UNIVERSITY OF CAPE COAST

EXPLORING QUALITY OF LIFE OF PATIENTS WITH ALLERGIC RHINITIS AT KOMFO ANOKYE TEACHING HOSPITAL

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MERCY AFUA BEYUO BELINS

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EXPLORING QUALITY OF LIFE OF PATIENTS WITH ALLERGIC RHINITIS AT KOMFO ANOKYE TEACHING HOSPITAL

BY

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Thesis submitted to the Department of Adult Health Nursing of the School of Nursing and Midwifery, College of Health and Allied Sciences, University of Cape Coast, in partial fulfillment of the requirements for the award of Master of Nursing Degree

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: …….. Date ……

Name: Mercy Afua Beyuo Belins

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast

Principal Supervisor's Signature: …… Date …….

Name: Professor Akwasi Kumi-Kyereme

Co-Supervisor's Signature ……..… Date ……

Name: Dr. Andrew Adjei- Druye

ABSTRACT

Allergic rhinitis (AR) is a global health problem and its symptoms impose a substantial burden on the individual. Despite its chronicity and adverse outcome, allergic rhinitis remains neglected, unrecognized and mismanaged and there is scarce scientific knowledge on how allergic rhinitis impact on the quality of life of individuals in Ghana. This study explored the experiences of patients with allergic rhinitis on their quality of life. The study used descriptive qualitative study employing the purposive sampling technique to recruit patients diagnosed with Allergic Rhinitis at the Ear, Nose and Throat (ENT) Unit of the Komfo Anokye Teaching Hospital. A face-to-face interview was conducted using a semi-structured interview guide and the data gathered was analyzed using thematic analysis. The findings of the study revealed that patients with allergic rhinitis experience several signs and symptoms once they come into contact with the triggers and this condition has effect on their psychological and socio-economic wellbeing. Physically, the participants experienced excessive sneezing, itching eyes, nose and throat, running nose and blocked nose, headache and pain in the throat, coughing, fatigue, inability to smell as well as hawking of the throat. Psychologically, participants experienced sleep and emotional disturbances, labeling, anxiety and discomfort, strained relationship with family and poor concentration. Participants also experienced socio-economic effects such as decreased productivity at workplace, increased expenditure due to drug purchase, and unsociable life style. It is therefore recommended that ENT practitioners employ interventions to enhance patients' quality of life.

KEY WORDS

Allergic rhinitis

Experiences

Patients

Quality of life

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DEDICATION

To my husband, Linus and sons, Franklin and Manuel.

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LIST OF ACRONYMS

AIT	Allergen Immunotherapy
AR	Allergic Rhinitis
ARiA	Allergic Rhinitis and its Impact on Asthma
CRS	Chronic Rhinosinositis
ENT	Ear, Nose and Throat
HRQoL	Health Related Quality of Life
KATH	Komfo Anokye Teaching Hospital
QoL	Quality of Life
RS	Rhinosinositis
WHO	World Health Organization
WHOQoL	World Health Organization Quality of Life

CHAPTER ONE

INTRODUCTION

Background to the Study

Allergic Rhinitis (AR) is a significant worldwide health problem which is a major cause of illness and disability (Bozek, 2017; Bousquet, Khaltaev, Cruz, Denburg, Fokkens, Togias & Agache, (2008). It is an inflammatory disease of the nasal mucosa, induced by an immunoglobulin E (IgE) mediated reaction in allergen-sensitized people characterized by sneezing, rhinorrhea, nasal congestion and nasal pruritus, and are often accompanied by ocular pruritus, redness and lacrimation in 60%-70% of patients (Develioglu, Paltura, Koleli, & Kulekci, 2013; Incorvaia, Fuiano, Martignago, Gritti & Ridolo, 2017; Mahboub, 2014; Zhang, & Zhang, 2014). Even though not life threatening, the symptoms of Allergic Rhinitis are normally troublesome to the individual, as well as adversely affecting work and Quality of Life (QoL), and impose a substantial burden on both the individual and society (Antolín-Amerigo, Tabar, del Mar Fernández-Nieto, Callejo-Melgosa, Muñoz-Bellido, Martínez-Alonso & Alonso-Gómez, (2017); Can, Islam, Taştan, Çelik, Felek, Karasoy, & Samim, 2013; Green, Davis & Price, 2007). The symptoms can lead to both physical and mental complications, with sleep-disordered breathing in children and adolescents as well as adults' being associated with decreased learning performance and increased behaviour and attention disorders.

Globally, allergic rhinitis constitutes a worldwide public health problem with a prevalence of 10% to 40% and the trend is increasingly affecting more than

400 million people worldwide, with high prevalence recorded in the developed countries (Amizadeh, Safizadeh, Bazargan & Farrokhdoost, 2013; Canonica, Mullol, Pradalier & Didier, 2008; Frati, eta al., 2014; Gryglas, 2016; Mösges, Lee, Abong, Siasoco, Chow, Leong & Campomanes, 2016; Szilasi, Gálffy, Fónay, Márk, Rónai, Szalai & Horváth 2012; Torfi, Bitarafan, & Rajabi, 2015). Also, it is a global health problem owing to its association with sinusitis, otitis media, pharyngitis, sleep disturbances, and asthma, since comorbid asthma is common in allergic rhinitis (Mahboub, Al-hammadi, Prakash, Sulaiman, Blaiss, Redha &Vats 2014; Solelhac & Charpin, 2014; Wang, 2012). In addiion to this, the potential loss of productivity and treatment costs of allergic rhinitis create an important economic burden on the patient and family (Cingi, & Ozlugedik, 2010).

The increasing prevalence of Allergic Rhinitis is attributed to a variety of factors such as changing global climate conditions, improvements in hygiene, changes in diet, and less ventilation indoors. It can also be associated with airborne allergens and pollution as well as sedentary lifestyle (Baena-Cagnani, 2015; Keith, Desrosiers, Laister, Schellenberg, & Waserman, 2012; Linneberg Petersen, Hahn-Pedersen, Hammerby, Serup-Hansen & Boxall, 2016).

Though it does not pose a risk of death, there is a significant impact on the lives of individual's and it is a prevalent pathology in children, reaching 30% of the population, on average 13% to 21% of preschoolers, 15% of school children, and up to 40% of adolescents (Frati, 2014; Incorvaia, Fuiano, Martignago, Gritti, & Ridolo, 2017; Zhang, & Zhang, 2014). It is a risk factor for the development of asthma and the more persistent and severe the Rhinitis, the

more likely one may go on to develop asthma (Antolín-Amerigo, 2017; Keith, Desrosiers, Laister, Schellenberg, & Waserman, 2012).

Usually, Allergic Rhinitis can be classified into seasonal and perennial rhinitis. However, there are also other forms of rhinitis which are defined as "episodic", because they are related to the occasional exposure to a particular allergen (Dhong, 2013). But recently Allergic Rhinitis and its Impact on Asthma (ARiA) document classified the condition based on the duration and severity of clinical symptoms into persistent and intermittent forms and, in relation to the severity of the symptoms, which can be mild and moderate to severe (Dhong, 2013; Frati, Dell'AlbanLi, Passalacqua, Bonini, Rossi, Senna & Incorvaia, 2014). Hence this classification takes into consideration both the Quality of Life and the possible impact of the symptoms on school, work and leisure activities, as a result impairing patients' quality of life (QoL).

Quality of life (QoL) is defined by the World Health Organization as the psychological and social functioning as well as physical functioning, which the integrates positive aspects of well-being as well as negative aspects of disease or infirmity (Ozdoganoglu, Songu & Inancli, 2012). So, the concept encompasses the patient's subjective perception of the effect of the condition and its treatment on their daily life. Likewise, QoL should be clearly distinguished from the core symptoms of a disease. Health-related quality of life focuses on patients' perceptions of their disease and measures impairments that have a significant impact on the patient. Also, the burden of the disease, as the patient perceives it, forms the basic motivation to seek medical aid or to undergo therapy (Del

Giudice, Marseglia, Leonardi, La Rosa, Salpietro, Brunese & Perrone, 2011; Frati, et al., 2014).

Among the negative effects are fatigue, headache, poor concentration, reduced productivity, nasal congestion, rhinorrhoea, and nasal itching as well as behavioural disorders, like restlessness, irritability, inattention, and daytime sleepiness (Caballer et al., 2012; Del Giudice et al, 2011; Develioglu, Paltura, Koleli, & Kulekci, 2013; Dziekanski & Marcelino, 2017; Everhart, Kopel, Esteban, McQuaid, Klein, McCue & Koinis-Mitchell, 2014; Kremer, Den Hartog, & Jolles, 2002; Lâm, Tường, Ekerljung, Rönmark & Lundbäck, 2011; Marshall, O'hara & Steinberg, 2002; Price, Scadding, Ryan, Bachert, Canonica, Mullol & Bousquet, 2015; Roger, 2016). Therefore, knowing the impact that Allergic Rhinitis has on individuals' Quality of Life and how the disease affects their physical, mental, and social development may contribute to a better understanding of the disease and how it affects patients' lives (Elkholy, Khedr, Halawa & Elbaramawy, 2012; Tran, Vickery & Blaiss, 2011).

Unfortunately, many patients have difficulty recognizing their condition and so they do not consult a specialist for any effective treatment. Thus, self-medication and treatments without scientific evidence of effectiveness are commonly utilized by patients. Yet, early diagnosis and management of allergic rhinitis promote health (Canonica, Mullol, Pradalier & Didier, 2008; Mir, Panjabi & Shah, 2012; Padjas, Kehar, Aleem, Mejza, Bousquet, Schünemann & Brożek, 2014; Solelhac & Charpin, 2014; Tran, Vickery, & Blaiss, 2011). The most essential effect of medication such as anti- histamines and intranasal

corticosteroids (INS) is mainly prescribed for relieve of symptoms and restoration of normal breathing (Canonica, Mullol, Pradalier & Didier, 2008; Tran, Vickery & Blaiss, 2010).

Most reports in literature illustrate that the daily burden of Allergic Rhinitis symptoms can be disturbing and incapacitating, negatively impacting patients' quality of life, normal activities, well-being, cognitive functioning, even mood and sleep (Keith, Desrosiers, Laister, Schellenberg & Waserman; Léger, Annesi-Maesano, Carat, Rugina, Chanal, Pribil & Bousquet, (2006). Despite its adverse outcome, allergic rhinitis remains neglected, unrecognized and a mismanaged condition since many patients do not recognize allergic rhinitis as a disease and therefore do not consult a specialist for management (Linneberg et al., 2016; Shah, 2014).

Nevertheless, clinical measures provide information on the affected organ systems, but do not inclusively capture the patient's experiences of the disease burden caused by the physical, psychological, and social impairments in everyday life (Can et al., 2013; Develioglu, Paltura, Koleli, & Kulekci, 2013; Tran, Vickery, & Blaiss, 2011) . The wider impact of allergic rhinitis on patients' lives is now documented in the Allergic Rhinitis and its impact on asthma (ARIA) guidelines, which recognize the impact of health related Quality of Life on Allergic Rhinitis, and categorize its severity based both on symptoms and its effect on health related quality of life (Frati et al., 2014; Ozdoganoglu, Songu & Inanchi, 2012).

The study, therefore aimed at exploring the Quality of Life of patients with Allergic Rhinitis at Komfo Anokye Teaching Hospital.

Statement of the Problem

Allergic rhinitis can be a debilitating situation with significant effects on quality of life if left untreated. However, Allergic Rhinitis (AR) has been undervalued and neglected over the years, despite its prevalence, chronicity and the burden it inflicts on individuals and society. There has been less attention paid to individuals' with Allergic Rhinitis, and their Quality of Life have been ignored and seen as a minor health problem (Bousquet, Khaltaev, Cruz, Denburg, Fokkens, Togias, et al., 2008; Ozdoganoglu, Songu & Inancli, 2012). Patients all over the world, with different backgrounds suffer from Allergic Rhinitis (Price et al., 2015). It mainly presents with symptoms such as sneezing, itching, rhinorrhea, nasal congestion, and post-nasal drip, loss of taste and smell, allodynia or mouth breathing and snoring due to nasal congestion. Thus, it has a negative impact on the patient's life and because it is a disease of the upper airways, if not properly controlled, it can predispose patient to Rhino-Sinusitis, Otitis Media, Nasal Polyps, Allergic Conjunctivitis and Hearing Loss.

Moreover, the patients appear at their workplaces, yet the symptoms lead to reduced productivity, a major problem known as "presenteeism" (Baena-Cagnani et al., 2015; Roger et al., 2016). The direct and indirect costs of illness are high to the health system as well as the patient, because many patients use over-the-counter products in addition to prescription medicines to manage their

symptoms and report to the hospital once there is comorbidity (Flokstra-de Blok, 2017; Zhang, & Zhang, 2014).

In Tanzania, observation by the researchers from the Bugando Medical Centre (Ear, Nose and Throat clinical records) discloses that Allergic Rhinitis and its associated co-morbidities are common problems encountered with increasing trend for the past three years. Yet, it does not receive the attention it deserves from the patient, the family as well as the health care professionals, especially in developing countries (Mir, et al, 2014; Said et al., 2012).

Although the prevalence and possible factors responsible for the aetiology of allergic rhinitis have been well documented in many developed countries, there is relatively little information available in developing countries. To date, most surveys that have been conducted in Europe and America are mostly on the prevalence, burden of disease and impact on the patient, concerns of the patient with allergic rhinitis as well as pharmacotherapy of the condition to improve quality of life. There are also studies on perception of patient on the condition, attitude and lifestyles of patient with allergic rhinitis and patient satisfaction with treatment (Amizadeh, Safizadeh, Bazargan & Farrokhdoost, 2013; Canonica, Mullol, Pradalier, & Didier, 2008; Mahboub et al., 2014; Zhang, & Zhang, 2014; Zheng, Wang, Bo, Wang, Zhao, He & Bachert, 2015).

Furthermore, most of the studies used quantitative research design, and there is relatively limited evidence in Africa as well as Ghana on how patients experience allergic rhinitis with regards to their quality of life. Therefore, knowing the effects that allergic rhinitis has on the individuals' quality of life may

contribute to a better understanding of the disease and how it affects patients' lives.

It is against this background that this study explores Quality of Life of patients who suffer from Allergic Rhinitis. This information will inform the development of appropriate nursing and other health care interventions.

Research Questions

The following questions have been formulated to guide this study:

1. How do people living with Allergic Rhinitis perceive their physical well-being?
2. How do the symptoms affect their psychological well-being?
3. How does allergic rhinitis affect the socio-economic well-being of the patient?

Purpose of the Study

The purpose of the study is to explore the experiences of patients with Allergic Rhinitis on their Quality of Life.

Objectives of the Study

The specific objectives are to:

1. examine the physical well-being of patients with Allergic Rhinitis

2. explore effects of Allergic Rhinitis on the psychological well-being of patients

3. explore the socio-economic effects of Allergic Rhinitis on patients

Significance of the Study

Findings of this study will aid in revelation and documentation of the effects of AR from the perspectives of sufferers. Likewise, findings will contribute to the scanty literature of QoL of AR in Ghana and countries with similar health systems. Results of study will provide nurses and other health professionals' opportunity to appreciate the experiences of patients with allergic rhinitis, so that they can be properly diagnosed and given adequate management to improve their Quality of Life. Also, it will facilitate the development of comprehensive care services to management that will improve their Quality of Life and stimulate further research in the area.

Delimitation of the Study

The study is limited to patients who report to the ENT clinic of the Komfo Anokye Teaching Hospital and are diagnosed with Allergic Rhinitis. Patients without obvious nasal pathology like Nasal Polyps, Deviated Nasal Septum and Malignancy will be involved in the study.

Limitations of the Study

Participant's ability to share their experiences depends on the understanding of the issues being discussed during the interview. Language was a limitation to the study as I was fluent in Akuapem -Twi than Asante- Twi. However, the research assistant was always around to offer assistance when the interview will be conducted in Asante-Twi so that participants can understand the issues being discussed.

The transferability of the findings of this study is limited as the Quality of life is subjective, and may differ for patients or the kind of allergen triggers patients are exposed to in the environment. Since a qualitative method was employed, the findings cannot be generalized because few Allergic Rhinitis patients were interviewed.

Definition of Terms

The operational definition of the key terms used in the study is as follows:

- Patients: refers to people waiting at Out-Patient-Department of the various units in the hospitals.
- Quality of life (QoL): A person's subjective perception of the effects of Allergic Rhinitis and its treatment on his or her daily life.

Organization of the Study

Chapter one introduces the entire study, beginning with a general background to the study on Allergic Rhinitis and Quality of Life. It covers the problem statement, objectives and research questions. This chapter also deliberates on the significance of study and the chapter dispositions of the study. The Second Chapter of the study focuses on the discussion of theories relevant to experiences of patients' with allergic rhinitis and quality of life. An extensive review of relevant empirical literature is also contained in this chapter. The literature review conducted was based on the objectives of the study and this enabled the study to be established on empirical evidence in the literature so that

clear findings and conclusion were drawn based on the views of existing literature.

In Chapter Three, the researcher discusses the research methodology of the study. Again, this chapter describes and validates the research paradigm under which the methods for the study were selected. It also covers sources of data, sampling techniques and the instrumentation, the study population and the scope of the study are explained in addition to the data gathering procedure and ethical considerations. This Methodological Chapter indicates the suitability of the methods to ensure a systematic approach that a scientific study of this stature demands.

Chapter Four presents findings together with the discussions; this enables readers to follow the connection between the objectives of the study and research questions, the literature review, theoretical framework and the responses from participants. The Chapter Five of the study summarizes and concludes the entire study. The necessary recommendations are made to inform policy action and directives to ensure the recognition and proper management of Allergic Rhinitis to promote the patients Quality of Life.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The aim of this literature review is to explore research that has been done on the Quality of Life of patients with allergic rhinitis. This chapter discusses models in quality of life that informed the conceptual basis for the framework of the study. Also, this chapter involves the overview of Allergic Rhinitis as well as reviews relevant and related literature according to the objectives of the study. This is to allow the researcher to meaningfully relate findings in the empirical literature to the findings from the field, in order to draw conclusions for the study.

An electronic search was conducted in nursing and health related data bases including PubMed, Google scholar, Epscohost Science Direct, Willey Online Library and Hinari. Key terms that were used for the search include Allergic Rhinitis and Quality of Life. In addition, textbooks and any other print material relevant to the topic under study were utilized. Other documents and policies on allergic rhinitis were reviewed as well. Only materials published in English language were retrieved and included in the review.

The literature is organized around the main objectives of the study including 1) physical wellbeing of the patient with Allergic Rhinitis, 2) psychological wellbeing of the patient with Allergic Rhinitis, 3) socio-economic effect of Allergic Rhinitis on the patient, and 4) other themes that emerged from the literature.

Overview of Allergic Rhinitis

Allergic Rhinitis has been defined and described in diverse ways; Allergic Rhinitis is a symptomatic disorder of the nose, induced after allergen exposure by an IgE-mediated inflammation of the nasal mucosa (Brożek, Bousquet, Agache, Agarwal, Bachert, Bosnic-Anticevich & de Sousa, 2017). Authors such as Dahilo Quadri & Uzochukwu, 2017; Ozdoganoglu, Songu & Inancli, 2012; Ramirez-Jimenez & Pavon-Romero, 2012, defined Allergic Rhinitis as a symptomatic disorder of the nose, induced after allergen exposure due to an immunoglobulin (IgE)-mediated inflammation of the membranes lining the nose.

Allergic Rhinitis is a type I hypersensitivity reaction and occurs in persons who are prone to produce immunoglobulin E (IgE) in response to a specific allergen (e.g. dust). This IgE is bound to allergen then attaches to mast cells causing the degranulation of mast cells and hence causing the release of inflammatory mediators such as interleukin (IL) (Devon, Road, Surgeon & Leonards, 2005).

Clinical Manifestation

Allergic Rhinitis presents with sneezing, rhinorrhea, nasal congestion and nasal pruritus, which are often accompanied by ocular and palatal pruritus, redness and lacrimation and postnasal drainage as well (Al Suleimani & Walker 2018; Bousquet et al., 2001; Mahboub et al., 2014; Seidman et al., 2015; Wang, 2012; Zhang & Zhang, 2014). Additionally, airway hypersensitivity may develop a loss of the sense of smell and an inability to taste may also occur.

Moreover, some patients experience sleep disturbances, decreased emotional well-being and social functioning, headache, and irritability. Other characteristic signs of allergic rhinitis in patients particularly children include allergic shiners (darkening of lower eyelids due to oedematous nasal tissue compressing the veins that drain the eye region thereby leading to pooling of blood under the orbits) and an allergic crease (a transverse skin line below the bridge of the nose caused by constant upward rubbing of the nose with the palm of the hand (the "allergic salute"). Due to chronic nasal airway obstruction, some children always open the mouth (allergic gape), thus become chronic mouth breathers. This leads to craniofacial abnormalities and orthodontic disturbances, such as palatal arching, increased facial length, and a flattened mid-face.

Classification

The ARIA initiative classifies Allergic Rhinitis in either intermittent or persistent and mild or moderate/severe, based on the frequency of the symptoms and their impact on the quality of life. Intermittent symptoms usually occur less than four days per week for less than four weeks while in persistent Allergic Rhinitis symptoms are present more than four days per week and for more than four weeks.

For mild cases, this condition should not present any of these symptoms: sleep disturbance, impairment of school or work performance, impairment of daily activities, leisure and sport activities, and troublesome symptoms; but moderate-severe level should present one or more of the symptoms indicated above (Ramirez-Jimenez & Pavon-Romero, 2012). Classifying Allergic Rhinitis

in this manner may contribute in choosing the most appropriate treatment strategies for an individual patient (Seidman et al., 2015).

Management

In the management of AR, Juniper (2006) identifies three rationales for treating patients. Thus, to prevent mortality, reduce the probability of future morbidity; and improve patient well-being (quality of life).

Allergen avoidance is the best way to manage an allergic condition (Opoku-Buabeng, 2015). Due to the fact that, allergic rhinitis is induced by specific allergens, it is relevant to educate patients on avoiding those triggers which would be an effective treatment (Tran, Vickery & Blaiss, 2011). Efforts to avoid exposure to allergens are intended to prevent the development of symptoms in sensitive patients. Hence, the first-line treatment option of AR involves the avoidance of relevant allergens and irritants. Consequently, the identification of the responsible allergen is of great importance. When allergen avoidance is suggested, the combination of multiple preventive methods is the most effective option (Karganova, 2016).

Anti-allergic drugs are also effective for the relief of symptoms. These drugs may be used as monotherapy, or in combination, depending on the predominant symptoms, and the patient's response to therapy. Antihistamines are a standard therapy for most types of allergic rhinitis, (Bozek, 2017). The first generation antihistamines include brompheniramine, chlorpheniramine, and diphenhydramine. Even though these drugs relieve the sneezing and rhinorrhoea in allergic rhinitis, they easily cross the blood brain barrier and efficacious doses

are always associated with drowsiness and impaired mental performance. The second generation antihistamines produce considerably less sedation than the first generation drugs. These comprise acrivastine, cetirizine, fexofenadine, desloratadine and loratadine. However, some of the second generation drugs can be sedating in some patients (Al Suleimani & Walker, 2018). These drugs have demonstrated effectiveness in the relief of the seasonal and perennial rhinitis by reducing the symptoms of sneezing, itching, and nasal discharge. They have also been found to reduce ocular symptoms of the Allergic Conjunctivitis that frequently occurs in combination with Allergic Rhinitis.

Local corticosteroids are very effective class of drugs for the prevention and controlling of allergic effects (Al Suleimani & Walker, 2018; Opoku-Buabeng, 2015). They are nasally inhaled and include beclomethasone, budesonide, flunisolide, mometasone, and triamcinolone. Corticosteroids target the inflammatory mechanisms. Thus, intranasal steroids are particularly effective in improving nasal congestion, which is often the chief complaint in chronic allergic rhinitis, but they also relieve other symptoms of rhinitis, such as rhinorrhea, sneezing, and nasal itching. To obtain optimum benefit, therapy should commence before the onset of symptoms (for instance, before the expected pollen season). Intranasal corticosteroids are considered first-line treatment for more severe allergic rhinitis (Bousquet et al., 2001) and onset of action is slow with maximum benefit happening over days or even weeks. Systemic side effects are minimal in adults receiving intranasal corticosteroids.

More so, mast cell stabilizers are drugs such as Disodium cromoglycate (Rhinocrom) normally available for nasal application as sprays or drops may be appropriate in some patients (Opoku-Buabeng, 2015). This is only effective if used as prophylaxis and has to be applied at least four times a day.

Besides, nasal decongestants such as phenylephrine, oxymetazoline, xylometazoline and naphazoline are also options in management. However, they are not recommended in the treatment of chronic Allergic Rhinitis. Their administration may be useful in specific cases in patients with severe nasal obstruction; yet, their prolonged use can induce a paradoxical rhinitis known as rhinitis medicamentosa. Therefore, topical decongestants are generally used on a short-term basis for less than five days. Although each of these treatments offers short or long term relief from one or more of the symptoms of Allergic Rhinitis, none totally controls the disease. Therefore, in patients with this symptom, combination therapy with an oral antihistamine plus a decongestant can be helpful. Also, decongestants such pseudoephedrine and phenylpropanolamine, can have unwanted effects, such as insomnia, loss or stimulation of appetite, and should be used with caution in patients with conditions such as arrhythmias or angina. Likewise, intranasal antihistamines, such as azelastine and levocabastine, are useful in mild-to-moderate allergic rhinitis since they seem to have the potential to reduce nasal congestion.

The use of combinations of antihistamines and oral decongestants (pesudofedrine) are most useful, but its prescription should be monitored because they can produce side effects such as headache and hypertension and are

contraindicated in patients with angle-closure glaucoma and cardiovascular or cerebrovascular disease (Al Suleimani & Walker, 2018).

Immunotherapy is a unique therapy for Allergic Rhinitis because it provides symptomatic relief while modifying the allergic disease process by targeting the underlying immunologic mechanisms (Ramirez-Jimenez & Pavon-Romero 2012). Thus it is appropriate in some patients with severe symptoms where their allergen do not respond to pharmacotherapy. Age and concomitant illnesses are factors that help determine whether immunotherapy is appropriate. For example, immunotherapy is rarely appropriate in preschool children, the elderly and in those with severe pulmonary or cardiovascular disease. Therefore, timing of treatment is critical with anti IgE and the need for identification of the allergen for the initiation of immunotherapy. Moreover, anticholinergics (muscarinic antagonists) are useful only in reducing rhinorrhoea.

Complications of Allergic Rhinitis

Allergic inflammation does not limit itself to the nasal airway. Multiple co-morbidities have been associated with rhinitis (Zheng et al., 2015). Co-morbidities such as bronchial asthma which is a chronic respiratory illness affecting the airways and making breathing difficult. It occurs mainly due to inflammation and swelling of the airways with secretion of mucus which causes obstruction and promotes further breathing difficulty. Hence the presence of Allergic Rhinitis (seasonal or perennial) significantly increases the chance of Asthma in people with Allergic Rhinitis.

Otitis Media is another co-morbidity that can occur as result of allergic rhinitis. It is inflammation of the middle ear usually due to dysfunction of Eustachian (auditory) tube. It commonly happens as a result of viral or bacterial infection and in children, they have higher tendency to develop otitis media because their auditory tubes are small, soft and horizontal. This makes the infection spread easily from the adjacent structures like nose or throat to the ear.

Moreover, rhino-sinusitis which is the inflammation of the sinuses occurs due to the connection of the sinuses to the nose, so they could be affected with nasal diseases. Chronic sinusitis is the most frequently mentioned comorbidity in the self-reported Allergic Rhinitis. Nasal Polyps could also result from persistent occurrence of Allergic Rhinitis (Zheng et al., 2015). They are benign, fleshy swelling that grows from the mucous membrane of the sinuses or nose and causes a profound feeling of nasal blockage.

Furthermore, Allergic Conjunctivitis which is inflammation of the conjunctiva could occur because of the allergy. Also, the allergy causes skin rash leading to Atopic Dermatitis.

Physical Well-Being of Patients with Allergic Rhinitis

Allergic Rhinitis may be a non-life threatening condition but it has an enormous impact on patients' ability to function normally in day-to-day activities (Juniper, 2006).This impact is often not recognized by clinicians and there has been a tendency to dismiss the condition as trivial as many cases are resolved spontaneously at the end of a pollen season or termination of exposure to the

allergens. However, when symptomatic, patients often experience worse impairment in quality of life than patients with more persistent chronic conditions. Usually adults with Allergic Rhinitis are certainly troubled by the symptoms such as nasal blockage, rhinorrhoea and sneezing. They are mainly worried about continually having to carry tissues, blowing their noses frequently and experiencing the urge to rub both nose and eyes. They also experience non-nasal symptoms that are troublesome such as thirst, itching of the palate and headache (Juniper, 2006).

In the past few decades, several studies have shown that in addition to the classic signs of sneezing, nasal itching, rhinorrhea, and nasal obstruction, Allergic Rhinitis has an adverse impact on the QoL of adults and children (Muliol, Maurer & Bousquet, 2008). A quantitative survey conducted in six different countries by Canonica, Mullol, Pradalier, and Didier, (2008) to understand how patients perceive Allergic Rhinitis and their attitudes towards this condition (including quality of life) and its treatment options. The study revealed that majority of the respondents in all countries reported sneezing and itchy or watery eyes as their most common symptoms. Findings deduced from the survey indicate that Allergic Rhinitis sufferers perceive their symptoms as causing significant QoL disruptions; and have an unquenchable impact on many domains of their daily lives such as reduced school and work productivity. Respondents reported that they had experienced difficulty in falling asleep. Sleep disturbances are commonly noted in patients with AR and contribute to a reduction in QoL (Georgalas, 2011).

Significant perception of physical well-being of Allergic Rhinitis is reported by this study, however, since it was conducted across selected countries in North America and Europe coupled with large number of respondents, in-depth and subjective responses were not considered. Again, due to cultural and geographical variability across the selected countries, perceptions may differ with such confounding variables; therefore, generalizing the findings of the study could neglect these valid factors.

It is a good effort to undertake a study of this nature in an attempt to unify findings among selected countries, however, studying 'perceptions' among people with varied cultural and geographical backgrounds should consider the influence of their perception to rule out confounding factors.

Moreover, in a study conducted by Develioglu, Paltura, Koleli, & Kulekci (2013), it was deduced that Allergic Rhinitis (AR) causes upper airway symptoms such as nasal congestion, rhinorrhoea, and nasal itching and depending on the sensitivity of the allergen and persistent irritation of the upper airways; it may lead to chronic rhinitis and laryngitis. Hence the signs of laryngeal irritation and mucous production which is usually thick and sticky can dampen the vocal cords and consequently, oedema and excessive mucous on the vocal cords can negatively influence the voice quality. Additionally, patients cough and clear their throats more frequently which stresses the vocal cords thereby affecting voice quality.

A survey conducted in South Africa by the Allergic Rhinitis Care Programme was to determine the impaired Health-related Quality of Life among patients suffering from Allergic Rhinitis. A questionnaire was issued to such patients and they were asked about the symptoms they experience, triggering factors, Quality of Life, complications, associated allergic conditions, their preferred medication, medication adherence as well as their concerns about the condition. From the survey, the findings indicated that nasal congestion was a common and recurrent problem. So, these symptoms impaired the sleep of sufferers and a minimum of a third of the number was experiencing it every night. Similarly, sufferers felt miserable as a result of Allergic Rhinitis. Sufferers also go through these symptoms anytime they are exposed to triggers in the environment.

This study is supported by a descriptive cross-sectional study conducted at Bugando Medical Centre in Tanzania comprising all patients diagnosed with allergic rhinitis in order to describe their experiences on Allergic Rhinitis, associated co-morbidities and treatment outcome. The findings showed that the most common triggers were dust, strong perfume, odours and cold weather. Some of the co-morbidities identified in the study include Nasal Polyps, Sinusitis, Adenoid Hypertrophy, Otitis Media, Hypertrophy of inferior turbinate and Tonsillitis, Allergic Conjunctivitis and these were the major reasons why patients with Allergic Rhinitis reported to that hospital for services. This indicates that there are various allergens that trigger the immunoglobulin E reaction depending on the kind of substance the individual is allergic to. The benefit of this finding exposes the morbidities associated with this trivialized condition.

A cross-sectional survey was conducted by Williams and Scadding (2009) on individuals with Rhinitis who have not consulted a physician in the past two years to investigate the effectiveness of self-medication and its outcome. Respondents indicated that they did not attend the physician because their symptoms were too trivial and that over the counter (OTC) medication was adequate. Antihistamine was the core treatment used by respondents. Also, intranasal corticosteroid use was mostly in other respondents. Therefore, the survey concluded that persons with Rhinitis who do not consult a physician when symptomatic will report multiple sensitization, reduced sleep and cognition. Likewise, drug utilization among persons reporting to the pharmacy with moderate or severe symptoms seems to be substandard. Thus, reliance on pharmacy or self-medication may not be suitable for some individuals and if Allergic Rhinitis is not properly controlled, it can predispose patients to morbidities such as Rhino-Sinusitis, Otitis Media, Nasal Polyps, Allergic Conjunctivitis and Hearing Loss. Hence early diagnosis and management of Allergic Rhinitis promote health (Canonica, Mullol, Pradalier & Didier, 2008; Mir et al., 2012; Padjas et al., 2014).

Another survey conducted by Kuehl, Abdulnour, O'Dell & Kyle (2015) with the aim of identifying how Allergic Rhinitis sufferers self-manage their condition. The survey concluded that patients diagnosed with Allergic Rhinitis seem to be self-managing their condition and interact less with their doctors about their allergy prescription. Thus, such patients interacting with the pharmacist about their allergy medication (prescribed and non-prescribed) is more common

than interacting with the physician. On the other hand, the study could have also found out the self- management techniques that the patients utilized during the study that are helpful so that it can be recommended to other sufferers.

Effects of Allergic Rhinitis on the Psychological Well-Being of Patients

In a systematic review conducted by Sansone and Sansone (2011) on the relationships between allergies and anxiety and mood revealed that majority of studies (9 out of 11 studies on anxiety syndromes, and 10 out of 12 studies on depressive syndromes) indicate associations between allergies and anxiety or mood syndromes, despite a number of methodological variances. For instance, Cuffel, Wamboldt, Borish, Kennedy & Crystal-Peters (1999) examined the healthcare claims of more than 85,000 individuals and found that anxiety symptoms were 1.41 times higher in individuals with allergies as against those without allergies. Likewise, Patten & Williams (2007) determined that allergic individuals exhibited a higher rate of panic disorder as well as social phobia.

Sleep is fundamental for physical and psychological health, and patients with chronic diseases, including chronic respiratory diseases such as Allergic Rhinitis, usually have considerably impaired sleep quality. This may increase the frequency of exacerbations and severity of symptoms, leading to difficulty in patient management, and reduce Quality of Life (QoL) (Muliol, Maurer, & Bousquet, 2008). The effect of rhinitis on a patient goes beyond specific anterior nasal symptoms. Also, nasal obstruction can cause sleep disturbances that reduce a patient's daytime concentration and lead to daytime sleepiness.

A national cross-sectional epidemiological study involving patients with Allergic Rhinitis of at least one-year duration assessed sleep disorders, quality of sleep, and Allergic Rhinitis (Muliol, Maurer & Bousquet, 2008), and the severity of Allergic Rhinitis was assessed using the ARiA classification. The impact of the severity of Rhinitis, but not its frequency, was significant for insomnia, severe insomnia, hypersomnia, respiratory arrest, observed apnea, sleepiness, and regular use of sedatives. Symptoms that are poorly controlled in allergic rhinitis may also contribute to sleep loss or disturbances (Muliol, Maurer & Bousquet, 2008), secondary daytime fatigue, and decreased overall cognitive functioning.

Variations in daytime sleepiness, QoL and objective sleep patterns in seasonal Allergic Rhinitis have been extensively studied in a controlled clinical trial (Stuck et al., 2004). The authors assessed daytime sleepiness, QoL and nighttime sleep. There were significant differences found for daytime sleepiness and selected QoL in relation to severity of the disease.

Bousquet et al (2006) studied the severity of Allergic Rhinitis and observed that the impact of the severity of rhinitis on QoL including sleep, daily activities, and work performance was shown to be stronger than the duration of rhinitis. Majority (80%) of the patients with moderate-severe Rhinitis reported impaired activities.

A nationwide cross-sectional survey conducted by Shin et al, (2018) to explore independent associations of AR and/or RS with mental health and HRQoL. The study revealed that the AR group exhibited more positive associations with perceived stress and depressed mood compared with the non-

allergic group. Thus, AR had a more negative effect on perceived stress and depressed mood than RS. Thus, AR and RS seemed to exert a negative synergistic effect on mental health of the individual. In addition to nasal symptoms, AR patients experience fatigue, headache, and mood and sleep disturbances, physical and mental problems, and cognitive dysfunction (Maspero et al., 2012; Schatz, 2007).

A recent study in Korea found that AR patients were at higher risk of stress and depressed mood and required more psychological consultations; persistent and severe AR was associated with poor mental health (Kim, et al., 2011). A study performed in the United States showed that AR and CRS increased the risks of limitations in activities, work, and social interactions and that AR was also associated with cognitive limitations (Bhattacharyya, 2012). Also, it was reported that high-level stress increased the prevalence of both AR and CRS (Kim, et al., 2011; Soo-Youn, 2015). This study reported extensively on the mental health of the individual experiencing moderate-severe AR.

Muliol, Maurer and Bousquet, (2008) conducted a study to assess the quality of sleep and the importance of sleep in Allergic Rhinitis; it was found out that there is a connection between AR and sleep apnoea syndrome. The nasal congestion impairs sleep of the individual and requires medications such as antihistamines, topical nasal corticosteroids, nasal decongestants, and antileukotrienes to improve sleep in Allergic Rhinitis. However, individuals using these medications should be educated to use it as prescribed to avert its related side effects.

Socio-Economic Effects of Allergic Rhinitis on Patients

A review study conducted by Ozdoganoglu, Songu and Inancli (2012) to highlight the impact of Allergic Rhinitis on the Quality of Life and to analyze the most commonly used health-related quality of life instruments revealed a number of socio-economic impacts of Allergic Rhinitis on the Quality of Life of patient living with such conditions. According to the study, the economic impact of AR provides convincing evidence of its significant impact (Gupta, Sheikh, Strachan & Anderson, 2004). The costs of AR can be divided into those associated with medical-care treatments (direct costs) and those resulting from nonmedical losses as a consequence (indirect costs) (Schoenwetter, et al, 2004).

The National Health Interview Survey (NHIS) was used to obtain information on the days lost from work and on lost productivity due to AR (Crystal-Peters, Crown, Goetzel & Schutt, 2000). Productivity losses associated with a diagnosis of AR in the 1995 were estimated at US$601 million. When additional survey information was considered regarding the use of sedating over-the-counter allergy medications, as well as workers' self-assessments of their reduction on work productivity due to AR, the estimated productivity loss increased dramatically. One study evaluating the impact of AR and asthma on HRQoL found that people with AR were more likely to report problems with social activities, difficulties with daily activities, and decreased feelings of mental well-being than people without AR. (Stoloff et al., 2012). Hence, seeking appropriate management for AR will decrease the economic impact.

A study conducted by Meltzer and Bukstein (2011) to describe the economic burden of Allergic Rhinitis treatment and current guidelines for treatment through review of relevant articles shown that, in spite of, the common symptoms allergic rhinitis present, its impact on patients' quality of life, and cost of treatment to individuals as well as the society are enormous. The cost includes pharmacotherapy, which a lot of patients do not follow their medication schedules because the medications do not effectively address their symptoms hence difficult for them to use. The study therefore concluded that Allergic Rhinitis has a substantial economic impact on the patient and almost half of this cost is related to prescription medications. Also, there is availability of various treatment options, and these were revised to offer an update on the efficiency and side effects that may affect patient compliance. Hence it is appropriate for practitioners to explore this treatment options and other interventions that will be beneficial to the patient since patient adherence to treatment improves Quality of Life.

Similarly, in studies done to evaluate the impact of Allergic Rhinitis on daily life, (Caballer et al., 2012; Everhart et al, 2014; Lâm, Tường, Ekerljung, Rönmark & Lundbäck, 2011). Majority (72%) of patients indicated that allergic rhinitis symptoms adversely impacted their daily lives and the most troublesome problems reported by the patients were fatigue and headache. Also, poor concentration and reduced productivity are also common wearisome problems identified during the study (Dziekanski & Marcelino, 2017).

Furthermore, a cross-sectional multicentre study was conducted by Caballer et al, (2012) to evaluate the effect of Allergic Rhinitis on work activity

relating to the individuals' productivity as compared to other predominant conditions in the primary healthcare setting. The findings indicated that the highest impairment on work productivity was symptomatic depression with a substantial variation associated with AR, hypertension, and DM type II. Therefore, the results obtained from the study supported their hypothesis, which produced absenteeism and presenteeism owing to AR, which are greater than other prevailing pathologies, such as DM and hypertension. Thus it was concluded that AR impairs work productivity in a greater extent as compared to hypertension and DM type II. This study actually indicated the statements made by other writers that thought AR has negative implications on its sufferer; yet the condition has been unrecognized and neglected (Ozdoganoglu, Songu & Inancli, 2012).

Likewise, another cross-sectional study conducted in Spain by Roger et al (2016) employed adult subjects with AR to assess the impact of AR on the work or academic performance, daily activities, health-related quality of life (HRQOL), and satisfaction with allergen immunotherapy (AIT). The findings showed that there was total loss of productivity for employed patients. Hence AR has a negative impact on work and academic productivity as well as HRQoL of adult patients. The results of the study also indicated that Specific allergen immunotherapy (AIT) giving to patients, who report with AR could play a protective role, enhancing productivity and HRQOL. Besides, a more comprehensive communication should exist between patient and physician so that the appropriate interventions will be provided to patients to reduce the current

socioeconomic burden of this disease. However, in the research study area, management of AR does not include immunotherapy.

Even though the various studies reviewed from the selected database were of significant relevance to the socio-economic objective of this study, variation in the methodological approaches must be considered. This is particularly essential because they could be the basis for the difference in the outcome of the study. For instance, it appears most of the studies reviewed adopted the quantitative method and therefore the result could be generalized to a specific population; however, this study is using the qualitative approach with in-depth interview, which could inform a rather detailed result than those reviewed by the above reviewed literature.

Theoretical Framework

The following theories are discussed in relation to the study; 1) WHO quality of life (WHOQOL) (WHO, 1995), and 2) Baker and Intagliata Quality of Life, Model (Skevington, Lotfy & O'Connell, 2004; Van Hecke et al, 2018). The WHOQOL considers the subjective nature of the quality of life concept as its defining feature (WHOQOL Group, 1995; Skevington, Lotfy, & O'Connell, 2004; Van Hecke et'al, 2018). As a result, the WHO proposes this measurement model, in which questions about individuals' functioning are accompanied with global evaluation questions on this functioning, and highly personalized evaluation questions in terms of assessing the individual's level of satisfaction or dissatisfaction (WHOQOL Group, 1995). The WHO lay emphasis on the multidimensional nature of Quality of Life, leading to the idea that Quality of Life

measurement should at least include three domains: 1) a physical domain, signifying the individuals' perceptions on their physical status, 2) a psychological domain, denoting the individuals' perceptions on their cognitive and 3) affective state and a social domain, referring to individuals' perception of the interpersonal relationships and social roles (WHOQOL Group, 1995). Moreover, both positive and negative dimensions are seen as vital components in their Quality of Life framework (WHOQOL Group, 1995). The WHO Quality of Life model is generic and using it alone cannot address the individual's interaction with the external environment which triggers the symptoms. So, Baker and Intagliata Model (1982) was included.

Baker and Intagliata Model (1982) is a conceptual model that explains relationships that exist between external environment, individual experience, individual health status, and quality of life responses. This model proposes that there are four separate foci of interest as related to Quality of Life assessment. The Focus I is labeled the "environmental system" and concentrated on the objective indicators of quality of life. The Focus II is the "experienced environment", where the interest shifts to the perceived attributes of the environment, since we all see the world differently. The Focus III, referred to as "bio-psycho system", represents the actual degree of mental and physical health of the individual and his or her attitudes, values, and aspirations. Finally, Focus IV concentrated on "behavioural outcomes", particularly participants' behaviour in response to the questionnaires and interviews assessing their Quality of Life (Kerce, 1992).

Conceptual Framework

The study was guided by a conceptual framework which was informed by WHO Quality of Life (WHOQOL) (WHO,1995), Baker and Intagliata Quality of Life Model (Skevington, Lotfy & O'Connell, 2004; Van Hecke et al, 2018) and empirical literature (Caballer et'al., 2012; Del Giudice et al, 2011; Develioglu, Paltura, Koleli, and Kulekci, 2013; Dziekanski & Marcelino, 2017; Everhart et al, 2014; Kremer, Den Hartog & Jolles, 2002; Lâm, Tường, Ekerljung, Rönmark, & Lundbäck, 2011; Marshall, O'hara & Steinberg, 2002; Price et al., 2015; Roger, 2016).

With regard to WHO quality of life (WHOQOL) model (WHO, 1995), it was adapted into three-dimensions which are the physical, psychological and social dimensions of quality of life to explore patients' experiences on Allergic Rhinitis. Each of these dimensions has been broken down in an attempt to operationalize the concept of quality of life. These cardinal life indicators are vital in determining the perception of physical wellbeing, effects of Allergic Rhinitis on psychological wellbeing and effect on socio-economic wellbeing of people suffering from Allergic Rhinitis.

With the Baker and Intagliata model (1982), the environmental system, experienced environment and bio-psycho system were included due to the patients' interaction with the environment to generate the hypersensitivity reaction leading to the burden of symptoms affecting their Quality of Life. Also, patients perceive the environment differently, which informs their individual experiences. It may be useful to assess quality of life of persons living with

allergic rhinitis from a subjective point of view that targets multiple dimensions of a person and his or her life, such as the three main domains thus, physical, psychological and social domains of health (Kelley-Gillespie, 2009).

The bio-psycho system will complement the dimensions of the WHOQOL model chosen. Hence, Quality of Life was conceptualized with three domains of wellbeing which are physical, psychological and socio-economic well beings. This will be suitable for generating the appropriate information to meet the objectives of the study. (Figure 1).

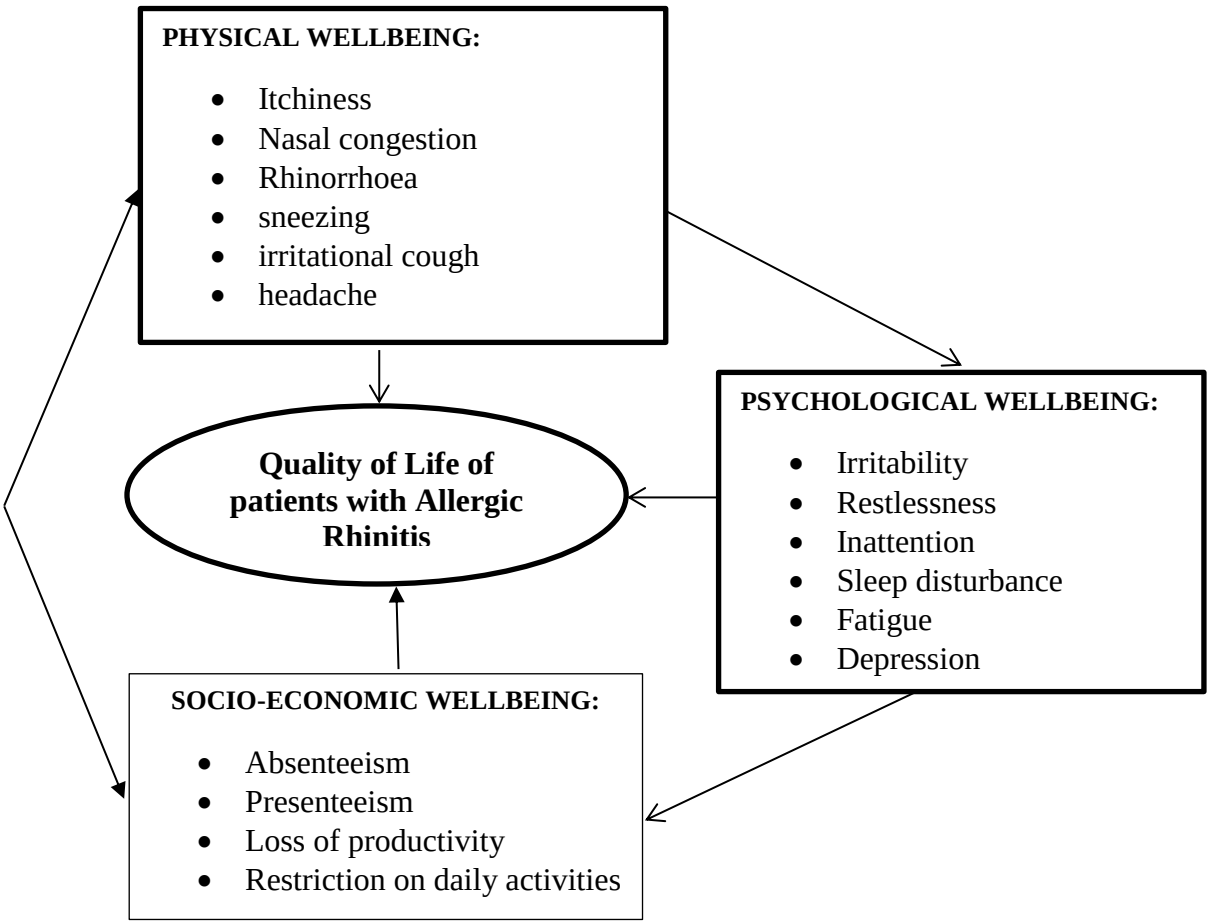

Figure 1: An adapted Conceptual Framework of Quality of Life of Patients with Allergic Rhinitis at Komfo Anokye Teaching Hospital.

Sources: 1. WHOQOL Group. (1995). The World Health Organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. *Social Science & Medicine*, 41(10), 1403-1409.

2. Baker, F., & Intagliata, J. (1982). Quality of life in the evaluation of community support systems. *Evaluation and program planning*, *5*(1), 69-79.

This is a framework for Quality of Life of patients with Allergic Rhinitis adapted from WHO quality of life (WHOQOL), Baker & Intagliata Quality of Life Model and empirical literature.

The framework has Quality of life of patient with Allergic Rhinitis at the centre, on top is the physical wellbeing, on the left side is the psychological wellbeing, and below is the socio-economic wellbeing. Thus, patients with Allergic Rhinitis who reports at the Komfo Anokye Teaching Hospital experiences their Quality of Life based on the three dimensions as indicated in the conceptual framework and these dimensions predicts patient's experiences with allergic rhinitis. The focus is the patient experiences of Allergic Rhinitis which have direct relationship from the physical, psychological and socio-economic well-beings of the patients. Therefore, the main dimensions to this framework are discussed as:

Physical wellbeing: This dimension depicts the clinical features or manifestations of allergic rhinitis such as Itchiness, nasal congestion, rhinorrhea, sneezing and irritational cough.

Psychological wellbeing: This dimension looks at the mental state and behaviour of the patient as result of the burden of symptoms that the condition presents to patient such as irritability, restlessness, inattention, sleep disturbance and fatigue.

Socio-economic wellbeing: This dimension deals with effects on the patient's social and economic life as a result of poorly controlled symptoms of Allergic

Rhinitis. These include absenteeism, presenteeism, loss of productivity and restriction on daily life.

Quality of life: This indicates the outcome of their experiences from the physical, psychological and socioeconomic well-being.

The physical wellbeing is related to psychological and socio-economic wellbeing to influence the patient's experiences which affect the QoL. The framework was applied to the study to inform the interview questions and an overriding question will be derived from the key objectives. There were also sub-questions derived from the bullets to further probe into patient's experience concerning the condition.

Chapter Summary

The morbidity and a host of other adverse effects of allergic rhinitis cannot be over emphasized across the globe. In the quest to offer holistic measures in place to curb this global menace, empirically supported literature have been analyzed to assess adverse impact on the quality of life individuals living with rhinitis face. Employing the appropriate research methodologies, varied studies have revealed the adverse physical, psychological and socio-economic consequences of Allergic Rhinitis in Europe (Bhattacharyya, 2012; Georgalas, 2011; Gupta, Sheikh, Strachan & Anderson, 2004; Shin et al., 2018; Soo-Youn et al., 2015).

Conclusion

Understanding of the integration and operationalization of theoretical, conceptual and empirical basis of measure of the perception of physical wellbeing, effects of Allergic Rhinitis on psychological wellbeing and effect on socio-economic wellbeing among people living with Allergic Rhinitis has significant implications for social policy and practice in the field of nursing and healthcare.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter discusses the methodological issues involved in the study. It begins by defining the broad paradigm within which the study is situated. This section further discusses the approach that was used to address the research questions. These methods are captured as the research approach, design, the sampling and sampling technique, sample size, study site, instrumentation, and source of data, data collection procedure and analysis.

Research Design

This study used descriptive qualitative design which is particularly common in qualitative studies of health care, illness and nursing-related phenomena. It is an excellent methodological choice for nursing and health sciences researchers as clarified and promoted by Sandelowski (2000, 2010) because it offers rich descriptive content from the subjects' perspective. This design has been recognized to be essential and appropriate for research questions focused on discovering entire events or experiences and gaining insights from informants regarding a poorly understood phenomenon. (Kim, Sefcik & Bradway, 2017; Polit & Beck, 2010; Sandelowski, 2000, 2010). It also presents comprehensive summaries of a phenomenon or events in everyday language (Polit & Beck, 2010). Again, when there is a desire to seek for information to develop interventions, descriptive study is suitable for exploring that phenomenon. By

using this design, the researcher is sure to obtain rich data and increase understanding of the phenomenon under study.

According to Neergaard, Olesen, Andersen and Sondergaard (2009), the chosen design is also a unique means of collecting data in the form of exploring life experiences and presents the facts from exactly the informants' points of view (On the other hand, the design can be subjective as instituting credibility of the approach can be challenging. However, it is possible to establish both rigour and credibility by demonstrating trustworthiness in line with Guba and Lincoln's criteria for meeting credibility (Neergaard, Olesen, Andersen & Sondergaard, 2009). Therefore, descriptive qualitative design was suitable for this study since it allowed for flexibility as research questions and study findings emerged (Sandelowski, 2000, 2010; Colorafi, & Evans, 2016) as I seek to explore Quality of Life in patients with Allergic Rhinitis.

Study Area

The study was conducted at the ENT Unit of the Komfo Anokye Teaching Hospital, which is located at the Centre of Kumasi in the Subin sub-metropolitan area. The hospital is the only tertiary health facility in the Ashanti Region and the second largest in Ghana.

The hospital has clinical and non-clinical directorates. The clinical directorates include the following: Anaesthesia and Intensive Care Unit, Child Health, Dental and Oral Health, Eye, Ear, Nose and Throat, Diagnostics, Medicine, Obstetrics and Gynaecology, Oncology, Polyclinic, Surgery, Accident and Emergency and Pharmacy. The non-clinical directorates include the

following: Domestic services, Security, Supply Chain Management and Technical services.

The ENT Unit also has an audiology and speech therapy units and its key functions include Specialist outpatient care, undergraduate and post graduate medical training and practical training Centre for ENT nursing students. The facility was suitable for the study because it is a referral Centre and so has a large population of patients. Also, it has the patients who are significant to the study. Besides, there are specialized ENT Surgeons and nurses who are always available to manage such condition and the facility is very accessible due to its location.

Study Population

The studies targeted all patients who reported at the ENT Outpatient Department who fitted into the Allergic Rhinitis and its Impact on Asthma (ARiA) criteria of allergic rhinitis.

Inclusion Criteria

Eligible patients for this study included:

1) Patients diagnosed with Allergic Rhinitis, 2) patients without tumour in the nose, 3) recent nasal surgery and 4) patients aged 18 years and above.

Exclusion Criteria

The study excluded the following as participants:

1) Patients who have obvious nasal pathology like nasal polyps, 2) deviated nasal septum, 3) malignancy of the nose, and 4) patients with previous history of nasal surgery.

Sample and Sampling Procedure

Sampling refers to the process of selecting a portion of the population that conforms to a designated set of specifications to be studied and a sample is a subset of a population selected to participate in the study (Polit & Beck, 2010). In qualitative studies, samples are normally small and based on the information needs as this was recommended by Crouch & McKenzie (2006) that, less than 20 participants in a qualitative study helps a researcher build and maintain a close relationship and thus improve the "open" and "frank" exchange of information. For this study, participants were recruited from the consulting rooms of the ENT clinic for the purposes of this study. Patients who were diagnosed with Allergic Rhinitis were part of the study using purposive sampling technique. Purposive sampling requires selecting participants who are knowledgeable about the issue in question, because of their sheer involvement in and experience of the situation. This enabled me to employ my judgment to select a sample that will provide the needed information.

Another guiding principle in sampling is data saturation. This is the sampling point at which no new information is obtained and redundancy is achieved (Polit & Beck, 2010). Data saturation relates to the degree to which new data repeat what was express in previous data (Saunders, et al., 2018). Thus, when the same comment is heard over and over again, then data saturation is being reached. Data collection then becomes counterproductive and new evidence does not positively add anything to the overall data already obtained, which means data has reached a saturation point. However, data collection of two more interviews

will be done to guarantee and confirm that there are no new themes emerging (Saunders, et al, 2018). Therefore, in this study, sample size was determined by the data saturation point.

Data Collection Instrument

For this study, data was collected through the use of a semi- structured in-depth interview guide generated from the themes identified in the literature. The interview explored the following areas, 1) patient experience on the physical well-being, 2) effects of the symptoms on the psychological well-being and, 3) effects of Allergic Rhinitis on the socio-economic wellbeing.

The interview guide consists of three sections: I, II and III. Section I contained demographic information of the participants such as age, gender, marital status, occupation and number of years suffering from AR. Section II covers the clinical features experienced by the patient whilst section II contained questions that cover the effects of allergic rhinitis on the patient psychological and socioeconomic wellbeing (See appendix). The guide was used to facilitate the in-depth of the interview schedule.

Pretesting of the Interview Guide

A pretesting is a small-scale version, or trial run, done in preparation for the major study (Polit & Beck, 2010). The purpose of the trial run was to obtain information for improving the project or assessing its feasibility. This was done to test the effectiveness of the instrument and any difficulties it might impose on the participants, as well as offered the opportunity to enhance researcher's skills for

the major interview. The interview guide was pretested by two interviews which elicited the needed data; however, two responses that prop up which will be significant to the study but was not captured. The responses include 1) items or situations that triggers of the condition, and 2) what is usually done to manage the symptoms. Therefore, two questions were included in the probes exploring their Quality of Life of Allergic Rhinitis in the final interview guide.

Data Collection Procedure / Method

The ENT doctors and nurses at the Komfo Anokye Teaching Hospital ENT clinic diagnosed and identified patients with allergic rhinitis who are eligible for the study. They informed such patients about the study, and linked them to participate in the study. Attending doctors and nurses requested for the phone numbers of consenting patients. I then contacted each of the willing patients, and introduce them to the study. For those who consented, a mutually agreed place was chosen for the interviews. I allowed a week interviewing period for participants who are not ready on that day to decide whether to participate in the study or not. I conducted all the interviews with the support of a trained research assistant. Two interviews were conducted in the ENT clinic; eleven interviews were conducted at participants places of work and two conducted at home of participants. Participants signed or thumb printed consent form before the commencement of the interview. In situations where participants could not read English, the researcher resorted to Twi for participant to understand questions. An in-depth interview was then conducted and recorded on a tape recorder with permission from participants. Moreover, recruited participants were interviewed

to obtain the needed data and this interview continued to a point that new data tend to be redundant of data collected. Also, the data collection was done by me and a research assistant. Privacy was ensured during the interview. At times during the interview, participants smiled, giggled, cough, clear their throat as well as blow the nose.

For this study all participants were asked comprehensive, open-ended questions which were about their experiences of allergic rhinitis. The researcher used communication skills such as reflection, nodding, questioning, clarification, and maintaining eye contact, to facilitate and encourage participants to talk, until there were no new themes or issues evolving from the participants. These were written in the memos (or field notes). Memos were dated to easily correspond with the data. The researcher probed during the interview to focus responses within the objectives of the study and also to get in- depth responses. Interviews ranged between 30 and 45 minutes. Each interview was transcribed verbatim and analysed immediately the researcher reaches her office or home. It took between two (2) to three (3) hours to transcribe each interview. Participants were allowed to authenticate key issues at the end of each analyzed interview through phone calls. This was done to ensure credibility of the findings. The interviews, transcription and analysis covered the period of February and March, 2019.

In-depth interviewing was conducted involving fifteen face-to-face in-depth interviews with each participant using a semi-structured interview guide. I conducted rigorous individual interviews with a small number of participants to explore their perspectives on allergic rhinitis. In-depth interviews are suitable

when detailed information about a person's thoughts and behaviours' or want to explore new issues in-depth. These interviews are often used to provide framework to other data offering a more comprehensive picture of the phenomenon (Boyce, & Neale, 2006). The face-to-face interview enabled participants to recount detailed experiences and also allows the researcher to readdress participants' response when participants view is out of context (Creswell & Miller, 2000).

The interview also provided a more comfortable atmosphere in which to collect information as to filling out a survey questionnaire. However, the interview may be prone to bias, so all efforts were made to conduct interviews to allow for minimal bias. Also it can be time consuming due to the time it takes to conduct interviews, transcribed them, and analyze the results. Hence during planning of data collection efforts, it comprised of time for transcription and analysis of this detailed data. Interviews are also regarded as the best way for exploring and gathering experiential narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon. I used communication skills such as reflection, nodding, questioning, clarification, and maintaining eye contact, to facilitate and encourage participants to talk, until there were no new themes or issues evolving from the participants. Field notes were also taken during the interviews.

Methodological Rigour

Trustworthiness was described by Lincoln and Guba (1985) as rigour in qualitative research without sacrificing relevance. Thus, the degree of confidence a qualitative researcher has in the data. This can be assessed using the criteria of credibility, dependability, confirmability, transferability and authenticity (Polit & Beck 2010).

Credibility referred to confidence in the truth of the data and how well the data processes, analysis and interpretations address the intended focus of the study (Lincoln & Guba 1985; Polit & Beck 2010). To ensure credibility, I purposefully recruited participants who met the inclusion criteria and could give in-depth information on the experiences of allergic rhinitis. Also, I employed the following measures, 1) prolonged engagement which invested sufficient time with the participants to attain the purpose of the study as well as building trust for the scheduled interview. I visited the research setting before the commencement of the interviews and identified issues that can be challenging during the interviews. In order to obtain rich and meaningful data with thick description, I explained to the participants that information provided during the interviews would be kept confidential and not used against them (Lincoln & Guba1985), 2) persistent observation encompasses identification of those characteristics and features in the situation that is most appropriate to the research study.

I wrote down field notes, observed, identified and assessed those significant factors and crucial, typical happenings that were relevant to the patient experiences of allergic rhinitis and focused on them (Lincoln & Guba 1985).

Also, I asked probing questions and received rich and in-depth data from the participants. This encouraged them to generate more ideas, viewpoints, opinions, perceptions and their experiences of Allergic Rhinitis, 3) triangulation was used to improve the probability that findings and interpretations would be credible. Triangulation refers to the use of multiple and different sources, methods, investigators and theories (Lincoln & Guba 1985). To achieve this, I invited an independent coder to code some of the transcripts to allow for comparisons to be made, and 4) Member checks were conducted through phone calls to ratify responses of participants by deliberating themes arrived at with them. In addition, each interview was transcribed and coded before the next ones.

The second criterion is dependability which refers to the stability (reliability) of data over time, over conditions and over occasions (Polit & Beck 2010). This occurs when another researcher can follow the decision trail used by the researcher. An audit trail will be realized by (a) describing the specific purpose of the study; (b) discussing how and why the participants were selected for the study; (c) describing how the data will be collected and how long the data collection will last; (d) explaining how the data are transformed for analysis; (e) discussing the interpretation and presentation of the research findings; and (f) communicating the specific techniques that will determine the credibility of the data. To establish dependability in this study, I worked with my supervisors from beginning of the research to the end. I provided detailed description of research methods, (Thomas & Magilvy, 2011) used in the study. Participants were interviewed with the same interview guide. Each transcript was subjected to the

same method of arriving at themes and sub-themes. A peer researcher was permitted to examine the data and this data was also re-coded to guarantee accuracy. All documents were also kept for audit trail.

Confirmability; the third criterion refers to objectivity, which has the potential for congruence between two or more independent people about the data's accuracy, significance and how to interpret it (Polit & Beck 2010). I ensured that the findings reflected the participant's voices and the condition of inquiry, not the biases, motivations or perspectives of me.

The qualitative research must be reflective, maintaining a sense of awareness and openness to the study and unfolding results. The term reflexivity, similar to construct validity in quantitative research, requires a self-critical attitude on the part of the researcher about how one's own preconceptions affect the research. Immediately following each individual interview, I wrote or audiotape record, field notes regarding personal feelings, biases, and insights. In addition, I made a conscious effort to follow, rather than lead, the direction of the interviews by asking the participants for clarification of statements. Reflective research allows a big picture view with interpretations that produce new insights, allowing for developing confirmability of the research and, overall, leading the reader or consumer of the research to have a sense of trust in the conduct, credibility of findings and applicability of the study (Thomas & Magilvy, 2011). To ensure reliability, a graduate student researcher, was permitted to code some selected transcript. Any disparities in the findings were noted and discussed until an agreement was reached.

The forth criterion which is transferability refers to the generalizability or the degree to which the findings can be transferred or have applicability to other settings and target populations (Polit & Beck, 2010). In order to achieve transferability in this study, I provided a detailed description of the nature of the study participants, their reported experiences, and my observation during the study. I classified and described sufficient data and compiled the report such that it became easier for the consumers to appraise the applicability of the data to other settings (Polit & Beck, 2010).

The last criterion being authenticity denotes the extent to which the researcher will give a fair, faithful, honest and balanced account of experience from the viewpoint of someone who lives it every day, showing a range of different realities (Polit & Beck 2010). Authenticity emerged in a report when it conveyed the experiences of Allergic Rhinitis patients with regard to their quality of life. In this study, I provided a true report that invites readers to share experiences regarding the phenomenon under study (Polit & Beck 2010).

Ethical Considerations

Ethics refers to the quality of research procedures, with regard to their adherence to professional, legal, and social obligations to the research participants. It is the branch of philosophy that deals with morality (Polit & Beck, 2010). Therefore, in this study, ethical approval was obtained from the Institutional Review Board, University of Cape coast. Then an introductory letter from School of Nursing was added to the request to the Research and Development Unit of Komfo Anokye Teaching Hospital for permission to

conduct the study at the designated area. However, the researcher had to go through their procedure of acquiring ethical clearance from the School of Medical Sciences / Komfo Anokye Teaching Hospital Committee on Human Research, Publication and Ethics in order to acquire their own clearance for the study and not that of University of Cape Coast since the study is being conducted at KATH.

As this research involves human participants, it was therefore necessary that the following ethical principles be adhered to:

Right to Self-Determination

The right to self-determination is based on the ethical principle of respect for a person. This means that participants must be given adequate information regarding the research; they must be capable of comprehending the information; and they must have the power of free choice, enabling them to consent voluntarily to participate in research or decline participation (Speziale, Streubert & Carpenter, 2011). The objectives of the study were explained to the participants, and their informed consent was obtained. Participants were informed of their rights to withdraw from the study at any time. The participants were continuously reminded and informed of their right to review the first agreement (process-informed consent). The participants and I discussed and clarified their understanding of the investigation. The participants were briefed on the objectives and purpose of the research during the pre- interview discussion meeting, when the appointments for the interviews and written consent were secured.

Right to Confidentiality

Confidentiality is the researcher's management of private information shared by the participants, which must not be shared with others without the authorisation of the participants. I ensured and guided against unauthorised access to the data, so the research data was only available to the researcher and the promoter (Speziale, Streubert & Carpenter, 2011).

Anonymity

Anonymity occurs when even the researcher cannot link a participant with the data of that person (Speziale, Streubert & Carpenter, 2011). Though anonymity cannot be totally guaranteed in qualitative research, an attempt was made by the researcher to safeguard the data from unauthorised access by locking it in the cupboard. Revealing materials, such as names of participants, were withdrawn during the process of data collection, to ensure that there is no needless exposure of the identity of the participant.

Right to Privacy

I maintained privacy in all personal matters arising from information coming from the participants. This was in the form of feelings, beliefs or attitudes, and opinions. Raw data was protected from unauthorized persons, and was not to be shared and no names were linked to the data as well (Speziale, Streubert & Carpenter, 2011).

Data Management

Preceding the data collection, the date, venue and time of interview was recorded in a field diary. After each interview, with the permission of participant,

data was transcribed verbatim and stored in word document. Then after transcription, I ensured and guarded against unauthorized access to the data, thus hard copies of each document, audiotapes, field notes and diaries were locked in a safe locker in the researcher's office. The background information was labeled with the same code numbers used for the interview and stored safely in the same locker. Information will be destroyed after five years.

Data Processing and Analysis

Data analysis begins with listening to participants' verbal descriptions, and is followed by reading and re-reading the verbatim transcriptions or written responses (Streubert & Carpenter 1999). In this study, data analysis occurred alongside with data collection. This enabled the researcher to explore emerging issues deeper in successive interviews. Every interview was carefully listened to and transcribed. The interviews conducted in English were transcribed verbatim whilst those in Twi were translated to English before being transcribed. The transcription was done by the researcher who would listen to a statement, then halt the tape recorder, write it down and carry on until the whole interview was documented.

Transcripts were then read several times to familiarize with the data. At the same time as familiarizing with the data, the researcher also made notes and wrote down early impression of the interview being analyzed. The data analysis was conducted using Clarke and Braun (2006) thematic analysis to analyze and manage the data obtained from the experiences of patients with Allergic Rhinitis. Thematic analysis is a method for identifying, analyzing and reporting patterns or

themes that relate to the data. It clarifies the data in great detail and deals with diverse subjects through interpretations of the various aspects of the research topic (Alhojailan, 2012; Braun and Clarke 2006; Miles & Huberman, 1994).

Also, it allowed one to associate an analysis of the frequency of a theme with one of the whole contents. To ensure themes' reliability and validity, I involved an independent reviewer for his feedback and this enabled me to compare the two sets of feedback and was well informed of any conflicting results (if there are any) with respect to any themes that was added or removed by the outside and independent reviewer. This method is not linked to any epistemological or theoretical perspective and by flexibility of descriptive qualitative design; the researcher adopted and combined techniques originating from other qualitative traditions to bring understanding into the experiences that participants gave with regards to Allergic Rhinitis.

I then organized the data into a meaningful way by coding, addressing precise research questions bearing each question in mind. With this, each segment of data was coded by the researcher and the relevant data was captured and issues linked to the research questions were considered. Each transcript was coded separately and an expert qualitative researcher at the Komfo Anokye Teaching Hospital also coded the transcripts. We then compared codes, modified them before moving on to the rest of the transcripts. Codes that indicate the same idea were categorized as sub-themes. This was done according to each research question. Sub-themes that suggested an idea were also then grouped as themes. Most codes were associated with one sub-theme whilst others were associated

with more than one. Codes that were repeated within a sub-theme were discarded. I read data related with each theme and considered whether the data indeed supported it.

Themes were then defined and meaning was made of participants' narration through interpretation. Quotes from participants were used to support subthemes in reporting the findings of the study.

Chapter Summary

Descriptive qualitative design was employed to explore Quality of Life of patients with Allergic Rhinitis. Purposive sampling technique was utilized to recruit participants at KATH and data collected with the use of an interview guide. Methodological rigour was carried out to ensure credibility of the study. The transferability of the findings of this study is limited as the Quality of life is subjective, and may differ for patients or the kind of allergen triggers patients are exposed to in the environment. Since a qualitative method was employed, the findings cannot be generalized because few Allergic Rhinitis patients were interviewed.

CHAPER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the findings of the study and discusses the results of the study in relation to the literature reviewed. Accordingly, the study findings have been presented on the basis of the themes that emerged in the interviews and field notes embedded in direct observation during interview sections to provide deeper understanding of patients' experiences with Allergic Rhinitis. The study had its objective as exploring the experiences of patients reporting with Allergic Rhinitis at the Komfo Anokye Teaching Hospital relative to the effect allergic rhinitis has on their quality of life. Through constant thematic analysis, data have been analyzed according to the emerging themes. The key findings are presented in relation to the objectives of the study. Three themes that emerged from the data are participant understanding of Allergic Rhinitis, physical wellbeing of patients with allergic rhinitis, psychological effects of patients with Allergic Rhinitis and socio-economic effects of patients with Allergic Rhinitis. In total, three themes and fourteen sub-themes emerged. These participants were interviewed in different communities in the Kumasi Metropolis on different occasions to explore their experiences.

Results

Background Data

All participants were diagnosed with Allergic Rhinitis at Ear, Nose and Throat Unit, KATH. Table 1 provides a summary of participants' background information. Study participants aged between 23 and 58 years cutting across different spectrum of social class. There were fifteen (15) participants, four males and eleven females. The marital status of participants included: married (n = 7), unmarried (n = 7) and widow (n= 1). There was a range of educational level, including basic (n =3), middle school (n = 2), secondary (n = 6), and tertiary (n = 4). Two interviews were conducted in the ENT clinic; eleven interviews were conducted at participants places of work and two conducted at home of participants.

All the participants resided in urban settlements within the Kumasi Metropolis and the language of communication was English and Asante-Twi.

Table 1: Background Characteristics of Participants

Participant	Age	Gender	Marital Status	Employment	Years of experiencing AR
1	40	Female	Unmarried	Seamstress	24
2	39	Female	Married	Seamstress	12
3	23	Female	Unmarried	Unemployed	4
4	58	Female	Widow	Enrolled Nurse	39
5	25	Male	Unmarried	General Nurse	3
6	38	Female	Married	Healthcare	12
7	57	Female	Married	Trader	24
8	41	Female	Unmarried	Trader	9
9	32	Female	Married	Midwife	8
10	24	Female	Unmarried	Seamstress	6
11	47	Female	Married	Teacher	18
12	44	Male	Married	Steel Bender	10
13	37	Male	Unmarried	Tailor	1
14	26	Female	Unmarried	Student	7
15	36	Male	Married	Trader	8

Source: Field Survey (2019)

Themes and Sub-Themes

There was a total of 3 themes and 14 sub-themes that emerged from the study. Table 2 shows the themes and sub-themes.

Table 2: Themes and Sub-themes

Physical well-being of patient with allergic rhinitis	Triggers Sign and symptoms - *itching eyes, ears and throat* - *excessive sneezing* - *running nose* - *blocked nose* - *headache and pain in the throat* - *coughing* - *hawking* Management strategies - *Over the counter medication use* - *Condition severity and hospital visit* - *Herbalist visitation and traditional herb use,* - *Hot water bathing, taking warm fluids* - *Change in sleep pattern*
Psychological effects of patients with allergic rhinitis	Embarrassment with frequent nasal discharge Sleep disorders Labeling Anxiety and discomfort Strained family relationships Poor concentration
Socio-economic effects of patients with allergic rhinitis	Decreased productivity at workplace Workplace conflict Increased expenditure due to drug purchase Unsociable life style

Source: Field Survey (2019)

Physical Wellbeing of Patient with Allergic Rhinitis

This theme addressed the first objective of the study which was to examine the physical wellbeing of patients with Allergic Rhinitis. Participants were asked to tell how they experience allergic rhinitis. Three (3) sub-themes were identified and they are the triggers, signs and symptoms and management strategies based on their views as indicated in Table 2. The participants said they go through these signs and symptoms as a consequence of the allergy triggers, they are exposed to and therefore they have to resort to different management strategies to gain relief from the several symptoms they do experience.

Allergy triggers refer to participant's conceptualization and definition of what sets their experience of Allergic Rhinitis in motion. Though, participants shared varying factors that led to the onset of allergic rhinitis, most of them identified dusty environment, use of fan, cold environment, foul stench and scented perfumes ……

This is reflected in the following response

> "*What triggers these symptoms is when I get into contact with dusty environments, and since I am a seamstress, I may keep customers cloth at a place for a very long time and when I'm about to work on them, it triggers these symptoms because of the stuffy nature the cloths have been and the stuffiness in my container. Also, at times, the nature of some clothes gives out some kind of particles when*

*trying to cut them into suitable dimensions to stitch them up, when I come into contact with these particles it triggers the symptoms ("running nose") and the smoke from the burning of rubbish at the public toilet behind my container. I also use fan because of the heat in the container and these brings the symptoms"- **Participant 1(Female, 40years)***

Other participants narrated their experiences as…..

*"What usually triggers these symptoms are when I blend pepper, I tend to sneeze and experience pain in my throat and moreover where my work is situated there is a pub in which there is a urinal just behind my container and as majority or people who use the urinal come to ease themselves and I inhale this offensive smell of the urine" **Participant 2 (Female, 39years)***

*"Whenever I come into contact with smoke of refuse, aroma of burnt stew, burning of pepper, taking cold drinks and highly scented soaps, powder and perfumes, the symptoms come severely". **Participant 7 (Female, 57years)***

Among a few of the participants, the eating of particular type of food predisposed and triggered the onset of Rhinitis.

> *''Normally when I chew or take in groundnut whether roasted or boiled. Also, when I take in the foreign mangoes too but the local ones don't trigger the symptoms''.*
>
> ***Participant 11 (Female, 47years)***

The signs and symptoms border on what participants explained or suggested they observe or feel when they were suffering from Allergic Rhinitis, and some of these symptoms experienced by the patient normally increased intensity at night. These signs and symptoms stated by participants were the commonality and variedness in the diverse experiences with Allergic Rhinitis. Principally, all participants identified and explained allergic rhinitis to be any condition experienced or suffered continuously characterized by or with one or all of the following; itching eyes, itching throat and ears, excessive sneezing, running nose, blocked nose, headache, and pain in the throat, coughing, hawking and post nasal drip. These features defined Allergic Rhinitis irrespective of what triggered it or where it was triggered. Confirming their experience with Allergic Rhinitis, some participants shared…

> *"I do experience itching eyes, throat and ears and I do sneeze excessively that I do even urinate on myself during coughing. At times too, I do get running nose with blocked nostrils which make breathing difficult for me at times. I have offensive breadth too".*

Participant 1 (Female, 40years)

I do experience excessive sneezing, cough, redden eyes, itchy palm and lips (even the whole body), urticarial rashes. Itchy eyes and Sneezing with nasal discharge bother me much, I can even sneeze in a sense that I can use my dress to even wipe the discharge (phlegms) that comes out of the sneeze. ***Participant 4 (Female, 58years)***

I hawk whenever I experience this itchy throat, I didn't see this hawking myself but I was told I do the hawking whenever I am asleep and rub my eyes and ears continually. ***Participant 10 (Female, 24years)***

Among some participants, there are pains associated with Allergic Rhinitis such that it becomes irresistible leading to breathe cessation and tearing.

"I experience cold, itchiness in my ear and throat. I get blocky nose and difficulty in breathing and tears usually drop". ***Participant 6 (Female, 38years)***

A similar experience was shared by female health practitioner

"What I do experience is, I sneeze continuously which results in running nose. When this symptom shows up, in the evening or night I'm unable (struggle) to sleep and even if I try to sleep, in about 2-3hrs time, I will be awake. Because of these symptoms I'm always with handkerchief"

Participant 9 (Female, 32years)

Also, the onset of allergic rhinitis was confirmed to be all time round. However, validating responses from almost all the participants pointed to increased intensity of the symptoms during the night. Some participants shared;

> *"The condition is really disturbing especially when it gets to the night, you can't even sleep, and it gives you dry nose. One night I bathe with cold water and I was unable to sleep."* ***Participant 13 (Male, 37years)***

The aggravation of the allergy during the night periods was characterized by blocked nostrils among some participants.

> *"When I try sleeping my nostrils tends to block and I have to come out from bed to stand or sit in a fresh air for a while. At times I use pillows to position myself in order to breathe well."* ***Participant 14 (Female, 26years)***

Concerning management strategies, participants appeared to have learnt two principal approaches to dealing with the Allergic Rhinitis condition. These had to do with immediate response to the allergy onset and a much-extended approach that took on the likeness of a coping strategy. In terms of the immediate management options, many participants had learnt the art of moving along with ample tissue or handkerchiefs and taking in warm fluids or bathing hot water while others coped with the condition through medication. The immediate medication has often been over the counter drugs until the allergy severity necessitated hospital visit where participants are offered prescribed medication.

> *"When I experience this running nose, I do have tissues available with me that I use to blow my nose or wipe off the phlegm's that comes out of my nose and when it reduces or stops, I use hand sanitizer or wash my hands under running water to disinfect my hands and proceed to what I was initially doing".* ***Participant 1(Female, 40years)***

Another participant explained,

> "*Because of these symptoms I'm always with handkerchief"*
>
> ***Participant 9 (Female, 32years)***

Taking in warm fluids, bathing hot water and application of warm compresses on the face are immediate remedy participants employ to relieve the symptoms. Participants narrated that

> *"so in case I feel that kind of symptoms, I boil warm water and place in a towel, squeeze the towel and place on my face."* ***Participant 4 (Female, 58years)***
>
> *"When my nose is blocked, I boil water, put in towel, squeeze it and place it on my nose."*
>
> ***Participant 8 (Female, 41years)***
>
> *"Normally when these symptoms show up, I drink lukewarm water or inhale the vapor of hot water. When I take in medications the symptoms suppresses".*
>
> ***Participant 6 (Female, 38years)***

Changing of sleeping position was cited as an immediate management approach with the onset of the allergy.

> *"At times I use pillows to position myself in order to breathe well. I do experience this more than half of the days within the month."* ***Participant 14 (Female, 26years)***

Supporting those who often used over the counter medication, a female student affirmed buying nasal spray and congestal tablets.

> *"Some time ago I was using avamys (nasal spray) and anytime I used it I experience some tickly feeling and sneeze as well, so because of that I have stop using it, it is quite expensive too. So now I buy congestal tab for common cold in which I take it when I am about to sleep in the evening."* ***Participant 14 (Female, 26years)***

Failure by over the counter medication to relieve participants of the painful onset and continuous nasal discharge informed majority of the participants to seek medical attention. A participant indicated that……

> *"I tried numerous drugs but it still persisted so I went to the hospital and the prescribed some drugs for me but which minimized the symptoms. The drugs got finished and in about two weeks I started experiencing the symptoms again. So, I sat down one day and decided to go to KATH for treatment. When I went to KATH, they gave me drug and told me to report in 1-week time, exactly the one-week*

time I went for review and the doctor told me it's improving and should return in 2 weeks' time and I didn't show up any more at the hospital after the 2 weeks"

Participant 13 (Male, 37years)

Some participants whilst upholding referral advice on the utility of traditional or complementary medication on easing their suffering from the allergy accessed traditional herbs to reduce the painful onset. Accordingly, the traditional herbal medication appeared to be efficacious though temporal in lessening the nasal discharge. A distinction was however made between herbal medicine use and attending to a herbalist whom participants claimed the later did not offer any respite.

"For that matter people recommend some herbalist to me who they said she was powerful but it didn't resolve. I stopped using perfumed and taking in cold water. ***……****Because of the disturbing nature of the condition, I was directed to a certain man who they say he was perfect in douching the nose of those with symptoms of mine, I went there to douche my nose with some herbal concoction but still the symptoms persisted. I also went to another man who also gave me some powdery herbs, this powdery herb is the drug I have stacked to it for now and I think I'm improving on my condition."*

Participant 13 (Male, 37years)

Psychological Effects of Allergic Rhinitis

This theme explores the mental state and behaviour of the patient as a result of the burden of the symptoms allergic rhinitis presents to the patient. The internal and external psychological mood of study participants were shaken by the condition. From the views expressed by participants, issues derived include the embarrassment and public shyness due to nasal discharge, sleep disorder, labeling, anxiety and discomfort, strained family relationship and poor concentration.

With regard to embarrassment and public shyness due to nasal discharge, the frequent phlegm release coupled with offensiveness of breath continued to pose a psychological problem for some participants. This was affirmed among some participants as expressed below;

> *"I do find it very embarrassed. When I was growing up into adulthood, one thing I realized was, I feel like some offensive smells comes out from my nose and psychologically, I may think that anyone who comes close to me also smells this kind of offensive smell"*
>
> ***Participant 1 (Female, 40years)***

Another participant explained that….

> *"I always feel very embarrassed when colleagues tell me like "you are always with handkerchief and your headache*

is chronic. If you don't take it cool with their comments you may even get angry and quarrel with them."

Participant 9 (Female, 32years)

In relation to sleep disorder, there were those who had accompanying sleeping difficulties due to Allergic Rhinitis. This was coupled with smell differentiation, constant spiting and among some participants an unsightly frequent discharge of phlegm. A participant indicated sleeping as a major challenge with allergic rhinitis.

"I cannot sleep because of sneezing and the blocked nose. Sleeping is my major problem because it affects me during the day". ***Participant 4 (Female, 58years)***

Other participants emphasized that….

"I do experienced difficulty in sleeping too so someone recommended a drug to me but whenever I stop or the drug gets finish the symptoms shows up again."

Participant 13 (Male, 37years)

With anxiety, while many considered the embarrassment to their person, others were worried about the effect the continuous discharge of phlegm had on the general public when hawking in order to clear the throat.

"In public you need to hawk and it doesn't look pleasant and it feels like you are disturbing others with sneeze and

> *itching throat. I am always with tissues just because of the sneezing"* ***Participant 14 (Female, 26years)***

Another emphasized that…..

> *" I do think a lot about this condition, my brother once said the way I react and behave at night because of this condition when I marry on the day of honey moon my husband will be scared and run away from the room."* ***Participant 10 (Female, 24years)***

Not only does the condition position study participants in an embarrassed and uncomfortable position, it also affected their involvement in social activities to avert the possibility of having to manage the condition in public when all attention might be on them. Among those categories of participants, a worried student explained;

> *"I feel embarrassed when experiencing these symptoms in the midst of people. Also, when I am studying and I feel these symptoms. I always say I have a bad nose. I am very anxious about the condition……I am still a student so I always think of it that when I start practicing as a medical doctor, will I be sneezing, coughing whiles I am to see a patients"* ***Participant 14 (Female, 26years)***

While some participants had considered the allergic condition as part of their self-representation, others were worried about their labeling that was associated with the experience of the condition. In some instances, participants had come to be

identified as those who are known for frequent cough and sneeze. This was narrated by a participant as;

> *"It is like every day you are having cold and cough. At SHS the teachers knew me because of my condition (cough and sneezing). Even at SHS one of my teachers said I will sneeze and my nose will fall off for a dog to bite into it"*
>
> ***Participant 14 (Female, 26years)***

Other participants stated that….

> "*Especially during my days as an apprenticeship, my colleagues hated to sit by my side when they are eating okra soup because of my running nose, my colleagues always accused me of intentionally blowing my nose."*
>
> ***Participant 10 (Female, 24years)***
>
> *"I'm uncomfortable with this condition, and I'm unable to sense the aroma of foods. I always feel like I "**talk in my head"**. Even at work place everyone complains that I'm always having headache and always with handkerchief"*
>
> ***Participant 9 (Female, 32years)***

Also, many of the participants indicated the discomfort they experience from the signs and symptoms. Similarly, as a coping strategy, most of the participants had to put their finger in their ears to experience some relief. This was considered very discomforting for many participants particularly those whose working

conditions dealt with daily and constant engagement with clients. Buttressing this dimension of discomfort, a participant narrated

> *"The condition has affected me, as I said you will put your finger in your ears just to be relief from the symptoms unaware especially when you are in front of students teaching. I'm uncomfortable and frankly speaking I don't work as I want to. Naturally, I'm someone who is hardworking but when the symptoms build up, I'm unable to teach or work when I come to school".*
>
> ***Participant 11 (Female, 47years)***

Participant's inability to perform their assigned roles and responsibilities due to the allergic rhinitis conditions occasionally caused strained relations among siblings. This stem from other person having to perform roles assigned to study participants for which their inability to execute demands that others play those roles on their behalf. Some participants indicated;

> "*On Saturdays at home, I don't sweep or mop so my sisters take over and my sisters always quarrel with me for me not working because of my condition. My parents sometimes also accuse me of using my condition as a care off to not working at home"* ***Participant 14 (Female, 26years)***

Likewise, participants indicated that the symptoms they experience enhance poor concentration when performing daily activities. The reason being

that their attention is most of the time on the symptoms and not the activity; hence it takes longer time in performing that activity. Views of participants on poor concentration include;

> *"Even at work place some of my duties that I can use few minutes to complete; I will spend a lot of time on. I lose concentration when performing at my work place because all my attention is on the condition, so it retards my productivity. Even the work that that I can take 2mins to do, I have to take more time in doing it because I cannot concentrate."* ***Participant 9 (Female, 32years)***

> *I'm not able to concentrate on my job, for instance when I experienced symptoms like running nose, itchy eyes, I need to hold on, on my work and feel relief before I continue with the work.'* ***Participant 1 (Female, 40years)***

Socio-Economic Effects on Patients with Allergic Rhinitis

Another significant theme the study explored was the socio-economic effects on the patient with Allergic Rhinitis. This theme deals with effects on the patient's social and economic life as a result of the poorly controlled symptoms of allergic rhinitis. The issues that emerged were decreased productivity and financial burden, workplace conflict, increased expenditure on treatment and unsociable lifestyle. Whilst some participants encountered direct opportunity of dealing with the allergy as against their lost working hours, others had reduced

efficiency at work. Allergic Rhinitis economically impacted on study participants in several ways reflected by the different strands and dimensions of effect. Participants also point out that the condition prevents them from associating with people and so restrict their participation in daily activities and social events.

In terms of the economic effects allergic rhinitis has had on participants, emerging themes included, causing nuisance to co-workers leading to decline hours participants themselves and other co-workers spend to complete assigned task.

Some participants explained their experience within the context of how the conditions impair their ability to work. The productivity level of some participants become affected and extends to affect other co-workers at the workplace in some instances. Sharing these experiences, a female seamstress explained;

> ***"****during the days I was working as an apprentice, all my colleagues at work place will suffer from catarrh. In not more than 3 days they will relief from the catarrh and I will still be suffering from it. The catarrh even leaves me with continuous sneezing such that my handkerchief will be full of phlegms"* ***Participant 10 (Female, 24years)***

A male tailor validated the submissions of colleagues with similar experience on the effect the condition is having on their finances and productivity.

> *"This condition has really drained my money! It retards my ability to work as compared to the normal days of not experiencing the symptoms"*
>
> ***Participant 13 (Male, 37years)***

Daily activities of study participants remained unexempted from the effects of the allergy as narrated by a participant as…

> *"This condition usually affects my everyday activities, especially when I come to work. When it starts, I need to put a stop to all what I need to do and just relax and concentrate on the symptoms."*
>
> ***Participant 1 (Female, 40years)***

Among participants who were students, experiencing Allergic Rhinitis impaired their ability to learn and resulted in the need for them to miss class contact hours.

> "*When the symptom becomes severe, I don't go for clinical practice'…… Also, when I am studying and I feel these symptoms I in turn get headache and for that matter I do put a hold to the studying"*
>
> ***Participant 14 (Female, 26years)***

Working in the construction industry, a male steel bender confirms the effect of the allergy on his work by stating;

> *"Actually, it's really hectic. This condition is very terrible, because it has been part of me for a very long time (10 years). This condition also retards my ability to work too and it has affected all my children".*
>
> ***Participant 12 (Male, 44years)***

A trader narrated the financial burden as a result of the treatment of Allergic Rhinitis. The participants stated that…

> *"Frankly speaking, this condition should have affected the rich not me the poor, so they can buy medications to manage it. When you go to the hospital for medication, some of the medications are not covered by the NHIS and even the cost for some of the effective medications may exceed GH₵ 300.00. In one way or the other I do spend money a lot because of this condition."*
>
> ***Participant 8 (Female, 41years)***

Another participant also stated that……..

> *"The drugs (some tablets and inhaler) are too expensive and sometimes hardly to find. When I reported the drugs given was expensive and looking at the time of the month, I called my husband and we have to buy some and buy the rest later."* ***Participant 9 (Female, 32years)***

A small number of participants brought the issue of workplace conflict since others may not appreciate what they are going through by stating that;

> *"My madam at work always complains about me having running nose and sniffing and blowing my nose, clearing my throat and coughing all the time when I am braiding a costumer's hair. These symptoms make costumers uncomfortable because, they think I will contaminate their braided hair with infection or they will contract catarrh. I have stopped work and I'm now home not doing anything*."
>
> ***Participant 3 (Female, 23years)***

> *"I cannot sit in the midst of people when these symptoms come up, especially during my days as an apprenticeship, my colleagues hated to sit by my side when they are eating okra soups because of my running nose, my colleagues always accused me of intentionally blowing my nose."*
>
> ***Participant 10 (Female, 24years)***

Some participants explained their experience within the context of how the conditions impaired their social life. The social lives of some participants become affected when associating with people during social events, because their perfumes can trigger the condition. Also, the use of facial mask during work to protect them from inhaling any unwanted substances was seen by others as acts of anti-social life. Sharing these experiences, a female seamstress expressed that;

*"A times I put on a face mask to protect myself from inhaling the smoke and the particles from the clothes but the problem is that when people come to the shop, they don't understand why I'm using the mask and thinks " mekyere me ho". I therefore find it difficult to use it.***"**

Participant 1 (Female, 40years)

Other participants also have similar views and they narrated them as follows;

"At social gathering like church I do sit just closer to the window or at the entrance to so that I can have fresh air. Majority of people do say I don't associate or I am anti-social, but I have to do that to prevent the symptoms".

Participant 4 (Female, 58years)

"Friends do criticize me as I'm not a fun maker when I go out with them. People always think you are "anti-so" but that is not the case. It is to prevent the things that bring the condition." ***Participant 8 (Female, 41years)***

"I go to the social gatherings but when the symptoms shows up I excuse myself from people."

Participant 14 (Female, 26years)

Discussion

In terms of physical wellbeing, the patient with allergic rhinitis reported a burden of symptoms. These include, excessive sneezing, running nose, blocked nose, headache and pain in the throat, coughing, hawking, itching in the eyes, ears, nose and throat, fatigue, offensive breath, inability to smell, and lacrimation. Findings from this study support similar findings reported by Canonica, Mullol, Pradalier, and Didier, (2008) in a study conducted in six countries across North America and Europe where majority of the respondents in all countries reported sneezing and itchy or watery eyes to be their most common perceive symptoms.

Also, Juniper (2006) reported that usually adults with allergic rhinitis are certainly troubled by the symptoms such as nasal blockage, rhinorrhoea and sneezing. They are mainly worried by continually having to carry tissues, blow their noses frequently and experiencing the urge to rub both nose and eyes. They also experience non-nasal symptoms that are troublesome such as thirst, itching of the palate and headache (Juniper, 2006).

Moreover, a study conducted by Develioglu, Paltura, Koleli, and Kulekci, (2013) confirms that AR causes upper airway symptoms such as nasal congestion, rhinorrhoea, and nasal itching and depending on the sensitivity of the allergen and persistent irritation of the upper airways; it may lead to chronic rhinitis and laryngitis. Hence the signs of laryngeal irritation and mucous production which is usually thick and sticky can dampen the vocal cords and consequently, oedema and excessive mucous on the vocal cords can negatively influence the voice quality and so, patients cough and clear their throats more frequently. Patients

should always consult the specialist for appropriate management of these signs and symptoms to avert any complications of allergic rhinitis.

Furthermore, participants revealed that they go through these symptoms anytime they are exposed to triggers in the environment such as cold environment, inhalation of smoke, scented items, sitting under a fan, and offensive smell from the environment. They also reported triggers such as stuffy environment, dust, food and particles from clothes. This is supported by a study conducted by Said, Mchembe, Chalya, Rambau, and Gilyoma, (2012), who indicated that the most common triggers were dust, strong perfume odours and cold weather. However, participant from this study indicated other triggers that were not reported by their study.

In addition to their physical wellbeing, participants reported that they usually self-manage the condition before seeking for specialized intervention. Such management strategies include, avoiding the triggers, steam inhalation, taking warm fluids, use of over the counter medication and use of herbal preparations. Most of the participants report to the hospital when the condition is severe and burdened with the symptoms. Similar findings were reported by Kuehl, Abdulnour, O'Dell and Kyle, (2015) where patients diagnosed with Allergic Rhinitis seem to be self-managing their condition and interact less with their doctor about allergy prescription. Such patients interact with the pharmacist about their allergy medication more common than interacting with the physician. Another survey by Williams and Scadding (2009) cautions that persons with rhinitis who do not consult a physician when symptomatic will report multiple

sensitization, sleep disturbances and cognition. Also, drug utilization among persons reporting to the pharmacy with moderate or severe symptoms seems to be substandard. Thus, reliance on pharmacy or self-medication may not be suitable for individuals with Allergic Rhinitis.

Therefore, if Allergic Rhinitis is not properly controlled, it can predispose the individual to Rhino-Sinusitis, Otitis Media, Nasal Polyps, Allergic Conjunctivitis and Hearing Loss. Hence early diagnosis and management of Allergic Rhinitis promote health (Canonica, Mullol, Pradalier, & Didier, 2008; Mir et'al., 2012; Padjas et'al., 2014).

With the psychological effects, the participants reported various psychological effects as they experienced Allergic Rhinitis. Most participants reported that they always have to clear their throat, blow the nose and clean the nasal discharge which is an embarrassment to them especially when doing those actions in public. In addition, most participants indicated that they do experience sleep disturbances due to the blocked nose as it impairs their breathing, hence their inability to sleep and rather feel sleepy during the day.

Moreover, some participants also reported that the condition is worrisome and so they feel uncomfortable and depressed. Consequently, they experience emotional disturbances such as anxiety and mood changes. The study results also indicated that the participants have poor concentration during the performance of any activity as their attention is always on the symptoms they are experiencing.

These findings support Muliol, Maurer and Bousquet, (2008), that sleep is fundamental for physical and psychological health, patients with chronic diseases,

including chronic respiratory diseases such Allergic Rhinitis, usually have considerably impaired sleep quality that may increase the frequency of exacerbations and severity of symptoms, leading to difficulty in patient management, and reducing quality of life (QOL). Muliol, Maurer and Bousquet, (2008), also reported that the effect of Rhinitis on a patient goes beyond specific anterior nasal symptoms. Nasal obstruction can cause sleep disturbances that reduce a patient's daytime concentration and lead to daytime sleepiness.

Furthermore, a cross-sectional epidemiological study conducted by Annesi-Maesano, (2007) reported that the impact of the severity of Rhinitis was significant for insomnia, severe insomnia, hypersomnia, respiratory arrest, observed apnoea, sleepiness, and regular use of sedatives. Thus, poorly controlled symptoms of Allergic Rhinitis may also contribute to sleep loss or disturbances, secondary daytime fatigue, and decreased overall cognitive functioning. Also, a study conducted in Korea reported that AR patients were at higher risk of stress and depressed mood and required more psychological consultations (Kim, et al., 2011). Likewise, persistent and severe AR was associated with poor mental health.

Another study conducted by Shin et al. (2018) reported that AR had more negative effect on perceived stress and depressed mood. Thus, AR seems to avert a negative effect on mental health. All these empirical studies are in consistent with findings from this study with regard to psychological effects of Allergic Rhinitis on the patient. However, findings such as labeling and strained family relationships were not indicated in literature. It is therefore important for

individuals diagnosed of Allergic Rhinitis not to underestimate the condition as it can have adverse effect on their Quality of Life.

In relation to the socio-economic effects, participants indicated socio-economic effects such as decreased productivity at workplace, unsociable life style, and increased expenditure due to drug purchase and workplace conflict. Most of the participants had their work productivity reduced. This is because some absented themselves from work due to the severity of the symptoms. Also, some presented themselves to work, yet could not work effectively. In literature, this is referred to as "absenteeism" and "presenteeism" respectively. The participants attributed the presenteeism to poor concentration at work, discomforting nature of allergic rhinitis and sleepiness due to the use of sedating allergy medication and insomnia. This was also found by Caballer et al, (2012) who reported that absenteeism and presenteeism owing to AR, which is greater than other prevailing pathologies, such as Diabetes Mellitus and Hypertension. Their study concluded that AR impairs work productivity in a greater extent as compared to Hypertension and DM Type II. Also, a study by Dziekanski, and Marcelino, (2017) indicated that poor concentration and reduced productivity are common wearisome problems identified with regard to Allergic Rhinitis.

A student participant indicated that the symptoms have adverse effects on her academic activities. This assertion by the participant is supported by findings deduced from the survey by Roger et al, (2016) who reported that AR has a negative impact on work and academic productivity as well as HRQoL of adult patients. Likewise, another study conducted by Canonica, Mullol, Pradalier, and

Didier, (2008) stated that Allergic Rhinitis sufferers perceive their symptoms as causing significant quality of life disruptions; and have an unquenchable impact on many domains of their daily lives such as reduced school and work productivity. The reduced productivity can also impact negatively on patients' economic status. Therefore, it is incumbent on practitioners to give the appropriate patient teaching, so that patients will be able to understand the condition and its implication to their quality of life as well as adopting the necessary management strategies to prevent such effects.

Some of the participants revealed that, they have an unsociable lifestyle because of Allergic Rhinitis and people around them referred to them as anti-social. This is because they always want to avoid the triggers and the symptoms, they experience also restrict them from social gathering. Also, the use of items such as facial mask for protection as well as secluding themselves during social gatherings has led to this name. This finding seems to provide evidence to support Patten and Williams, (2007) earlier study that allergic individuals showed a higher rate of panic disorder as well as social phobia. Likewise a study by Stoloff et al., (2012) also support this findings that people with AR were more likely to report problems with social activities and difficulties with daily activities than people without AR.

Most participants reported increased expenditure due to drugs purchased. The findings of this study indicated that the treatment of Allergic Rhinitis place a financial burden on the patient as they always have to buy over the counter drugs as well as prescribed drugs. Some also reported that since they are seeking for a

cure for this condition, they tend to buy drugs recommended by others and this negatively affects their finances. This supports a study by Gupta, Sheikh, Strachan and Anderson, (2004), which report that the economic impact of AR provides convincing evidence of its significant impact. Another study conducted by Meltzer and Bukstein, (2011), reports that allergic rhinitis has a substantial economic impact on the patient. This is in consistent with the findings of this study where participants indicated that Allergic Rhinitis puts a financial burden on them. Thus, a more comprehensive communication should exist between patient and practitioners so that the appropriate interventions will be provided to patients to reduce the current socioeconomic burden of this condition.

Chapter Summary

The findings of this study reveal different dimensions of the experiences of patients with allergic rhinitis who report to KATH. The findings disclose that patients with allergic rhinitis experience several signs and symptoms once they come into contact with the triggers and this condition has effect on their psychological and socio-economic wellbeing. Therefore, all participants resort to various strategies to manage the condition as well as cope with the effects of allergic rhinitis. Hence, creating awareness and applicable information about the condition and its appropriate management is essential to enhance the quality of life of people who experiences this uncomfortable condition.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Experiences of patients with allergic rhinitis are substantial to their quality of life. The ENT surgeon, ENT Nurse Specialist and Physicians play a pivotal role to the management of this condition so as to improve the patient Quality of Life and not only focusing on the symptoms. The chapter highlights the summary, conclusions and recommendations of the study. The summary describes the processes used in conducting this study. Based on the study results and discussion, conclusions were drawn. Recommendations were the suggestions made by the researcher to help improve the Quality of Life of patients diagnosed with Allergic Rhinitis.

Summary of Findings

The study explored Quality of Life of patients with Allergic Rhinitis at the Komfo Anokye Teaching Hospital in Ghana. The specific objectives guiding the study are to: (1) examine the physical wellbeing of patients with Allergic Rhinitis, (2) explore the effects of allergic rhinitis on the psychological wellbeing of patients, and (3) explore the socio-economic effects of allergic rhinitis on patients.

A descriptive qualitative study design was employed to meet the set objectives. Purposive sampling technique was utilized to recruit participants at the ENT clinic for the study. Through a semi-structured interview, data was collected from 15 participants after ethical approval was given by the Institutional Review

Board of the University of Cape Coast and from the School of Medical Sciences / Komfo Anokye Teaching Hospital Committee on Human Research, Publication and Ethics. All the interviews were audio- taped, transcribed verbatim and analyzed using Clark and Braun (2006) thematic analysis.

The study results and discussions were organized based on the three main objectives of the study, followed by discussion of issues that emerged during data analysis. The key findings of the study have been summarized in relation to the study objectives and emerging issues from participant's experiences.

The key findings were that the physical well-being of patient with Allergic Rhinitis bothered on symptoms such as excessive sneezing, running nose, blocked nose, headache and pain in the throat, coughing, hawking, itching in the eyes, ears, nose and throat, fatigue, offensive breath, inability to smell, and lacrimation. Participants reported that they experience Allergic Rhinitis when exposed to triggers in the environment such as cold environment, inhalation of smoke, scented items, sitting under a fan, and offensive smell from the environment, stuffy environment, dust, food and particles from clothes. Most of the participants reported that they usually self-manage the condition before visiting the hospital. Some of the management strategies include, avoiding the triggers, steam inhalation, drinking warm fluids, use of over the counter medication and use of herbal preparations.

In relation to participants' psychological well-being, it was found out that allergic rhinitis has psychological effects on all the participants. They reported effects such as embarrassment, sleep disorders, labeling, strained family

relationship, emotional disturbance (anxiety, discomfort, depression), and poor concentration.

Finally, participants revealed that Allergic Rhinitis have major effect on their socio-economic well-being. Most of the participants indicated that when symptomatic, the condition really decreases their productivity at the workplace as well as academic activities. Also, most participants reported increased expenditure due to drugs purchase. Thus, there was financial burden arising from cost of medication and going all out in search of a cure for the condition. Some of the participants revealed that they have an unsociable lifestyle because of allergic rhinitis and this is because they always want to avoid the triggers and the symptoms they experience and this restricts them from social gatherings.

Conclusions

Allergic Rhinitis is a significant health problem, yet it continues to remain a neglected disorder. Patients diagnosed with allergic rhinitis experience a wide range of troublesome signs and symptoms which affects the Quality of Life of its sufferers negatively. However, the condition is often under recognized and underreported. This study revealed that three dimensions of quality of life (physical, psychological and socio-economic) were all affected. Thus, participants experienced sleep disturbances, emotional disturbances, impairs work and school performance and other daily activities. Therefore, Allergic Rhinitis significantly impacts Quality of Life and places economic burden on the individual due to cost of medication, reduced productivity and loss of days of work. Moreover, allergy triggers were from the patients' environment which they need to avoid or protect

themselves to minimize the frequency of the condition. Though all participants reported to the specialist for medical intervention, most of them still use over-the-counter medication whenever they experience the symptoms instead of reporting to the hospital. For instance, those expected to return to the hospital for review usually default and participants assume that medications prescribed by the specialist do not cure the condition so there is always recurrence of symptoms. Findings show that patients have resorted to other remedies from various sources in search of a cure for allergic rhinitis and some participants also reported existing comorbidities like asthma and rhinosinositis.

Finally, this study has contributed to the understanding of Allergic Rhinitis as experienced by patients at KATH and so practitioners need to provide interventions that can affect their experiences considerably and improve their quality of life.

Recommendations

With reference to the findings of this study, the following recommendations have been made to patients diagnosed with allergic rhinitis, ENT surgeons/ ENT Nurse Specialist/ Physicians, KATH, and the Ministry of Health.

Patients Diagnosed with Allergic Rhinitis

1. Patients diagnosed with Allergic Rhinitis have to acknowledge this condition as a health problem and always report to the hospital for appropriate treatment when symptomatic.

2. Individuals with allergic rhinitis should ensure preventive measures such as avoidance of allergens, use of facial masks etc. to minimize the episodes.
3. Patients who report to the hospital for management should adhere to treatment and make all the effort to attend review.

ENT Surgeons/ ENT Nurse Specialist/ Physicians

1. Practitioners need to intensify health education programmes through outreach services in schools, churches and mass media to create awareness of this trivialized and neglected condition.
2. There should be better communication between practitioners and patients to give them understanding of this disorder.
3. There is the need for the ENT Surgeons and ENT Nurse Specialist at the various clinics to have practice guidelines that can manage the wellbeing of the patients and not managing only the symptoms.

Komfo Anokye Teaching Hospital

1. The hospital should facilitate the setting up of allergic clinic days at the ENT clinic to handle such patients and enhance interaction between patient and clinicians.
2. The hospital management should assist the ENT Unit to prepare educational materials to provide information to patients diagnosed with Allergic Rhinitis so that they will have insight into the condition.

Ministry of Health

1. The Ministry of Health should lobby for the cost of second and third generation antihistamine, nasal decongestants and sprays to be covered by the National Health Insurance Scheme.

Suggestions for Further Research

Participants consider medications prescribed by the specialist not able to cure the condition so there is always recurrence of symptoms. Some participants experienced strained family relationship as a result of allergic rhinitis it could be necessary for further study. Therefore, further researches could be to:

1. conduct quantitative study on the magnitude of people suffering from AR
2. assess self-management techniques that are helpful to the patient and can be recommended to other patients
3. assess adherence of prescribed drugs given to patients
4. assess the effectiveness of pharmacotherapy and allergen avoidance in the management of AR
5. investigate allergic rhinitis and its associated comorbidities
6. explore the impact of Allergic Rhinitis on the family.
7. investigate Allergic Rhinitis and its associated comorbidities
8. explore the impact of Allergic Rhinitis on the family.
9. conduct a national survey on the epidemiology of allergic rhinitis.

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APPENDICES

APPENDIX A

INFORMED CONSENT FORM

Participant Information Leaflet and Consent Form

This leaflet must be given to all prospective participants to enable them know enough about the research before deciding to or not to participate

Title of Research: Exploring the Experiences of Patients with Allergic Rhinitis at the Komfo Anokye Teaching Hospital

Name(s) and affiliation(s) of researcher(s): This study is being conducted by Mercy Afua Beyuo Belins of the Ear, Nose and Throat Nursing School.

Background (Please explain simply and briefly what the study is about):

Allergic Rhinitis is an inflammatory disease of the lining in nose brought about by an undesirable reactions produced by the normal immune system. I will therefore like to seek information about your experiences with Allergic Rhinitis. The information that will be given by you will enable other people understand what you normally go through when you have this undesirable reaction and this will help the Ear, Nose and Throat practitioner to manage your condition to improve your everyday life. . Our conversation will be in Twi or English which will last between forty-five to sixty minutes. No answer will be right or wrong; I only want to find out your views so please you should be comfortable in answering any question asked you.

Purpose(s) of research: The purpose of the study is to explore the experiences of patients with allergic rhinitis on their quality of life.

Procedure of the research, what shall be required of each participant and approximate total number of participants that would be involved in the research: Procedures

You are being invited to take part in this interview since we feel that your experience with allergic rhinitis can contribute much in determining ways this condition can be managed to improve the effects this it has on your quality of life. If you accept, you will be required to participate in an interview with me and my assistants. If you do not wish to answer any of the questions the interviewer asked you during the interview, you may say so and the interviewer will move on to the next question. The interview will be conducted at a place suitable to you and I will be there with my assistant to help me with the recording. To find answers to some of these questions, we invite you to take part in this research project. The information recorded is regarded as confidential, and no one else except the researcher and her supervisors will have access to the information documented during your interview. The expected period of the interview is about 30-45 minutes.

Risk(s): It is not expected that your participation in the research will cause you any physical harm.

Benefit(s): The findings from this study will inform Ear, Nose and Throat practitioners' and general practitioners about impact of allergic rhinitis on the quality of life of the patient so that the needed intervention will improve their physical, psychological and socioeconomic well-beings and not manage the affected organ only.

Confidentiality: Even though the interview will be audio taped, your name and any other information that will be used to recognize you will be removed. However, you will be given a code number that will be attached to the information you give during the interview. Data will be transcribed verbatim and stored in word document. Then after transcription, researcher will ensure and guard against unauthorized access to the data, thus hard copies of each document, audiotapes, field notes and diaries will be locked in a safe locker in the researcher's office. The background information will be labeled with the same code numbers used for the interview and stored safely in the same locker. Information will be destroyed after five years. Only the supervisors and I will have access to the information.

Voluntariness: Your participation in this study is voluntary and so it is not compulsory to participate.

Alternatives to participation: If you are not able to participate in this study, it will not affect the care Komfo Anokye Teaching Hospital will give you.

Withdrawal from the research: Please note that you have the right to pull out at any point during the interview without any explanation or you may decide not to answer any question you think you are not comfortable with.

Consequence of Withdrawal: There will be on undesirable effect if you decide to withdraw from the study. However, please note that if you provided us with any personal information before your withdrawal, these cannot be taken out of the data analysis. Therefore we promise to make every effort to abide by your wishes.

(For example: There will be no consequence, loss of benefit or care to you if you choose to withdraw from the study. Please note however, that some of the

information that may have been obtained from you without identifiers (name etc), before you chose to withdraw, may have been modified or used in analysis reports and publications. These cannot be removed anymore. We do promise to make good faith effort to comply with your wishes as much as practicable.)

Costs/Compensation: There will be no compensation for participating in this study.
(For example: For your time/inconvenience/transport to the hospital, we will compensate you with GH¢2.00 to show our appreciation for your participation).

Contacts: (For example: If you have any question concerning this study, please do not hesitate to contact Dr. Mensah (Name of Researcher or PI) on 025 5552255).

Further, if you have any concern about the conduct of this study, your welfare or your rights as a research participant, you may contact:

The Office of the Chairman
Committee on Human Research and Publication Ethics
Kumasi
Tel: 03220 63248 or 020 5453785

CONSENT FORM

Statement of person obtaining informed consent:
I have fully explained this research to _____ and have given sufficient information about the study, including that on procedures, risks and benefits, to enable the prospective participant make an informed decision to or not to participate.
DATE: _____ NAME: _____
Statement of person giving consent:
I have read the information on this study/research or have had it translated into a language I understand. I have also talked it over with the interviewer to my satisfaction.

I understand that my participation is voluntary (not compulsory).

I know enough about the purpose, methods, risks and benefits of the research study to decide that I want to take part in it.

I understand that I may freely stop being part of this study at any time without having to explain myself.

I have received a copy of this information leaflet and consent form to keep for myself.

NAME:_____
DATE: _____ SIGNATURE/THUMB PRINT: _____

Statement of person witnessing consent (Process for Non-Literate Participants):

I _____ (Name of Witness) certify that information given to
_____ (Name of Participant), in the local language, is a true reflection of what l have read from the study Participant Information Leaflet, attached.

WITNESS' SIGNATURE (maintain if participant is non-literate): _____

MOTHER'S SIGNATURE (maintain if participant is under 18 years): _____
MOTHER'S NAME: _____

FATHER'S SIGNATURE (maintain if participant is under 18 years): _____
FATHER'S NAME: _____

APPENDIX B

INTERVIEW GUIDE

Section I

Demographic Information

Code No. / Pseudonym

1. Sex
2. Age
3. Marital status
4. Occupation
5. Years of experiencing AR

Section II

Experiences

1. Can you tell me about your experiences with allergic rhinitis?

   Probe: Clinical presentation of allergic rhinitis

   Can you tell me the kind of symptoms that bothers you?

   Please tell me what usually triggers these symptoms?

   Can you tell what you normally do when you have such symptoms?

Section III

Effects

2. How have you been bothered by the condition? /Can you tell me how this illness affects your everyday life?

   Probe: Psychological and socioeconomic effects

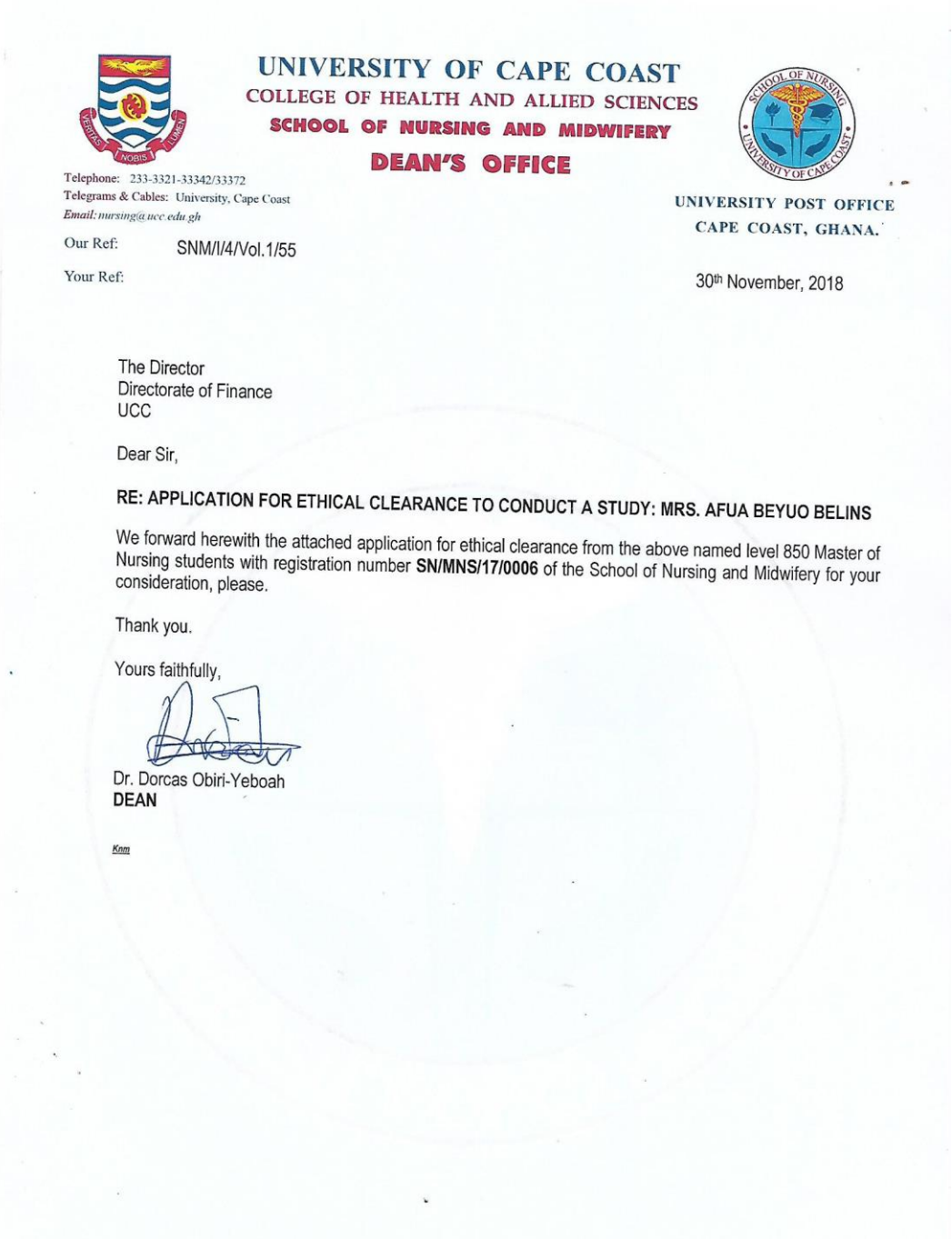
3. How do you often feel when experiencing the allergy symptoms?

   Probe: (less concentration, disruption in sleep, depressed, irritable, tired, embarrassed, miserable, or anxious)

4. Please tell me about your daily activities when you are experiencing this condition?
5. Please tell me about your ability to do work/ school performance?
6. Can you tell me how you perform your family roles during the allergy symptoms?
7. How have you been able to handle your treatment?
8. Is there anything else you would like to tell me about this condition?
9. Please can I contact you later in case I have any additional information about our conversation?

APPENDIX C

COVER LETTER FOR ETHICAL CLEARANCE FROM SCHOOL OF NURSING UCC



UNIVERSITY OF CAPE COAST
COLLEGE OF HEALTH AND ALLIED SCIENCES
SCHOOL OF NURSING AND MIDWIFERY
DEAN'S OFFICE

Telephone: 233-3321-33342/33372
Telegrams & Cables: University, Cape Coast
Email: nursing@ucc.edu.gh

UNIVERSITY POST OFFICE
CAPE COAST, GHANA.

Our Ref: SNM/I/4/Vol.1/55

Your Ref:

30th November, 2018

The Director
Directorate of Finance
UCC

Dear Sir,

RE: APPLICATION FOR ETHICAL CLEARANCE TO CONDUCT A STUDY: MRS. AFUA BEYUO BELINS

We forward herewith the attached application for ethical clearance from the above named level 850 Master of Nursing students with registration number **SN/MNS/17/0006** of the School of Nursing and Midwifery for your consideration, please.

Thank you.

Yours faithfully,

Dr. Dorcas Obiri-Yeboah
DEAN

Knm

APPENDIX D

ETHICAL CLEARANCE LETTER FROM IRB UCC

UNIVERSITY OF CAPE COAST

INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 0558093143 / 0508878309/ 0244207814
E-MAIL: irb@ucc.edu.gh
C/O Directorate of Research, Innovation and Consultancy

OUR REF: UCC/IRB/A/2016/294
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0009096

20TH FEBRUARY, 2019

Ms Mercy Efua Beyuo Belins
Department of Nursing and Midwifery
University of Cape Coast

Dear Ms Belins,

ETHICAL CLEARANCE – ID: (UCCIRB/CHAS/2018/22)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional Approval** for the implementation of your research protocol titled **Exploring the Experience of Patients with Allergic Rhintis at the Okomfo Anokye Teaching Hospital.** This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

for: Samuel Asiedu Owusu, PhD
UCCIRB Administrator

ADMINISTRATOR
ITUTIONAL REVIEW BOARD
JNIVERSITY OF CAPE COAST
Date: 21/02/2019

APPENDIX E

SCHOOL OF MEDICAL SCIENCES/ KOMFO ANOKYE TEACHING HOSPITAL, COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL
COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Our Ref: CHRPE/AP/103/19 13th March, 2019.

Mrs. Mercy Afua Beyuo Belins
Post Office KS 511
Ear, Nose and Throat Nursing School
KUMASI.

Dear Madam,

LETTER OF APPROVAL

Protocol Title: *"Exploring the Experiences of Patients with Allergic Rhinitis at the Komfo Anokye Teaching Hospital."*

Proposed Site: *Department of Ear, Nose and Throat, Komfo Anokye Teaching Hospital.*

Sponsor: *Principal Investigator.*

Your submission to the Committee on Human Research, Publications and Ethics on the above-named protocol refers.

The Committee reviewed the following documents:

- A notification letter of 28th January, 2019 from the Komfo Anokye Teaching Hospital (study site) indicating approval for the conduct of the study at the Hospital.
- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Interview Guide.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning 13th March, 2019 to 12th March, 2020 renewable thereafter. The Committee may however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Yours faithfully,

Rev. Prof. John Appiah-Poku.
Honorary Secretary
FOR: CHAIRMAN

Room 7 Block J, School of Medical Sciences, KNUST, University Post Office, Kumasi, Ghana
Phone: +233 3220 63248 Mobile: +233 20 5453785 Email: chrpe.knust.kath@gmail.com / chrpe@knust.edu.gh

APPENDIX F

APPLICATION FOR ETHICAL CLEARANCE

UNIVERSITY OF CAPE COAST, INSTITUTIONAL REVIEW BOARD (UCC-IRB)

University of Cape Coast

College of Health and Allied Health Science

School of Nursing and Midwifery

30th November, 2018.

Thro;

The Dean

School of Nursing and Midwifery

University of Cape Coast.

The Chairman

Institutional Review Board

University of Cape Coast.

Dear Sir/Madam,

APPLICATION FOR INSTITUTIONAL REVIEW BOARD CLEARANCE

I am a Master of Nursing student and would be grateful if you would review my research proposal on the topic: Exploring the Experiences of Patients with Allergic Rhinitis at the Komfo Anokye Teaching Hospital.

Find attached are the necessary documents for your review.

Yours faithfully

.....

Mercy Afua Beyuo Belins (MRS)

(SN/MNS/17/0006)

UCCIRB i