu Health Center, 12 participants were recruited from Kinyinya Health Center and 20 participants were recruited from Remera Health Center.

### **3.6.2 Sampling strategy**

In this study, the total population sampling strategy among patients with asthma was used, those who visited the selected health facilities during the study period. A total population strategy is one of purposeful sampling method used when the population to be studied is small and used as a whole without selecting (Ilker Etikan, *et al*, 2014) .

## **3.7. VALIDITY AND RELIABILITY OF RESEARCH INSTRUMENT**

The researcher used the validated questionnaire “REALISE” which signifies *REcognise Asthma and Link to Symptoms and Experience* used in Asia and Europe.(Price, Fletcher and Van Der Molen, 2014). The permission to use this tool was obtained from the author and was adopted to this study based on literature. The questionnaire used is composed with 4 main parts which are demographic data, asthma severity, patient’s perception, and self-care practices. All questions are 46 (Annexes).

Regarding the validity in order to see if the instrument measure what is supposed to measure, because the tool was validated and successful elsewhere after adding some questions and remove other ones, the tool was revised by the researcher together with supervisors after that it was provided to the expert for validation.

To test the reliability of the questionnaire, Cronbach alpha was calculated for internal consistency after administering the questionnaire to participants before starting data collection in pilot study done at Kibagabaga District Hospital and the value was 0.77 which is in acceptable range.

### **3.8. DATA COLLECTION**

After receiving the approval from IRB/UR/CMHS/School of nursing and midwifery, the researcher requested the Hospital and Health Center authorities, the permission of conducting research before interacting with asthmatic patients. Voluntary participants signed informed consent form prior to being included into the study. The questionnaires were written in both English and Kinyarwanda and participants choose their familiar and convenient language. However, all of the participants in this study have chosen the questionnaire written in Kinyarwanda, the researcher assisted to read and explain the information for people who were not able to read or to understand the meaning. Besides that, the questionnaire was composed of 4 sections; participants took approximately 30-45 minutes to fulfill the questionnaire.

### **3.9. DATA ANALYSIS**

Data from questionnaires was collected, entered in the computer using SPSS version 22 with descriptive statistics, frequency and percentages of self-care practices, asthma severity and perception was analyzed and the association between independent and dependent variables was determined using inferential statistics (chi square, logistic regression as well as Pearson correlation).

### **3.10. ETHICAL CONSIDERATION**

#### **3.10.1 Ethics committee approval**

The ethical clearance to conduct this study was received from IRB of the UR/CMHS with CMHS/IRB/018/2019 as reference number and then it was presented to the authorities of selected health facilities and the positive feedback was provided.



### **3.10.2. Informed consent**

The researcher explained the nature of the study to the participants, and explains to the participants that participation is voluntary, but the engaged participants must sign the consent form. The participants were allowed to withdraw from the study at any stage of the study.

### **3.10.3 Confidentiality**

The participants' information was not shared despite the researcher and supervisors, the questionnaires were kept in a locked cupboard and the data were kept in computer with strong password.

### **3.10.4. Anonymity**

The questionnaires were not bearing participant names. Only the code was given to each health facility and to each participant to maintain the anonymity.

## **3.11. DATA MANAGEMENT**

The data were collected, entered in SPSS, after analysis the data were kept with confidentiality and its use will be for the purpose of research only.

## **3.12 DATA DISSEMINATION**

The finding from this study will be published and shared with the health facilities where research took place in the form of feedback.

## **3.13. STUDY LIMITATIONS**

The first limitation is that sample size was smaller which prevent the generalization of findings; in addition to that the person who makes the diagnoses and follows the patients in daily living was different from the researcher.

## **3.14. CONCLUSION TO CHAPTER THREE**

This chapter highlights the study design, which is non-experimental cross-section study using questionnaire as a method among asthmatic patients. The study population was equal to the sample size, the participants signed an informed consent before being included into the study and the data was analyzed using SPSS version 22.

## **CHAPTER 4. RESULTS**

### **4.1 INTRODUCTION**

This chapter presents the results either in tables or in charts. The study was conducted at Kibagabaga District Hospital and 3 Health Centers in its catchment area including Kagugu, Kinyinya and Remera Health Center respectively. The sample size was 80 participants, all of them suffering from asthma. The detailed analysis was described in this chapter using descriptive statistics and inferential statistics. Chi-square test, logistic regression as well as Pearson correlation were performed to evaluate the association and correlation of dependent and independent variables.

## 4.2 DEMOGRAPHIC AND CHARACTERISTICS OF THE PARTICIPANTS

**Table 3. Respondents' demographic characteristics**

<b>Variables</b>	<b>n (%)</b>
<b>Gender</b>	
Male	23(28.8)
Female	57(71.2)
<b>Age</b>	
18-30	6(7.5)
31-40	10(12.5)
41-50	20(25)
51 -60	20(25)
Above 61	24(30)
<b>Marital status</b>	
Single	4(5)
Married	56(70)
Divorced	6(7.5)
Widowed	13(16.3)
Separated	1(1.3)
<b>Occupation</b>	
Farmer	29(36.3)
Employed	6(7.5)
Self employed	26(32.6)
Unemployed	19(23.8)
<b>Level of education</b>	
Primary	59(73.8)
Secondary	13(16.3)
University	3(3.8)
Uneducated	5(6.3)
<b>Religion</b>	
Christian	77(96.3)
Muslim	3(3.8)
<b>Years living with asthma</b>	
1 year or less	1(1.3)
2 - 5 years	9(11.3)
6-10 years	12(15)
Above 11years	58(72.5)
Total	80(100)

Table 3. Data are presented as frequency (%) unless otherwise indicated.

Total number of participants (n) =80

The demographic data of participants are presented in table 3 The total participant was 80. The gender was not equally distributed whereby 57(71.2%) were female while 23(28.8%) were male. The majority 24(30%) of respondents were above 61 years. Regarding the marital status among the respondents the majority 56 (70%) was married, many participants 29(36.3%) were farmer and also a large number 59(73.8%) have finished primary school. Most of the participants 77(96.2%) were Christians. Regarding years living with asthma a large number of participants 58(72.5%) have asthma above 11 years.

### 4.3 ASTHMA SEVERITY AMONG RESPONDENTS

**Table 4. Asthma severity among patients with asthma**

<b>Statement</b>	<b>Response</b>	<b>Frequency (%)</b>
Difficult breathing less than 2 days a week	No	71(88.8)
	Yes	9(11.3)
Cough less than 2 days a week	No	72(90)
	Yes	8(10)
Limitation of activity less than 2 times a week	No	70(87.5)
	Yes	10(12.5)
Difficult breathing more than 2 days a week	No	29(36.3)
	Yes	51(63.)
Cough more than 2 days a week	No	30(37.5)
	Yes	50(62.5)
Limitation of activities more than 2 days a week	No	30(37.5)
	Yes	50(62.5)
Difficult breathing every day	No	64(80)
	Yes	16(20)
Cough every day	No	64(80)
	Yes	16(20)
Limitation of activity every day	No	64(80)
	Yes	16(20)
Difficulty in breathing several time a day	No	73(91.3)
	Yes	7(8.8)
Cough several time a day	No	75(93.8)
	Yes	5(6.3)
Limitation of activities several time a day	No	75(93.8)
	Yes	5(6.3)

Table 4. Data are presented as frequency (%) unless otherwise indicated. n=80.

The asthma severity was evaluated using questionnaire and the participants gave feedback on the asthma severity questions. The frequency and percentage of respondents on each question was calculated. As it is shown on the above table 4, most of the respondents 51(63.8%), 50(62.5%), 50(62.5%) respectively responded yes on difficulty in breathing, cough, limitation of activities more than 2 days a week but not every day. For those who responded yes on difficulty in breathing, cough and limitation of activities every day were 16(20%), those who responded yes on having difficulty in breathing, cough and limitation of activity less than two days a week were 9 (11.3%), 8(10%), 10(12.5%) respectively and participants who responded yes on having difficulty in breathing, cough and limitation of activity several times a day were 7(8.8%), 5(6.3%), 5(6.3%) respectively. (Table 4)

**Figure 3. Asthma severity classification among respondents**

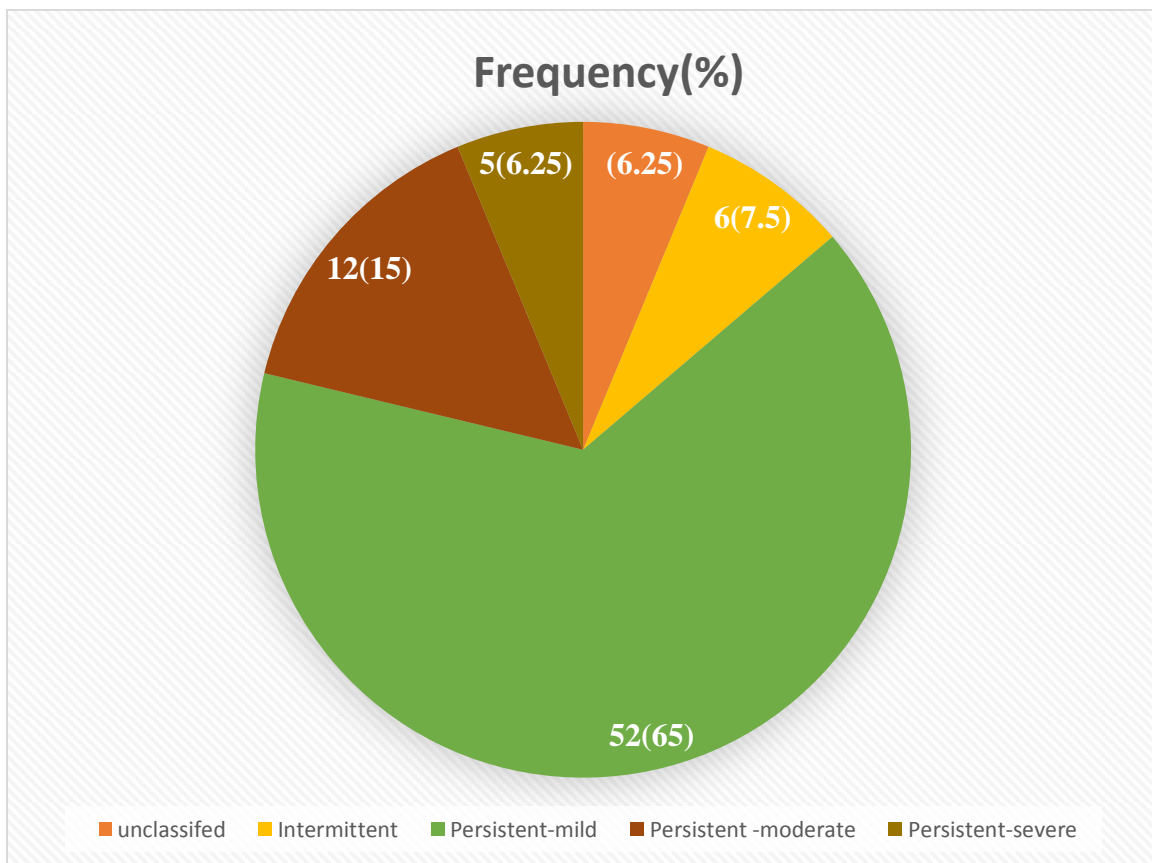


Figure 3: Data are presented as frequency (%) unless otherwise indicated=80

The answers of the participants on asthma severity questions were used to classify the patients' asthma severity levels using GINA classification where they classify asthma severity level in four categories including intermittent, mild persistent, moderate persistent and severe persistent. It is done using the frequencies of symptoms like cough, limitation of activities, difficult breathing during the week. The patients who were classified as having intermittent, they experience symptoms of exacerbation less than two days a week, the mild persistent category, the patient experience symptoms of asthma more than 2 days a week, in moderate persistent, the patient experience symptoms of exacerbation every day, while in severe persistent category, the patient experience symptoms of asthma several time a day. The figure 1 gives a summary of asthma severity classification. This study found that most of the participant had mild persistent asthma with 52(65%), followed with mild moderate 12(15%), intermittent 6(7.5%), persistent severe 5(6.3 %) and unclassified participants were 5(6.3%). (Figure 3)

**Table 5. Triggers of asthma among participants**

<b>Triggers</b>	<b>Response</b>	<b>Frequency (%)</b>
Smoking	No	46(57.5)
	Yes	33(41.3)
	Missing	1(1.3)
Exposure to tobacco smoke	No	19(23.8)
	Yes	60(75)
	Missing	1(1.3)
House dust	No	47(58.8)
	Yes	33(41.3)
Exposure to animals (cat, dog etc.)	No	14(17.5)
	Yes	66(82.5)
Cold environment	No	46(57.5)
	Yes	34(42.5)
Hot environment	No	34(42.5)
	Yes	46(57.5)
Outdoor pollen	No	17(21.3)
	Yes	6(78.8)3
Indoor air (from cooking,...)	No	44(55)
	Yes	36(45)
Industry air pollution	No	41(51.3)
	Yes	39(48.8)
Stress or emotional upset	No	41(51.3)
	Yes	39(48.8)
Physical exercise	No	41(51.3)
	Yes	39(48.8)

Table 5. Data are presented as frequency (%) unless otherwise indicated. n=80



We have also evaluated the asthma exacerbation triggers among the participants. The table 5 shows frequency and percentage of triggers that exacerbate asthma among the study participants. The study finding revealed that the most trigger was exposure to animals (cat, dogs) 66.0(82.5%), while other triggers were outdoor pollen with 63.0 (78.8%), exposure to tobacco smoke 60 (75%), hot environment 44 (57.5%) while industry air pollution, stress or emotional upset and physical exercise each had 39(48. 8%).Lastly, the triggers of cold environment, house dust and smoking had 34(42.5%) ,33(41.3%) and 33(41.3) respectively.

### 4.3. PERCEPTION ON ASTHMA AMONG PARTICIPANTS

**Table 6. Perception of participants about asthma**

Statement of perception on asthma	Strongly disagree/	Disagree	I do not know	Agree	Strongly agree	Asthma severity Chi square (P.Value)
Asthma is a chronic disease	0(0)	7 (8.8)	12(15.0)	32(40.0)	29(36.3)	0.496
Asthma is an infectious disease	27(33.8)	23(28.8)	25(31.3)	5(6.3)	0(0)	0.418
People with asthma have to engage in regular physical exercise	8(10.0)	27(33.8)	25(31.3)	18(22.5)	2(2.5)	0.181
People with asthma have to eat balanced diet	0(0)	0(0)	12(15.0)	52(65.0)	16(20.0)	0.168
People with asthma have to prevent obesity.	2(2.5)	4(5.0)	13(16.3)	48(60.0)	12(15.0)	0.205
People with asthma have to take medications in case of asthma attack only.	14(17.5)	40(50.0)	8(10.0)	12(15.0)	6(7.5)	0.806
Inhalers are better than tablets in controlling asthma	8(10.0)	21(26.3)	21(26.3)	21(26.3)	9(11.3)	0.416
Allergens avoidance is very difficult.	7(8.8)	18(22.5)	10(12.5)	32(40.0)	13(16.3)	0.454
Exposure to extreme weather triggers asthma.	26(32.5)	18(22.5)	27(33.8)	5(6.3)	2(2.5)	0.304
Asthma is caused by evil sprit	34(42.5)	35(43.8)	11(13.8)	0.00(00)	0.00(00)	0.206
Patient with asthma are able to manage asthma on their own	4(5.0)	11(13.8)	20(25.0)	26(32.5)	19(23.8)	0.188

Table 6. Data are presented as frequency (%) unless otherwise indicated. N=80, p.value < 0.05 was considered statistically significant.

The evaluation of participants' perception about asthma was presented as frequencies and percentages. The participants who strongly agreed on the statements were scored 4, agree were scored 3, I do not know were scored 2 while disagree were scored 1 and strongly disagree were scored 0. The data was aggregated in the way that patients who strongly agreed and agree were denoted as "agree" while those who strongly disagreed and disagreed were denoted as "disagree"

The statement about "asthma is a chronic disease" were agreed 61(76.2%). Those who didn't perceive that asthma is an infectious disease disagreed 50(62.6%). Those who do not know were 25(31.3%).

The participants who disagreed that people with asthma have to engage in regular physical exercise were 35(48.8.0%) and some of them 25(31.3%) do not know while 20(25%) agreed that people with asthma have to engage in regular physical exercise.

Most of the participants perceive that people with asthma have to eat the balanced diet agreed 68(85.0%), while 12(15.0%) do not know. Regarding the prevention of obesity, they agreed 60(75.0%) that they have to prevent obesity on other hand 6(7.5%) agreed to prevent obesity but 13(16.3%) do not know.

Many participants disagreed 54(67.5%) that they have to take medications in case of asthma attack only, while few of them agreed 18(22.5%). In addition to that 30(37.6%) agreed that inhalers are better than tablets in controlling asthma those who disagreed 29(36.3%).

Many participants agreed 45(56.3%) that it is very difficult to prevent asthma triggers. However, 25(22.5%) disagreed the difficulty of triggers prevention. Many participants disagreed that exposure to extreme weather triggers asthma 44(55%), while few of them agreed that it may trigger asthma 7(8.8%), and 27(33.8%) did not know.

Most of the participants perceive that asthma is not caused by evil spirit by disagreed 69(86.3%), many participants agreed that they are able to manage asthma on they own 45(56.3%), on other hand 15(18.8%) disagreed that they are able to manage asthma on they own while 20(25.0%) did not know.

Furthermore, the association between asthma severity and perception variables was analyzed by chi square. The statistical analysis showed that there is no statistical significant association between asthma severity and perception variables. The p.value < 0.05 was considered statistically significant. (Table 6)

**Figure 4. The perception levels on asthma among the participants**

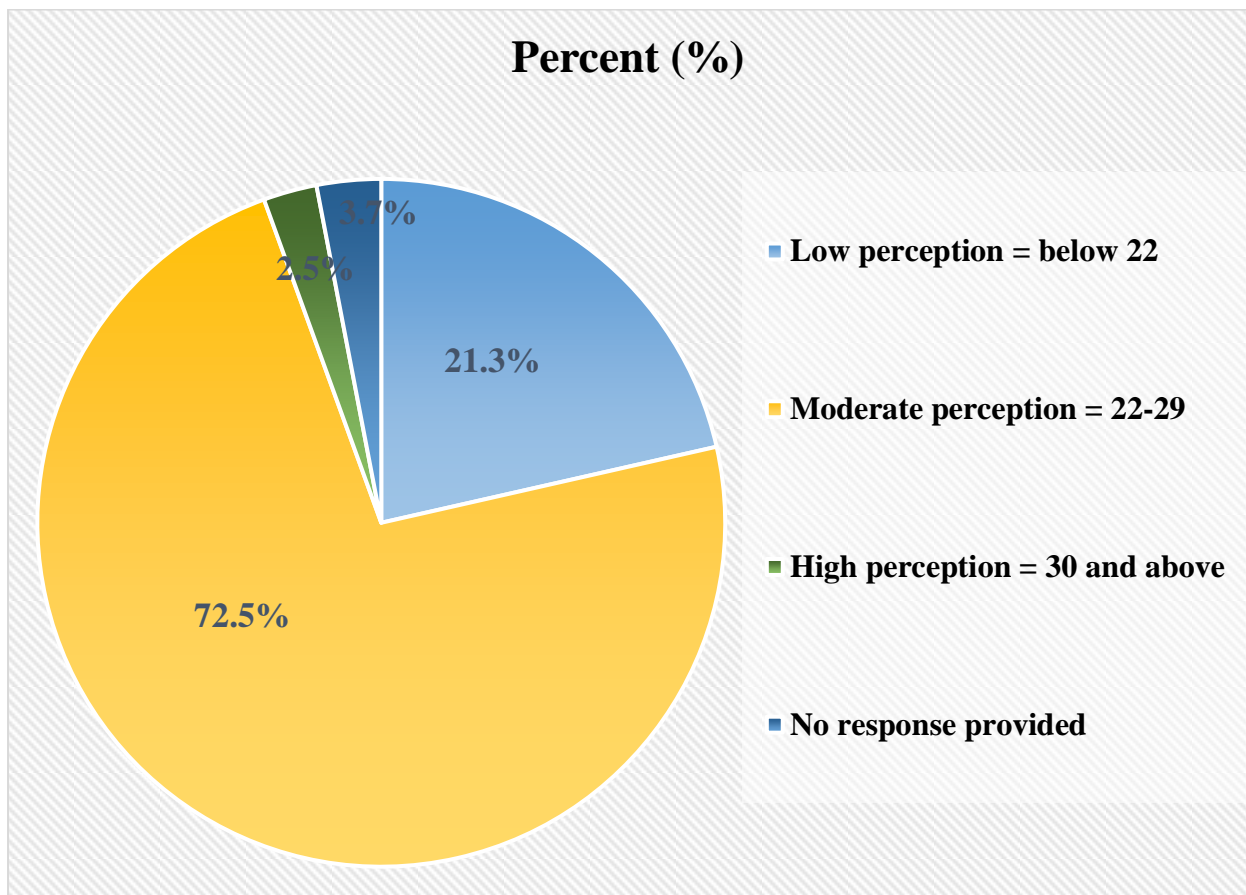


Figure 4 Data are presented as frequency (%) unless otherwise indicated. N=80.

The participants' perception levels on asthma were classified into 3 categories. As shown in figure 4, there is low, moderate and high perception on asthma among participants. The total score was 44 and we classified the respondents according to their score as following: The first category was included those who has scored below 22 and were classified as having low perception, those who has scored 22-29 were classified into the category of moderate perception while those who has scored above 30 were classified in the category of high perception. After statistical analysis it is founded that many participants 58(72.5%) had moderate perception, while 17(21.3%) had low perception and those with high perception were 2(2.5%) of all respondents. There were some of the respondents ((3.7) who did not provide response so that they could be classified. Figure 4.

#### 4.4 SELF-CARE PRACTICES IN ASTHMA PATIENTS

**Table 7. Participant responses about self-care practices**

Statement of self-care practices	Response	Frequency (%)	Asthma severity
			Chi square (P. value)
Regular health facility visit	No	71(88.8)	0.291
	Yes	9(11.3)	
Use of tablet	Yes	64(80)	0.943
	No	16(20)	
Use of inhaler	No	14(17.7)	0.554
	Yes	65(82.3)	
Take medication as prescribed	No	6(7.5)	0.479
	Yes	74(92.5)	
Regular physical exercise	No	69(86.3)	0.077
	Yes	11(13.8)	
Keep warm when it is cold	No	2(2.5)	0.233
	yes	78(97.5)	
Avoid pollen exposure	No	6(7.5)	0.03*
	yes	74(92.5)	
To take balanced diet regularly	No	9(11.7)	0.355
	Yes	68(88.3)	
To take medication in case of attack only	yes	30(37.5)	0.301
	No	50(62.5)	
To remain home in case of asthma attack	Yes	8(10)	0.643
	No	72(90)	
To drink alcohol	Yes	36(45.6)	0.045*
	No	43(54.4)	
To smoke	Yes	6(7.7)	0.818
	No	72(92.3)	

Table 7. Data are presented as frequency (%) unless otherwise indicated.

n=80, p.value < 0.05 was considered statistically significant.

This study has evaluated the frequency and percentage of self-care practices among patients with asthma. The response "no" indicates that participant doesn't do the action indicated by the variable while "yes" indicate that participant performs the action indicated as variable.

The finding shows that most of the participant keep warm when it is cold in order to prevent asthma attack 78(97.5%), followed with those who avoid pollen exposure and those who take medication as prescribed with 74(92.5%) and 74(92.5%) respectively. 68(88.3%) take balanced diet regularly, 65(82.3%) use inhaler, 64(80%) use tablet in treatment of asthma, 36(45.6%) drink alcohol ,30(37.5%) take medication in case of asthma attack only, 11(13.8%)do regular physical exercise only 9(11.3%) regularly visit health facility and 8(10%)remain home when they have asthma attack, few of them 6(7.7%) smoke.

Furthermore, we evaluated weather there is an association between asthma severity and self-care practice variables. Chi square analysis showed a statistical significance between asthma severity and two self-care practice behaviors including avoid pollen exposure (p.value =0.03) and drinking alcohol (p.value 0.045). Other self-care variables did not show any statistical significance association with asthma severity. The p.value < 0.05 was considered statistically significant (Table 7).

**Figure 5. Level of Self-care practices in patients with asthma**

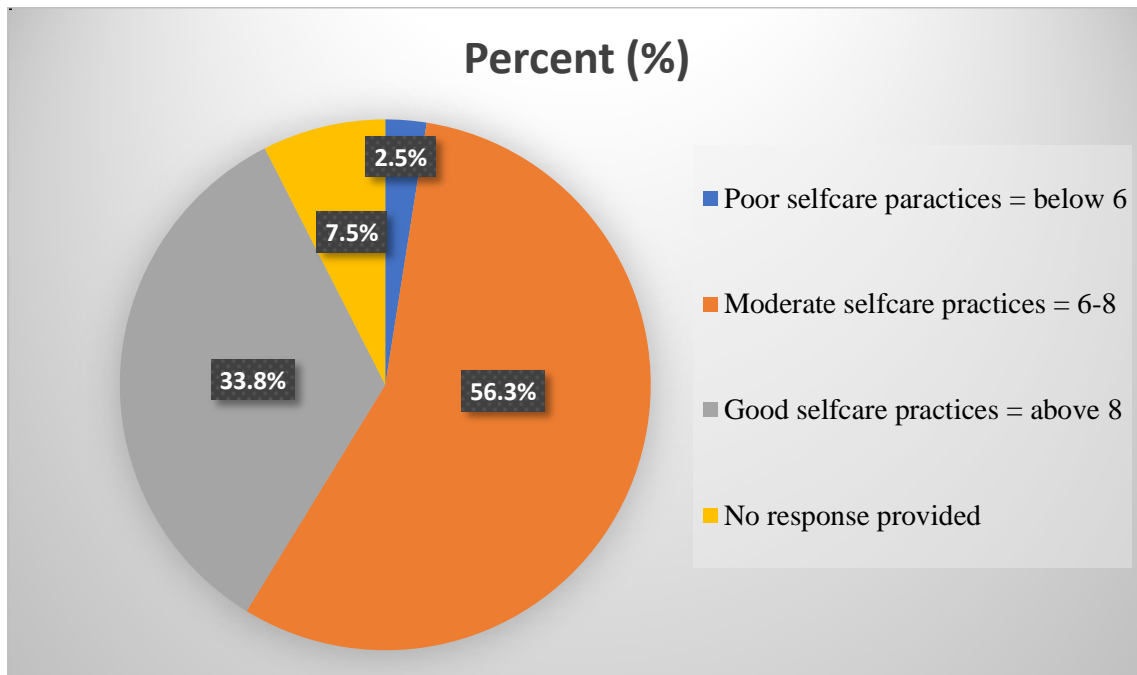


Figure 5 Data are presented as frequency (%) unless otherwise indicated. N=80, p.value < 0.05 was considered statistically significant.

The figure 5 shows the levels of self-care practices among respondents. The respondents were classified regarding the response provided in table 4.5. The classification was based on the score obtained out of 12. Those who scored below 6 were classified in level 1 which is poor self-care practices, those who scored 6-8 were classified in level 2 which is moderate self-care practices while those who scored above 8 were classified in level 3 which is good self-care practices. After statistical analysis, we found that many participants have moderate self-care practices 45(56.3%), while 27(33.8%) had good self-care practices and 2(2.5%) had poor self-care practices, others 6(7.5%) were the participants who did not provide responses in order to be classified. (Figure 5)

## 4.5. ASSOCIATION BETWEEN VARIABLES

### 4.5.1 Association between asthma severity and perception

**Table 8. Logistic regression analysis of asthma severity and Perception**

	Model	Model Fitting Criteria	Likelihood Ratio Tests		
		-2 Log Likelihood	Chi-Square	df	Sig.
Likelihood Ratio Tests between asthma severity and Perception	Final	23.129	1.929	4	<b>0.749</b>

Table 8. the p.value < 0.05 was considered statistically significant.

To evaluate overall association between asthma severity and perception, we performed logistic regression analysis. There was no statistical significance between asthma severity and perception (p value = 0.749). The p.value < 0.05 was considered statistically significant (Table 8).

### 4.5.2. Association between asthma severity and self-care practices

**Table 9. Logistic regression analysis of asthma severity and self-care practices**

	Model	Model Fitting Criteria	Likelihood Ratio Tests		
		-2 Log Likelihood	Chi-Square	df	Sig.
Likelihood Ratio Tests between asthma severity and self-care practices	Final	20.284	15.747	8	<b>0.046</b>

Table 9. the p.value < 0.05 was considered statistically significant

To evaluate overall association between asthma severity and self-care practices, we performed logistic regression analysis. The table 9 shows an overall association between asthma severity and self-care practices. The logistic regression analysis revealed a statistical significant association between asthma severity and self-care practices (p.value= 0.046).



**Table 10. Correlation analysis of asthma severity and perception**

		Asthma severity	Perception
Asthma severity	Pearson Correlation	1	<b>.035</b>
	N	80	80
Perception	Pearson Correlation	.035	1
	N	80	80

Table 10. Pearson Correlation (r), the positive correlation was considered (r+) and negative correlation was considered when (r-)

Correlation analysis was performed between asthma severity and perception. This study has found no significant correlation between asthma severity and perception (r= 0.035).

**Table 11. Correlation analysis of asthma severity and Self-care practices**

		Asthma severity	Self-care practices
Asthma severity	Pearson Correlation	1	<b>-.165</b>
	N	80	74
Self-care practices	Pearson Correlation	-.165	1
	N	80	80

Table 11. Pearson Correlation (r), the positive correlation was considered (r+) and negative correlation was considered when (r-)

Chi square analysis and logistic regression analysis showed an association with asthma severity and some self-care practice variables. However, they could not specify the type of association. Thus, correlation analysis was performed between asthma severity and self-care practices. This study has found a negative correlation between asthma severity and self-care practices (r= -0.165).

**Table 12. Correlation analysis between asthma severity and drinking alcohol**

		Asthma severity	Drinking alcohol
Asthma severity	Pearson Correlation	1	<b>0.2</b>
	N	80	80
To drink alcohol	Pearson Correlation	0.2	1
	N	80	80

Table 12. Pearson Correlation (r), the positive correlation was considered (r+) and negative correlation was considered when (r-)

We evaluated the type of association between asthma severity and drinking alcohol by correlation analysis. We have found a positive association between asthma severity and drinking alcohol ( $r=0.20$ ), table 12.

**Table 13. Correlation analysis between asthma severity and avoiding pollen exposure**

		Asthma severity	Avoiding pollen exposure
Asthma severity	Pearson Correlation	1	<b>-0.311**</b>
	N	80	80
Avoid pollen exposure	Pearson Correlation	-0.311**	1
	N	80	80

Lastly, we evaluated the type of relationship existed between asthma severity and avoiding pollen exposure. Correlation analysis has shown a negative correlation between asthma severity and avoiding pollen exposure ( $r=-0.311$ ), (table 13).

## **CHAPTER 5. DISCUSSION**

### **5.1. INTRODUCTION**

Asthma is a worldwide chronic respiratory disease and problematic in low-income countries. It is a health threatening condition and affects many people. The current study aimed at evaluating the association between asthma severity, perception and self-care practices in Rwanda. In this study, 80 participants were included and all of them were asthma patients. In this chapter of discussion, the results found will be discussed in detail and compared with existing literature.

### **5.2 DEMOGRAPHIC CHARACTERISTICS**

In demographic characteristics It have been shown that among 80 participants, female was more affected than male 71.2% and 28.8% respectively. Previously it was found that female are more susceptible to asthma exacerbation than male due to some hormonal changes after the age of puberty (Zein, *et al.*, 2016). Our study results are concordant with the study conducted in Rwanda in 3 districts where 66.7% were female and 33.3% were male (Habineza *et al.*, 2017). It is also similar to the study conducted in Europe and Canada about insights, attitudes and perceptions on asthma and its treatment a survey among 2003 patients (Sastre *et al.*, 2016).

The majority 30% of patients with asthma in this study were in age group above 61 years while minority 7.5% of patients with asthma were in the age group of 18-30. Previous studies have found the similar results for example in the study conducted in Ireland about asthma exacerbations, risk factors for hospital readmissions (Pose *et al.*, 2017). In our study, we have found an association between asthma severity and self-care practices. We speculate that older people may have reduced ability lower self-care practice habit. Thus, majority of patients with asthma in this study belong to the age group above 61 years.

In this study, 70% of the participants were married. This is similar to the results of a study conducted in Spain among patient with moderate and severe asthma which showed that 65.5% of respondents were married and the minority 8.8% were separated (Crespo-lessmann and Plaza, 2017).

The occupation of many respondents was farming 36.3% ( table 1) and this is similar to other study conducted in Sub Saharan Africa where the most participants were farmer (Obel et al.,2017). Although our study did not evaluate the risk factors, we have found that pollen exposure has an association with asthma severity, thus farmers could be frequently exposed to pollen and this could exacerbate their asthma.

The high frequency 73.8% of the participants in this study has studied up primary school level whereas the minorities 3.8% of participants were uneducated. This is contrary to the study done in Morocco among the patients diagnosed with asthma where many 31% of the respondents have no education while the minority 18% of respondents have primary education (Chala *et al*, 2017).This discrepancy could be attributed to geographical difference and study setting. In Rwanda there are twelve basic education and catchup program which have tremendously reduced the number of uneducated people. Regarding years living with asthma a large number of participants had asthma more than 11 years 72.5%, followed with those who had asthma between 6-10 years 15% and those with 2-5 years of asthma were 11.3%. Lastly, participants who had asthma in 1 year or less than a year were 1.3%. This is similar to the finding of the study done in Asia where most of the respondent living with asthma above 11 years followed with 6-10 years,2-5 years and 1 year and less 70.7%,15.1%,11.0% and 3.3% respectively (Price *et al.*, 2014).This findings explain and support the chronicity of the disease.

### **5.3. ASTHMA SEVERITY AMONG PARTICIPANTS**

The asthma severity ranges from intermittent, persistent-mild, persistent -moderate and persistent-severe. In this study, we have found that mild persistent asthma was predominant 65% among participants, followed by persistent moderate 15%, intermittent 7.5%, and persistent severe 6.3 %. This indicates that many participants were in the category of mild persistent asthma where they get symptoms of asthma at least 2 times a week. In another study done in Rwanda it have been found that most of participants were in moderate persistent category (Habineza *et al.*, 2017) ,we speculate that this decrease could be attributed to a decentralized NCDs services in Rwanda where patients access the service at nearby health center, but there is a need to do more research about the effect of decentralization of NCDs services in Rwanda. And this finding is contrary to the finding of the study conducted in USA where few of them 28% had mild persistent asthma ,while many patients had intermittent asthma 32% (Poowuttikul,*et al.*, 2017).

Asthma exacerbation is associated with different factors. Although in this study we did not evaluate the risk factors, we have evaluated different triggers that could be associated with asthma exacerbation in the study participants. Animals (cat, dogs) exposure was found to be the most trigger causing exacerbation 82.5% among participants. Outdoor pollen exposure and house dusts were ranked at the second place with 78.8% and 58.8% respectively. This is similar to the study conducted about prevalence and determinants of asthma in Kinshasa among adult with asthma where the most trigger reported where presence of cat in house (Obel, *et al.*,2017). Furthermore the result are the same as in a study done in Germany were the most trigger found among participants was animals 82.1% followed with pollen allergen 40.4% (Thomas Ritz, 2016).

#### **5.4 PERCEPTION ABOUT ASTHMA AMONG PARTICIPANTS**

This study has evaluated the perception on asthma among participants. This study has found that many participants had moderate perception 72.5%. The participants in this category of moderate perception have answered positively that; they do not have to take medications in case of asthma attack only 67.5%, they know that asthma is a chronic disease and is not an infectious disease 70% and 62 % respectively. 56 % perceive that they are able to manage asthma on their own and 36.3% perceive that inhalers are better than tablets in controlling asthma. This is similar to the previous study conducted in Zambia about perception of asthma which has found that 36.9% of participants perceive that they are able to manage asthma and prevent hospitalization and 54.7% of them believe that symptoms of asthma can be prevented using drugs especially inhaler which is the good medication this was reported by over 76% of the whole population (Marsden and Somwe, 2016).

However, this study found a very small number of participants with high perception 3.4% and 43.8% are not aware that they have to do the physical exercise regularly, while physical exercise enhanced lung function, shapes overall strength and decreases the time that takes a somebody to feel breath out, aid in weight loss, which can lessen the risk of asthma exacerbation, recover immune system function, decrease the risk of upper respiratory infections that can activate asthma attack (GINA, 2018).

## 5.5. SELF- CARE PRACTICES AMONG RESPONDENTS

This study has evaluated self-care practices and asthma severity. It was found that many participants 56.3% had a moderate self-care practices, and the participant's self-care practices were reported to contribute in asthma management (Byrne, and Bateman, 2017)

In self- care most of the participant keep warm when it is cold in order to prevent asthma attack 97.5%, this is a good self-care practice and is in accordance to the study conducted about patients care and outcome among adult with asthma in USA (Rutering *et al.*,2016).

Among participants 92.5% avoid pollen exposure in order to prevent asthma exacerbation and this practice has shown an association with asthma severity (p.value= 0.03) in this study and it is similar to other study that demonstrated the effectiveness of practicing the behavior of avoiding pollen exposure and its effectiveness in reducing the severity of asthma (Boven and Braunstahl, 2019).

In addition to that 82.3% use inhaler and ,it have been shown in previous study to be effective than tablet and the Ministry of Health have mentioned its effectiveness in guideline provided in collaboration with partners in health (MOH, 2014 p.232). However, 80% still using the tablet, use of tablet in treatment of asthma is recommended in patients who have severe asthma and the above percentage goes beyond patients who have severe asthma in this study because those patients are allowed to take non-steroidal anti-inflammatory drugs like prednisolone, this means that participants still using tables like aminophylline rather done using inhalers

However 37.5% participants take medication in case of asthma attack only, and when there is no exacerbation they do not take medication while GINA recommend to take reliever drugs in asthmatic attack and take maintenance drugs in daily living in order to prevent attack and hospitalization(GINA, 2018).

We can't forget that among the respondents ,7.7% have the habit of smoking, this is similar to the controlled trial done in USA among patients with asthma, where 10% of the participants were smoker (Wollan and Bertram, 2018) and smoking cessation read to asthma severity reduction (Teresa To,*et al*, 2014).Health care providers have to emphasize in education about smoking cessation.

## 5.6. ASSOCIATION BETWEEN ASTHMA SEVERITY, PERCEPTION AND SELF-CARE PRACTICES

The association between asthma severity and perception evaluated first and then we evaluated the association between asthma severity and self-care practices.

Starting on relationship between asthma severity and perception, the overall logistic regression analysis did not have a statistical significant association ( $P=0.749$ ), this could be explained that participants' perception variables do not have a significant relationship with asthma severity in this study. This is in accordance the findings of Mammen et al in his study where he didn't reveal a palpable significance relationship between perceptions, asthma exacerbation and experiences underlying self-management (Mammen, *et al*, 2018).

Contrary to asthma severity and perception, asthma severity has exhibited a statistically significant association with self-care practices ( $P=0.046$ ). In addition to that, we have analyzed the relationship between self-care practices and asthma severity. Pearson correlation analysis has shown a negative correlation between asthma severity and self-care practices ( $r=-0.165$ ), It means that when patients self-care practices increase the asthma severity will be decreased and when the self-care practices decrease, asthma severity will be increased. This is in accordance to the systematic review done about Barriers and facilitators of effective self-management in asthma and it is shown that self-management is a recognized effective method for controlling asthma (Miles, *et al*, 2017).

Among self-care variables, the practice of avoiding pollen exposure has shown an association with asthma severity ( $p.value= 0.03$ ) with a negative correlation ( $r=-.311$ ). This means that asthma severity is reduced or increased with the level of avoiding pollen exposure. This is in accordance with the study conducted in Netherland about a reintroduction of environmental mite allergen control strategies for asthma treatment and the debate on their effectiveness where it is shown that avoiding pollen exposure reduce asthma exacerbation (Boven and Braunstahl, 2019). Also those results are similar to the study done in Germany "Asthma trigger reports are associated with low quality of life" where little attention regarding asthma trigger prevention lead to asthma exacerbation (Thomas Ritz, 2016).

In this study, drinking alcohol was significantly associated with asthma severity ( $p.value=0.045$ ). Pearson correlation analysis has shown a positive correlation between drinking alcohol and asthma severity ( $r=0.20$ ). It means that when the alcohol consumption

increase, asthma severity also will be increased and when alcohol consumption decrease, asthma severity will be decreased. This is in accordance to the study done in France where they found a dangerous relationship between alcohol consumption and lung damage which induce asthma exacerbation (Arvers, 2018). This means that asthma severity increases together with drinking alcohol habit. We speculate that those patients with alcohol drinking habit may even forget to take their medicines and exhibit reduced self-care practices, in addition to that many participants in this study are above 61 years' old which may increase the likelihood of consuming alcohol.



## **CHAPTER 6. CONCLUSION AND RECOMMENDATIONS**

### **6.1 CONCLUSION**

Asthma is a chronic respiratory disease whereby self-care practices reduce its severity. There is an association between asthma severity and self-care practices. Furthermore, avoiding pollen exposure could potentially reduce exacerbation and severity of this disease. However, the habit of drinking alcohol can contribute in its severity and loss of self-care practices, thus exacerbating asthma condition.

### **6.2 RECOMMENDATIONS**

#### **To the Nursing practice**

The findings of this study have brought out the crucial importance of self-care management in asthmatic patients for prevention of its exacerbation. Thus, it should be a basic in increasing the awareness of asthma severity, current perception and self-care practices of patients with asthma. Furthermore, there is a need to know nationwide data in order to create baseline data at all levels of our health system and it will help in improving nurse's practices using evidence because there the one who manage asthma in NCDs services in Rwanda.

#### **To the Nursing education**

In nursing curriculum, self-care managements should be emphasized in management of asthma so that they may teach patients about self -care practices in prevention of asthma exacerbation in their clinical practices as well as where they will work.

#### **To other researchers**

This study used a cross-sectional design and has been conducted in 4 different health facilities with a small sample size. Thus, there is need of conducting further researches at different health facilities countrywide with a bigger sample size. In addition to that, this study has used a non-probability sampling method which limited also the generalization of results, there is a need of conducting a research using several facilities which will help in recruiting many participants and use probability sampling in order to generalize the result countrywide and even beyond and demonstrate the effect of training nurses in management of NCDs including asthma.

**To the stakeholders.**

Continuous training and workshop is needed to the health care providers at district level and health center level, in order to increase the awareness of the disease due to observed lower level of patient's perception and self-care practices about asthma. The health care providers have to increase the patient education about asthma and self-care practices and its core importance in prevention of asthma exacerbation.

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## **APPENDICES**

## **INDIVIDUAL CONSENT FORM**

I am Pauline KABANYANA; a student in post graduate studies, Masters of Science in Nursing, Medical surgical track, school of nursing and midwifery in the college of medicine and health sciences/University of Rwanda. My supervisors are Dr Lakshmi Rajeswaran and Mrs. Ruth Sego.

I am conducting a research dissertation on “ASTHMA SEVERITY, PERCEPTION AND SELF-CARE PRACTICES AMONG ASTHMA PATIENTS IN RWANDA”

Therefore, I am inviting you to participate in this study by filling questionnaire voluntary. This study is important because it will help researchers to know more about asthma in Rwanda.

I kindly request you to give as much information as possible seek by responding to the questions in the questionnaire that will be addressed to you. Feel free to ask for more clarification if you see that some words or concepts are not well understood. The information you provide will be kept with confidentiality and it will be used only for the research purpose. Your decision to participate or not to participate in this research will not affect you at all in your daily life.

While you agree to participate in this study, there are no risks associated with the participation in this study. You will not put your names on this questionnaire. The participation in this research is voluntary,

I have read and understand this agreement and I am over the years of eighteen (18) and I agree to participate in this study; I have understood that any time I can change my decision of participation.

Date and Signature of Participant ..... /.....

**PATIENT QUESTIONNAIRE ON ASTHMA SEVERITY, PERCEPTION AND SELF-CARE PRACTICES AMONG ASTHMA PATIENTS IN RWANDA.**

I, Pauline KABANYANA a student in Masters of Sciences in Nursing, specializing in Medical Surgical Nursing track, in the School of Nursing and Midwifery, College of Medicine and Health Sciences, University of Rwanda. I am doing this thesis to accomplish my studies, Therefore, I kindly ask you to fulfill the provided questionnaire of my study entitled “**ASTHMA SEVERITY, PERCEPTION AND SELF-CARE PRACTICES AMONG ASTHMA PATIENTS IN RWANDA**”

If you find any challenge or question please ask, I am here for providing the clarifications and responses. You can also contact me on:

**Phone:** 0783192239      **Email:** [kabapaulin08@gmail.com](mailto:kabapaulin08@gmail.com)

**INSTRUCTIONS:**

- ✓ Participant must have 18 years old and above
- ✓ Do not mention your names
- ✓ The response provided will be kept with confidentiality
- ✓ Read the question carefully and respond individually by writing response in provided space and tick in provided box.

## **A. SOCIO DEMOGRAPHIC DATA**

### **1. Age**

18-30

31-40

41-50

51-60

Above 61

### **2. Gender**

Male

Female

### **3. Marital status**

Single

Married

Divorced

Widowed

Separated

### **4. What is your profession**

Farming

Employed

Self-employed

Unemployed

### **5. Level of education**

Primary

Secondary

University

Uneducated

### **6. Religion**

Christian

Muslim

Other

### **7. Do any of your family suffer from asthma?**

My children

My parents

My sibling

Other family members

### B.1. ASTHMA SEVERITY

STATEMENTS	YES	NO
1. Have you had an asthmatic attack in the past 12 months?		
2. Do you have asthma attack during the day?		
3. Do you have asthma attack during the night?		
4. Do you have symptoms such as wheezing, cough, difficult in breathing less than 2 days a week?		
5. Do you have symptoms such as wheezing, cough, difficult of breathing more than 2 days/week ?		
6. Do you have symptoms such as wheezing, cough, difficult of breathing every day?		
7. Do you have symptoms such as wheezing, cough, difficult of breathing several times a day?		
8. Do you experience limitation of activities less than 2 times a week?		
9. Do you experience limitation of activities more than or equal to 2 times a week but not every day?		
10. Do you experience limitation of activities every day?		
11. Do you experience limitation of activities several times a day?		
12. Do you wake up during the night due to symptoms like shortness of breath, wheezing or coughing?		

## B.2.ASTHMA TRIGGERS

<b>DO THE FOLLOWING TRIGGERS EXACERBATE YOUR SYMPTOMS OF ASTHMA?</b>		
<b>STATEMENTS</b>	<b>YES</b>	<b>NO</b>
1.Smoking		
2. Exposure to tobacco smoke		
3. House dust		
4.Animals such as cats and dogs		
5.Cold environment		
6.Hot environment		
7. Outdoor pollens		
8. Indoor air pollution(from cooking)		
9. Industry air pollution		
10. Stress or emotional upset		
11.Physical exercise		
12.Others		

### C.PATIENT PERCEPTION ABOUT ASTHMA

STATEMENT	Strongly disagree 0	Disagree 1	I do not know 2	Agree 3	Strongly agree 4
1.Asthma is a chronic disease					
2.Asthma is not an infectious disease					
3. People with asthma have to engage in regular physical exercise					
4.People with asthma have to eat balanced diet					
5. People with asthma have to prevent obesity.					
6. People with asthma have to take medications in case of asthma attack only.					
7.Inhalers are better than tablets in controlling asthma					
8. Allergens avoidance is very difficult.					
9. Exposure to extreme weather triggers asthma.					
10. Asthma is not caused by evil sprit					

**D. SELF-CARE PRACTICES AND CUES TO ACTION OF PATIENTS WITH  
ASTHMA**

<b>STATEMENT</b>	<b>YES</b>	<b>NO</b>
1. Do you regularly visit your doctor or nurse to check your asthma?		
2. Do you use tablets?		
3. Do you use inhaler?		
4. Do you take your medications as prescribed?		
5. Do you exercise regularly?		
6. Do you keep warm when it is cold?		
7. Do you avoid pollen exposure?		
8. Do you take balanced diet regularly?		
9. Do you take medications when you have asthma attacks only?		
11. Do you remain at home and take medication when you have asthma attacks?		
11. Do you drink alcohol?		
12. Do you Smoke?		



## **URUPAPURO RWO KWEMERA KUGIRA URUHARE MUBUSHAKASHATSI KUBUSHAKE**

Njyewe Pauline KABANYANA, umunyeshuri uri kwiga icyiciro cya gatatu cya kaminuza mu gashami k'ubuforomo, ishuri ry'ubuganga muri kaminuza y'u Rwanda, mfatanyije n'abarimu banjye aribo Dr Lakshimi Rajeswaran na Ruth Segó;

**Turi gukora ubushakashatsi mukureba" isano iri hagati y'indwara ya asima, ubukana bwayo, imyumvire kuri yo n' uburyo bwo kwiyitaho k'ubarwayi babana na asima mu Rwanda."**

Kubwibyo rero, tukaba tubasaba ko mwagira uruhare muri ubu bushakashatsi bivuye k'ubushake bwanyu, mwuzuzamurira amakuru yose akenewe kuri uru rupapuro. Ubu bushakashatsi n'ubw'ingirakamaro kuko buzafasha kumenya neza indwara ya asima mu Rwanda.

Turabasaba gutanga amakuru menshi ashoboka musubiza neza ibibazo byose byabajijwe kandi aho bidasobanutse neza mushobora kudasobanuka. Amakuru mutanga yose azagirwa ibanga kandi azakoreshwa gusa muri ubu bushakashatsi. Mufite uburenganzira busesuye bwo kwemera cyangwa kwanga kugira uruhare muri ubu bushakashatsi kandi nta ngaruka n'imwe bizabagiraho. Igihe mwemeye kugira uruhare muri ubu bushakashatsi, singombwa kugaragaza izina ryawe

Umaze gusoma neza no gusobanukirwa neza, wemeye kugira uruhare muri ubu bushakashatsi, ushyira umukono wawe kuri uru rupapuro rutangira, ahagana hasi ugaragaza ko wemeye kubushake kugira uruhare muri ubu bushakashatsi kandi ko urengeje imyaka 18.

Itariki ...../...../...../

Umukono.....

**URUPAPURO RW'IKUSANYAMAKURU K'UBUSHAKASHATSI KU ISANO IRI  
HAGATI Y'INDWARA YA ASIMA, UBUKANA BWAYO, IMYUMVIRE KURI YO  
NO UBURYO BWO KWIYITAHO K'UBARWAYI BABANA NA ASIMA MU  
RWANDA**

Njyewe Pauline KABANYANA, umunyeshuri uri kwiga icyiciro cya gatatu cya kaminuza mu gashami k'ubuforomo, ishuri ry'ubuganga muri kaminuza y'u Rwanda, mfatanyije n'abarimu banjye aribo Dr Lakshimi Rajeswaran na Ruth Segoo; turi gukora ubushakashatsi kundwara ya asima. Muradufasha kuzuzura uru rupapuro, aho mudasobanukiwe neza, mwatubaza.

Telefoni: 0783192239      Imeli: [kabapaulin08@gmail.com](mailto:kabapaulin08@gmail.com)

**Amabwiriza:**

- ✓ Kuba ufite byibura imyaka 18
- ✓ Ntushyireho amazina yawe
- ✓ Ibisubizo byawe bizagirwa ibanga
- ✓ Soma neza ibibazo kandi usubize kugiti cyawe uko ubyumva ariko utange amakuru y'ukuri.

## **A. AMAKURU RUSANGE**

### **1. Imyaka**

18-30

31-40

41-50

51-60

Hejuru ya 61

### **1. Igitsina**

Gabo

Gore

### **2. Irangamimerere**

Ingaragu

Ndubatse

Twaratandukanye byemewe

Twaratandukanye bitemewe

Umupfakazi

### **4. Akazi ukora**

Uwikorera

Ubuhinzi n'ubworozi

Umukozi wa leta

Nta kazi mfite

### **5. icyiciro cy'amashuri warangirijeho**

Abanza

Ayisumbuye

Kaminuza

Andi

### **6. Idini**

Umukirisitu

Umuyisilamu

Utemera

**B. 1. UBUKANA BW'INDWARA YA ASIMA**

<b>IKIBAZO</b>	<b>YEGO</b>	<b>OYA</b>
1. Waba warigeze kuremba(kirize) kubera asima mumezi 12 ashize?		
2. Ujya uremba(kirize) kubera asima kumanywa?		
3. Ujya uremba(kirize) kubera asima nijoro?		
4.Ujya ugira ibimenyetso bya asima nko kubura umwuka,kunanirwa guhumeka cyangwa gukorora byibura muni y'iminsi ibiri mucyumweru?		
5. Ujya ugira ibimenyetso bya asima nko kubura umwuka,kunanirwa guhumeka cyangwa gukorora byibura iminsi ibiri gusubiza hejuru mucyumweru? (ariko atari buriminsi)?		
6. Ujya ugira ibimenyetso bya asima nko kubura umwuka,kunanirwa guhumeka cyangwa gukorora byibura buriminsi?		
7. Ujya ugira ibimenyetso bya asima nko kubura umwuka,kunanirwa guhumeka cyangwa gukorora kenshi kuminsi ?		
8. Ujya unanirwa gukora imirimo yawe kubera asima mugihe kitarenze iminsi ibiri mucyumweru?		
9. Ujya unanirwa gukora imirimo yawe kubera asima mugihe kirengeje iminsi ibiri mucyumweru? (ariko Atari buri muni)		
10. Ujya unanirwa gukora imirimo yawe kubera asima buriminsi ?		
11. Ujya unanirwa gukora imirimo yawe kubera asima inshuro myinshi ku muni?		
12Ujya ubyuka nijoro kubera impamvu zituruka kuri asima nko kubura umwuka,kunanirwa guhumeka cyangwa gukorora ?		

**B.2.IBITUMA INDWARA YA ASIMA IKARA (IBITERA KIRIZE)**

<b>IBI BIKURIKIRA BYABA BITUMA UBURWAYI BWA ASIMA BWAVE BUKARA?</b>		
<b>IKIBAZO</b>	<b>YEGO</b>	<b>OYA</b>
1.Kunywa itabi		
2. Guhumeka umwotsi w'itabi		
3. Umukungugu		
4.Inyamanswa nk'injangwe cyangwa imbwa		
5.Ubukonje		
6.Ubushyuhe		
7. Utubuto cyangwa indabyo z'ibiti		
8.Umwotsi cyangwa imyuka yo mugikoni?		
9. Umwuka uva munganda		
10. Agahinda cyangwa ibindi byose bikubabaza		
11.Imyitozo ngororamubiri		
12.Ibindi byose tutavuze haruguru		

**C.PIMYUMVITRE Y'ABARWAYI BA ASIMA KUBURWAYI BWA ASIMA**

<b>IKIBAZO</b>	<b>Simbyemera nabusa</b>	<b>Simbyemera</b>	<b>Simbizi</b>	<b>Ndabyemera cyane</b>	<b>Ndabyemera</b>
1.Asima ni indwara idakira					
2.Asima ni indwara yanduza/yandura					
3. Abarwayi ba asima bagomba gukora imyitozo ngororamubiri buri gihe					
4. Abarwayi ba asima bagomba kurya indyo yuzuye					
5. Abarwayi ba asima bagomba kwirinda umubyibuho ukabije					
6. Abarwayi ba asima bagomba gufata imiti igihe barembye(kirize) bitewe na asima gusa.					
7.Imiti bahumeka niyo myiza kurusha ibinini mu kuvura asima.					
8. Kwirinda ibituma indwara ya asima yongera ubukana biragoye					
9. Abarwayi ba asima baratotezwa					
10. Asima iterwa na roho mbi					

**D. KWIYITAHO NO KWIVURA KW'ABARWAYI BA ASIMA**

<b>STATEMENT</b>	<b>YEGO</b>	<b>RIMWE NA RIMWE</b>	<b>HOYA</b>
1. Ujya ujya kwivuza asima kuburyo buhoraho?			
2. Ukoresha ibinini?			
3. Ukoresha imiti bahumeka?			
4. Ufata imiti neza uko bayikwandikiye?			
5. Ukora imyitoto ngororamubiri kuburyo buhoraho?			
6. Wirinda ubukonje mugihe cy'imbeho?			
7. Wirinda ibigutera kuremba (kirize)?			
8. Urya indyo yuzuye?			
9. Ukoresha imiti igihe uburwayi bwawe bwa asima bugaragaje ubukana gusa?			
10. Ujya ujya kwivuza igihe uburwayi bwawe bwa asima bugaragaje ubukana gusa?			
12. Wigumira murugo igihe uburwayi bwawe bwa asima bugaragaje ubukana?			

**Murakoze cyane!**



UNIVERSITY OF  
**RWANDA**

COLLEGE OF MEDICINE AND HEALTH SCIENCES

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 14/01/2019  
Ref: CMHS/IRB/018/2019

KABANYANA Pauline  
School of Nursing and Midwifery, CMHS, UR

Dear KABANYANA Pauline

**RE: ETHICAL CLEARANCE**

Reference is made to your application for ethical clearance for the study entitled  
*"Association Between Asthma Severity, Perception And Self-Care Practices Of Patients  
With Asthma At Selected District Hospital And Health Centers In Rwanda"*.

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

Professor Jean Bosco GAHUTU  
Chairperson Institutional Review Board,  
College of Medicine and Health Sciences, UR



Cc:

- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR



Pauline KABANYANA  
UNIVERSITY OF RWANDA/CMHS  
SCHOOL OF NURSING AND MIDWIFERY  
E-mail:Kabanyana17@gmail.com  
Phone: +250783192239  
February The 6<sup>th</sup>, 2019



To: The Director of KINYINYA health center.

Dear Sir,

**RE: Request for the permission to conduct the research**

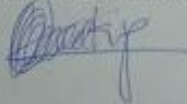
I am registered nurse with Bachelor's degree in nursing sciences and currently I am a student in Masters' program mattering with nursing Science in Medical Surgical track at the University of Rwanda and I am required to conduct a research dissertation to fulfill this program.

In fact, I have the pleasure to submit this request letter requesting for approval of data collection at KINYINYA health center. The topic is "**Association between asthma severity, perception and self-care practice among asthmatic patients in selected district hospital and health centers in Rwanda**"

I am hopeful this request will meet your favorable consideration and I carry on appreciating your support.

Yours faithfully,

Pauline KABANYANA



Pauline KABANYANA  
UNIVERSITY OF RWANDA/CMHS  
SCHOOL OF NURSING AND MIDWIFERY  
E-mail:Kabanyana17@gmail.com  
Phone: +250783192239  
February The 6<sup>th</sup>, 2019



To: The Director of REMERA Health center

Dear Sir,

**RE: Request for the permission to conduct the research**

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Yours faithfully,

Pauline KABANYANA

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UNIVERSITY OF RWANDA/CMHS  
SCHOOL OF NURSING AND MIDWIFERY  
E-mail: Kabanyana17@gmail.com  
Phone: +250783192239  
February The 6<sup>th</sup>, 2019



ACC  
C.S Kagugu  
Le 7/2/2019  
Nukamuhanda Joseph

To: The Director of KAGUGU health center

Dear Sir,

**RE: Request for the permission to conduct the research**

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E-mail:Kabanyana17@gmail.com  
Phone: +250783192239  
February The 6<sup>th</sup>, 2019

HÔPITAL KIBAGABAGA
Date d'entrée: 07.02.2019
N° d'enregistrement: 242
A traiter par .....

Accord  
*[Signature]*  


To: The Director of KIBAGABAGA District Hospital

Dear Sir,

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I am registered nurse with Bachelor's degree in nursing sciences and currently I am a student in Masters 'program mattering with nursing Science in Medical Surgical track at the University of Rwanda and I am required to conduct a research dissertation to fulfill this program.

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I am hopeful this request will meet your favorable consideration and I carry on appreciating your support.

Yours faithfully,

*[Signature]*

Pauline KABANYANA