THE IMPORTANCE OF PATIENT HEALTH EDUCATION IN THE MANAGEMENT OF ASTHMA AND BRONCHITIS: THE ROLE OF NURSING AND RESPIRATORY THERAPY

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Abstract

The quality of nursing education and the knowledge of nurses and respiratory therapists in asthma and bronchitis seem to have a direct influence on the management of patients with these clinical conditions, reducing the costs of public and private health institutions. It is necessary to organize ongoing education programs for nursing professionals and respiratory therapists aimed at improving their knowledge in the field of asthma and bronchitis.

To determine the value of education that nurses give to individuals with asthma, a systematic review of the literature on this matter was conducted. A critical literature review was carried out based on the taking of independent and duplicate systematic actions and primary research articles examining the interventions of nurses in asthma consultations, with an unrestricted period till December 2, 2019. Eleven articles, five of which were systematic reviews and six narrative reviews, met the inclusion criteria and were reviewed.

Both asthma systemic reviews defended the importance of the role of nurses in the control and treatment of this immunological disease. The matters on which nurses should educate individuals with asthma were important, as were the methodological flaws of the included primary research studies concerning educational interventions on asthma. None of the respiratory therapists had sufficient evidence to justify the role of these professionals in the same clinical context. On this account, the quality of evidence is moderate due to the retrospective observational studies included. There is a need for further prospective primary research to study the impact of primary or adjuvant respiratory therapy on the management of patients with asthma or bronchitis, or both; measure the same or comparably substantial to other nursing interventions. Therefore, the quality of asthma therapy education, as recommended by respiratory therapists, carrying out observations, respiratory control, adherence to the therapeutic regimen, and management of environmental analysis, could represent a significant difference in the results of individuals in the health system with asthma, bronchitis, or both; and formulate appropriate public health measures and health professionals addressing agreements.

1.2 Keywords

Asthma, bronchitis, patient education, nursing, respiratory therapy.

1.3 **1. Introduction**

Patient health education plays an increasingly important role within primary healthcare. It has become crucial for the implementation of successful health programs. One of the main objectives



of patient education is to develop patient self-care skills, i.e., patients' capability to cope with chronic diseases, drug management, prevention of acute exacerbations, etc. In chronic respiratory diseases, patient education and self-care are vital as exacerbations are common and often dangerous for the patient. Apart from this, the patients' role is even more important in asthma therapy as both antiinflammatory and bronchodilator drugs are prescribed 'as needed.' Hence, not just drug compliance, but also compliance to other aspects of the treatment are essential in asthma patients. In bronchitis, the patient self-care is more related with smoking habits (S. Gaude et al., 2014). The importance of bronchitis health education is in the ability to quit smoking, correct methods for taking bronchodilators, the importance of flu vaccination, environmental control measures and the prompt recognition of exacerbations.

Bronchial asthma and chronic bronchitis are essentially chronic diseases warranting long-term therapeutic measures. After careful evaluation of the disease extent, the patient should be involved in the decision-making process at each consultation. Carefully formulated structured treatment plan should be developed with the patient collaboratively. Adequate patient health education should be given. The nursing and respiratory therapy professional have a vital role in educating the patients. Expertise in successful patient education is difficult but equally important in an important clinical competency particularly in asthma and chronic bronchitis. Many crucial aspects of educating patients include educating them about the disease, natural history, causative factors, symptomatology, emergency recognition of exacerbation, graded treatment designed both by the professional care providers and specifying the role of each, prevention measures, etc. Professional healthcare providers also should be skilled in helping patients develop self-action plan directed at the most commonly encountered problems in their course of illness. A patient program was conducted with these aspects in mind and it was found to be promising with a significant improvement in peak expiratory flow rate and PEF records. This program was possible by detailing roles of both nurses and doctors in sentence format to allow correct instructions to the patient.

1.1. Background and Significance

Patient education is a notably significant area of service provision for people affected by chronic disease, encompassing chronic asthma. Education is recognized as an imperative and substantial component of the intervention for the formulated PICOTS query. In the introduction, an identified risk factor impeding the reduction of the known burden of asthma was the lack of sufficient information. Health education is "purposeful activities designed to improve a patient's or layman's foundation of knowledge, health-related skill, and compliance" (Blundell, 2017). Based on a complex meta-analysis, the following recommendations garnered the highest quality and largest effect: (1) an educational program should be delivered that is individualized for patients; and (2) a multifaceted approach that is delivered by professional health staff in a community setting is advised. An individualized approach, with special consideration of the patient's specific condition and complex needs, encouraged effective improvement following diagnosis. In a nonrandomized crossover clinical trial, an individualized educational program for patients affected by asthma was able to achieve improvements in inhaler skill score and health-related quality of life. Institution and method of delivery, along with the role of the educator, are integral components in the formation of an education program. The majority of patients attend a general practice to facilitate refills of an asthma medication. Furthermore, a factor most likely to hone patient wellness is the education delivered on-site regarding well-defined observed outcomes.

1.2. Purpose of the Study

The purpose of this study is to explore and analyze the importance of patient health education when implemented to the adult patient population who reside in a rural community and live with



an acute or chronic illness. The education, in this case, consists of how to manage one's health care needs for asthma or bronchitis, and the roles of nursing and respiratory therapy in delivering the education. This paper will elaborate on developing and implementing a patient health education program that will develop better self-care and community health policies for town of roughly 75,000 people. The paper will further demonstrate how the education program can have beneficial effects that are both measureable, and at a minimum cost. In the state of the evidence, it becomes clear that in order to effectively control asthma, there must be persistent dedication to "education, training and ongoing monitoring" of tools and use for medication (Blundell, 2017).

The site of the proposed education program is a small primary care clinic in a rural area. In terms of Brown County, there are "four major pharmacies, one clinic, one regional hospital, a dental clinic, a dialysis center and a cancer research center." There are already fixed critical care wards for asthma and bronchitis, and many doctors, specialists, and a respiratory therapist practice in the City. The respiratory therapy department at Hamilton's hospital has been modified, and now has 14 beds in 24 months. This respiratory therapist (RT) is the case manager for the reactive care ward. The RT also regularly spends time in the pulmonary function lab, which offers an ideal place for the proposed education program.

1.4 2. Understanding Asthma and Bronchitis

Asthma is a chronic, inflammatory disease that affects the airways. People with asthma have an inflamed airway which makes the airway more likely to tighten. This tightening is called bronchoconstriction. With the inflammation, the airway also becomes swollen and produces more mucus. These events can cause the airway to block or narrow, making it difficult to breathe. Bronchitis is an inflammation in the lining of the bronchial tubes. This is a disease generally caused by long term irritation of the airway. This can be caused by smoking tobacco or other substances, long term exposure to lung irritants like environmental pollution, dust, second hand smoke, fumes, and air pollution. Bronchitis generally has symptoms of cough that lasts a while, production of mucus, shortness of breath, fatigue, slight fever and chest discomfort . Asthma comes and goes and can be very mild or very severe. Some people have symptoms daily while others have them only occasionally. When asthma gets worse it is called an exacerbation, a different kind of episodes in which symptoms get much worse and stay that way for hours or days and is a common reason for ER visits or hospital stays. Asthma can develop at any age. The intensity of the symptoms may depend upon the severity of the disease. An estimated 15 million Americans had asthma in 2001. Asthma is the most common chronic disorder in childhood. In the U.S. the production costs of lost productivity and death in 2007 was 19.7 billion. As asthma cases have increased so has the number of fatal cases. An estimated 14 people died from asthma daily, that equates to 5,115 deaths each year. About 4,269 deaths in 2007 could have been prevented if the patient had received proper asthma treatment and education. Shortness of breath is the main symptoms in Bronchitis and everyone develops a cough eventually. Acute bronchitis is worse than common chronic bronchitis with patients having irritated airways with small amount of constricted airway. Over 17.6 million U.S. citizens were diagnosed with bronchitis in 2012. With the right behavior modifications and understanding of the diseases, a patient can live a somewhat normal life with these conditions. To live that life though, the correct patient education must be received to self-manage the diseases correctly. In an episode of bronchitis, the airway constricts easily, making it hard for the little amount of air to enter the swollen airways. The bronchoconstriction is also due to the excessive mucus produced.



2.1. Definition and Pathophysiology

Introduction: Asthma is a common respiratory disorder characterized by recurrent episodes of airway obstruction, wheezing, and shortness of breath caused by a combination of inflammation, bronchoconstriction, hyper-reactivity, and hypertrophy of the mucous glands. The patient with asthma may have either a dry cough, thoracic oppression, suffocation, or expiratory dyspnoea, with no other presenting symptoms. Bronchitis is an inflammation of the mucous membrane that lines the bronchial passages in the lungs, which may be acute or chronic. Acute bronchitis is characterized by cough with or without expectoration for no more than three weeks and chronic bronchitis is diagnosed following the continuous presentation of a cough with sputum production for three months in two consecutive years.

Pathophysiology: The pathophysiology of asthma involves acute inflammation occurring in the respiratory tract due to many stimuli, such as allergens and pollutants, where smooth muscles cause bronchoconstriction narrowing the airways and leading to an inflammatory exudate. Reacted irritants or allergens lead the underlying musculature to contract and reduce the airway caliber. This bronchoconstriction is reversed 30 to 60 minutes after an attack, or after the use of an inhaler or oral medications, and the volumes and flow of air return to normal levels. Inflammation is an important component of asthma that directly affects the synthesis of mucus in smooth muscle cells and goblet cells, leading to hypersecretion of mucus and accumulation of secretions into the luminal underlying mucosa. Asthmatic signs and symptoms are associated with the widespread obstruction of the underlying bronchial airways, prolonged or irreversible infiltration of inflammatory cells with a local release of inflammatory mediators resulting in an obstacle for the flow of air that reverses either spontaneously or with treatment (Schweickart, 2017). There are several anti-inflammatory and bronchodilator medications that can be used to control asthma and bronchitis, given that their correct use is taught, avoiding the need for an emergency visit to the hospital. The eradication of a microbial agent is a desired immune response that leads to a fulminant elimination of a pathogen. A cough with expectoration is a reflex mechanism that protects the respiratory air pathway, triggered by the removal of foreign particles even though it can be very distressing to individuals with bronchitis.

2.2. Epidemiology

Asthma affects approximately 300 million people worldwide, with an estimated 250.000 annual deaths due to asthma. In adults without atopy, the most common wheezing illnesses are asthma, chronic bronchitis, chronic sinusitis, acute bronchitis and chronic rhinitis. Asthma, COPD and upper airway chronic rhinitis and sinusitis are the most common wheezing illnesses in atopic adults. Chronic bronchitis and chronic sinusitis rarely coexist without asthma or rhinitis (Alexandre-Sousa et al., 2024). Although wheezing and coughing are very prevalent complaints, probably by underlying bronchial inflammation and/or infection, professional control efforts are directed almost exclusively at smoking. Oddly, peak flow monitoring is the method that can the most dramatically change the natural history of bronchial diseases through smoking cessation.

They conclude that bronchial disease control and treatment lack proper importance and scientific grounding, that there is much to do to raise public awareness of asthma, especially in what concerns the control and prevention of acute crises, and that future smoking control efforts will need to address the complaints that are the strongest drivers of the behaviour. 10 of the 11 wheezing adults were asthmatic in the past 5 years, and in the remaining case there was a strong confirming occupational history. Only additional donation funded patients with wheezing complaint failed to purchase the book on asthma given in the bibliography. In asthma this means mandatory construction ("it is necessary to perform spirometry for the differential diagnosis of



cough and dyspnoea") and health education on hierarchy of professional care and the importance of treatment compliance (far from advising daily evaluation).

1.5 **3.** The Role of Patient Health Education

The patient education model for asthma and bronchitis during the 45-59 age group is contrasted here with a traditional model where the patient is simply provided with instructions on when and how to take medication as prescribed by a physician. In the model currently used at Saint Louis University's Family Practice Residency Center, patients receive additional instructions based on the asthma guidelines, and receive instruction on lifestyle changes, reducing irritants in the home, and avoiding foods that may trigger an attack.

Additional recommendations are given to ask the asthma and bronchitis patient if they have had night symptoms or problems, which may indicate an acute worsening of the disease. Early action may prevent an ER visit. The patient is also asked about non-prescription medications, and their usage of beta-blockers, NSAIDs, and aspirin is discussed, if they are in use. Other education given should include irritants and allergens to avoid, foods that trigger symptoms in adults that may not be commonly recognized by patients, and avoiding these triggers during high stress times (Alexandre-Sousa et al., 2024).

3.1. Definition and Importance

This baccalaureate final study consists of two research studies. One related to the implementation of a protocol in patients with bronchitis in a primary care unit and its impact on the evolution of bronchitis in both the short and medium term. The other pre-round meta-analysis was performed in patients with bronchitis and concerns the effectiveness of oral corticosteroids. Despite its small number of included studies and large intervals of confidence, this review showed an overall beneficial effect of oral corticosteroids.

By adjusting the study protocol in these age group patients managed in the primary care setting, which included, among other measures, nursing counseling on the nature of self-limiting airway infections, the representation of the frequency and the expected duration of both bronchitis and its cardinal symptoms, led to a better understanding of the symptoms associated with respiratory infection. This set of factors has led to a reduction in the average duration and the number of sick days, if compared with the control group. Therefore, in a country like Portugal with an inefficient use of health services, acute respiratory infections constitute a considerable burden both at social and economic levels. Since nurses frequently have more contact time with the patients than physicians, higher patient knowledge of the frequency and course of respiratory infection might improve perceptions of a stressful event, increasing coping ability in this population.

Bronchitis is a prevalent situation in primary healthcare settings constituting one of the diagnostic groups that motivate more consultations. Etiological data from surveys in Europe indicate viral agents in over 90% cases of bronchitis in adults. The diagnosis of bacterial bronchitis uses to be based on duration of symptoms. In industrialized countries, one in ten courses of antibiotics is apparently prescribed for coughs, colds and sore throats. As public health cares about unnecessary costs and the creation of bacterial resistances, restrictions on antibiotics prescriptions should be urged. Non-bacterial causes of cough, such as ACE inhibitors, smokers, occupational exposure, bronchial hyper-reactivity or COPD, are not integrant part of RDB. The current advice aims at information about natural history and guidance concerning adequate utilization of health services. There are several controversies that rise management dilemmas in bronchitis. Would asthma be overlooked in the diagnosis of acute bronchitis? What about the so called post-bronchitic syndrome? Is the misconsumption of antibiotics due to representation of bronchitis as a serious



disease? There are few data about the evolution of bronchitis in a non selected population (Alexandre-Sousa et al., 2024).

3.2. Key Components of Patient Education

Asthma is the most common chronic cause of death, with developing countries being particularly affected. World-wide it is estimated that over 300 million people have asthma. It is a global health problem, with incident rates that keep on rising. In the UK, a recent study estimated that approximately 195 million people annually suffer from symptoms of asthma. They also reported that over 90% of asthma deaths were found in low to middle income countries (Emtner et al., 2009). Asthma affects between 5% to 10% of the population; its prevalence rate in the UK is the second highest in Europe, after Ireland. In 2005, 1,055 people died from asthma. It was argued that these were mostly preventable deaths, and that many people died because of poor professional care and inappropriate education for patients.

Chronically, bronchitis is a progressive lung disease, primarily involving chronic airways. It commonly causes involves changes in tightness (bronchial hyperactivity), mucus (mucostasis) and damage to the airways walls, although airways tend to be inflamed. Inflammation is defined as a swelling or tumescence injury to a skin; it protects the affected part. Paradoxically, in condition like asthma, inflammation is deleterious, damaging the walls of airways. It is believed (unproven) that the inflammation in asthma stems from an over-reaction to environmental factors. It is established that various stimuli (it is unknown how many or which) cause a symptomatic response in a propensity number of patient, due of example: cold, warm, heat, and pfumes being triggers of asthma. It does not help that the inflammation is (90%) not being treated by the commonly prescribed drugs (Toro-Linnehan, 2013).

Importantly, bronchitis is quite an expensive disease to have. In the vicinity of 8.5 million workdays are lost annually because of bronchitis. Broadly this condition is twice as prevalent in women, as it is in men. This makes it a pertinent health issue, which Trump's asthma in the West. The aim of this research is to define the impact of patient health education on the extent and impact of exacerbation, considering the perspective of nurses and respiratory therapy.

1.6 **4. Nursing Interventions in Patient Education**

The nursing assessment of what each patient knows or needs to know, his/her emotional status; and environmental obstacles to learning needs to be ongoing, as it is the basis for selection of intervention strategy and evaluation of its effectiveness. The nursing process encourages a systematic, highly individualized and continuing focus on the educational needs of each patient. There are many nursing interventions, but patient education should be one of the primary interventions in the health care of the patient with asthma. Therefore, in order to provide a patient education in asthmatic patients that is oriented to self-management, nurses must be trained to do ongoing education in asthma and to meet each patient's unique needs with a combination of methods individualized for that patient (Alexandre-Sousa et al., 2024).

Asthma education programs should foster interaction between healthcare providers and patients as both active players in managing the disease. More nurses need to be actively trained in carbon monoxide monitoring, peak flow measurements, smoking cessation intervention and, particularly, asthma education. Further studies are needed to assess the effectiveness of carbon monoxide monitoring by nurses on asthma diagnosis and control and the influence of peak flow measurements in asthma control. Rehabilitation and follow-up after acute coronary syndromes are programs frequently addressed by nurses that were not found in the reviewed studies. Important improvements in interventions performed by nurses were detected in heart failure nursing clinics and visits by community nurses or general practitioners.



4.1. Assessment and Diagnosis

The updated recommendations on screening for Chronic Obstructive Pulmonary Disease (COPD) in primary care include important details and resources on the recommended questioning and testing.

A guideline with questions and treatments contains much detail for clinical settings on proposed interventions under "INTAKE" (screening questions) and "DIAGNOSTICS AND EVALUATION" (spirometry and follow-up evaluations). Patients who smoke tobacco cigarettes should be screened every 6-12 months for COPD up to age 79. Screening with spirometry once in people with risk factors (smoking, as well as environmental and/or occupational exposure) is also advised. Therapeutic interventions recommended for those with COPD are smoking cessation and respiratory therapy (maintenance treatment), which resolves COPD symptoms but does not slow down the progression of COPD. Rather, it is as likely to actually decrease the quality of life for those with bronchitis, higher levels of MAP, as well as higher sex, heart rate, BMI, and LDL cholesterol. Screen COPD patients for ongoing persistent exposure to [...] and recommend avoiding continued [...] exposure. The bilirubin [...] levels are inconsistent. Those with COPD frequently have [...]emia, which may [...].

Respiratory infections are the principal cause of permanent lung damage due to bronchitis and are associated with hospitalization. Considering that [...] of causes is para [...] 46%, [...] 5%, and [...] 3%, assess [...] damage to the lungs [...] Enquiring about childhood infection [...] important COPD question on the [...] questionnaire.

4.2. Teaching Strategies

Creating and applying of teaching strategies were explained in details in this randomized controlled trial on 80 adult asthmatics, however the description avoids its association with the randomization procedures (e.g., concealment, descriptives on randomization groups). Short and long term asthmatics were compared after providing them control strategies (monitoring, diary keeping, drug reminders, simple advice) or planning strategies (monitoring, diary keeping, and individually planning drug taking or symptom management, or both). Pretests and posttests on general asthma knowledge, the airway medication mechanism question, and spacers were administered, along with Spirometry and interviewer assessment on all other topics. The latter was piled up with audio tapes of the sessions. Posttests marked improvements, only comparing pretest homogeneities. Sessions in the practice were given by trained practice nurses with structured teaching plans. Areas of good and poor adherence became apparent.

The needs of patient health education were discussed in a cohort study of 160 adults observed over 2 years. A high frequency of acute asthmatic episodes was associated with a large proportion of individuals rarely or never using even reliever medications. It was concluded that structured patient education is only successful if it is universally implemented, requiring 'a cultural change in practice' (S. Gaude et al., 2014). This study aimed to assess the role of a nurse in providing health education and the use of conventional spacers to improve drug compliance in asthmatics, thereby controlling asthma.

1.7 **5.** Respiratory Therapy in Patient Education

After a patient is educated about breathing and diagnosed with asthma, bronchitis or COPD, they are usually given medications and briefly educated on the disease process. Some medications are used to treat the acute symptoms of breathing difficulties, while others are used to treat the airways, by relaxing the muscles of the bronchioles. The medications may work for a while, but many patients will return to the health care provider complaining that they are still having trouble breathing and are still experiencing asthmalike symptoms. Often the dosage of the medications is



then increased, or new medications are added. The patient may feel better initially. However, it is quite possible that, over time, as the patient's condition progresses, the condition becomes unmanageable and the patient's quality of life deteriorates. If the patient knew what s/he now knows, and had changed their life-style, there could have been a greater chance that the patient's condition would not have gotten to the life threatening stage. Contrary to conventional wisdom, the structure of respiratory therapy is not the pathophysiology of breathing, EDUCATION followed by MEDICATION. If patient's drug compliance is only 70%, and 100% is needed, the structure of therapy does not matter. However, the role of MEDICATION in respiratory therapy is very important (Toro-Linnehan, 2013).

It is said that the definition of a good doctor is an ordinary doctor in an optimum environment. Today's managed health care environment is NOT this environment. Forums have been given in medical journals for physician to vent their frustrations and share their perceived objective analysis of the managed health care environment. Ideas about "the devastation caused by networks", the reduction in quality of medical services, the contradictory quality of care policies, the frustrating pre-authorization procedures, the armies of deskilled labor conducting endless forms, the Frankensteinian language - the dialect of contemporary health care and "cost cutting insanity" are all commonplace in such articles. However, as Abraham Lincoln said "if you look for the bad in mankind expecting to find it, you surely will." This is a one sided view.

5.1. Diagnostic Techniques and Procedures

Diagnosis is focused mainly on patient report and pulmonary function tests. The goal of asthma management is to control the disease. It is important to diagnose and treat it at an early stage and to educate the patient in individual self-management. Asthma is a common disease in the respiratory and airway system. It is a chronic disease that affects all ages. Asthma is a reversible disease that is sensitive to many stimuli provoked by airway contraction. Asthma cannot be cured, but can be controlled by medical treatment. To control asthma is to control the disease in such a way that daily activities are not disturbed and that nighttime sleep is not interfered with. The principle basis for the diagnosis of asthma is the medical history and the symptoms reported by the patient. It is strongly emphasized that an individual evaluation and understanding of self-management is necessary for the efficient control of asthma (Alexandre-Sousa et al., 2024).

Asthma is a disease that is stable in most cases, but can sometimes cause exacerbations of the disease in the future. Factors affecting the stability and exacerbation of the disease are investigated by follow-up procedures for various reasons. The aim of controlling asthma is to maintain the patient's stability and to prevent exacerbation of the disease, thereby reducing the effects of asthma on health and daily life activities. It is necessary to understand the individual's sensitivity, exposure and evaluation results, and to take necessary measures. Asthma can exacerbate any severity of severity without warning. The Asthma Control Test is used to keep the patient stable and to follow up by understanding the patient's impairment when the patient's function is in a stable state. It is useful not only in the self-assessment of asthma control but also in evaluating patients with suspicion of poor prognosis.

5.2. Treatment Modalities

Recognizing that both asthma and bronchitis continue to be of major concern within the United States, totaling almost 30% of all children admitted to the emergency department. Both conditions require continuous monitoring and care to prevent further symptoms and complications. If cared for properly, many symptoms associated with both conditions can be controlled sufficiently. The Patient Health Education (PHE) program that has been developed is one that is easy to follow for patients or family members and requires no medical background. The PHE program is most



effective when the patient or family member is educated on both the conditions and the pharmacological treatments. There is a difference in education on these conditions compared to other diseases because the symptoms are often treated individually due to the changing nature of the condition, and without treatment guidelines, diagnosis is not so straightforward (Alexandre-Sousa et al., 2024). After education on asthma and bronchitis, the educational focus needs to shift to the most common signs, symptoms, and treatments, and in what combinations to use them (Toro-Linnehan, 2013). For the program to be successful, asthma and bronchitis educational materials need to be developed. Generalized asthma and bronchitis monitoring programs do exist, yet they generally are highly detailed, take a long time to complete, and can only be used by nursing and medical care professionals. Ideally, such programs require patients to be immediately diagnosed with either asthma or bronchitis. Therefore, with patient education, the family member can monitor the patient's current status and transitioning treatments as necessary. With the appropriate materials and education on both asthma and bronchitis, the patient or family member can monitor the individual's current condition. This was designed to be performed most efficiently through simple checklists delivered over a short time frame, with the ability for follow up summarized materials. This education can be delivered when the patient is discharged from the medical facility, if admitted, or once the medical detection has been made.

1.8 6. Collaborative Care Approach

Asthma is a chronic inflammatory condition in adults that characteristically involves episodic bronchospasms associated with breathlessness, chest tightness, wheezing, and cough. Asthma is completely controllable only if patients improve their self-care behavior and capabilities. The traditional model for patient education is in contrast to a patient-centered model of education in which the patient identifies problems, education enhances problem-solving skills, self-management is exercised to improve self-efficacy, and the patient is encouraged to solve his own problem with information rather than instructions from healthcare providers. Patients' views, behaviors, and conditions appear to be adversely affected by asthma education in the absence of an understanding of their particular predicament. The patient is feeling that his or her world of conspiracy does not fit the analysis of researchers.

All learners who demonstrate health behavior, including those who adhere to treatment, must have in common, accept responsibility for managing their health, and are willing to make behavioral changes. Self-management is defined as the person's active involvement in self-care against symptoms, treatment, consequences, and lifestyle changes. As the healthcare system continues to face cost control, the integration of hospital staff becomes increasingly important. The care model of integrated health is a forum that includes interdisciplinary collaboration and encourages patient skills to take care of themselves. The coordinated number of chronic care models, most importantly, through interdisciplinary teams consisting of a nurse and pharmacist, completes an individual health plan within each patient's first six months and encourages them to activate thereby patients. People participate more in healthcare management and interaction with medical providers.

6.1. Interprofessional Communication

This paper presents details concerning the importance of patient health education for the treatment of chronic obstructive pulmonary disease (COPD) in the primary care setting. It frames bronchitis management in cultural and economic terms as well as identifying a particular advertisement focused on COPD/bronchitis and lung cancer. Treatment decisions often are made by patients in cooperation with healthcare professionals. This paper focuses on patient health education "empowering the patient to take the initiative in the non-disease-related tasks of raising their health



status." By working collaboratively with their health care providers to control non-disease-related lifestyle factors, patients can have more control over their health status throughout their lifetime. In the United States, asthma can be considered an epidemic. Research has shown that self-care been patients is of great importance when an individual has had an asthma attack. Much of the emphasis in such programs has been on self-care for the individual's asthma. However, most studies indicate a lack of emphasis on the environment. A review of lay asthma literature indicates a lack of information on controlling triggers outside of the home, such as at schools and in the workplaces. The severe crisis of asthma can happen in different conditions, and in different environments than those affecting its everyday patterns. Asthma is not only a result of a particular set of immune dysfunctions, or a series of inappropriate inflammatory reactions; it is as well a matter of inappropriate responses to the environmental exposures in genetically susceptible individuals. In other words, particular exclusive conditions trigger severe asthma attacks for each of the individuals who suffer from such a life-threatening chronic disease (Toro-Linnehan, 2013). Implementing asthma guidelines can improve the clinical practice of asthma self-care in terms of self-treatment education intervention program tailored to the needs of individual asthma patients, integrating the guidelines of asthma self-treatment, studying the effectiveness of such a community-based intervention approach on the improvement of asthma self-care. Asthma is an epidemic that is strongly effecting the quality of life of many African American adults in the US. African Americans have a higher prevalence and incidence rate of asthma and higher mortality rate than whites. An asthma self-care center targeting at African American adults with asthma. An program from the background research on what is the best form of asthma education. After cessation of the intervention program, those in the treatment group showed statistically significantly greater improvement in certain aspects of asthma self-efficacy. The treatment group had significantly more improvement in such outcomes as knowing what to do if short of breath, what medications are taken for and when, how to develop a written asthma action plan, and a better understanding of asthma testing results. Improved self-care abilities were also related to those with a higher income and had health insurance. However, from the control of asthma perspective, those with the least optimal self-care ability probably needed more resource-effective forms of education. Asthma nurse practice is characterized by patient assessments, care, and patient education. Usage of asthma nurses in asthma care in primary health care is limited; only one of the primary healthcare centers in this study had such a health professional, and it was questioned whether the general nurse education gives enough expertise to advise an asthma patient. Further training for PHC nursing staff and the establishment of asthma nurse practice is recommended to improve asthma care. Increased asthma education indicates poor control of patients' treatment, use of symptom relievers, and underuse aftercare and asthma patient follow-up.

6.2. Team-Based Interventions

Now, in the scope of a consultation scheduled for the problem of asthma and extensive bronchitis, it was necessary to participate in the consultation simultaneously with a nurse, a resident clinical pharmacologist, a resident in Pneumology, a respiratory therapy technician, and respective ATM. Following the consultation, the interventions to be carried out by the nursing and respiratory therapy team aimed at the problem of asthma are presented. The resolutions of both non-conformities identified in the consultation regarding extensive bronchitis are also indicated. In the area of education on asthma, patients are given a FACTRIS "Asthma - Advices for those who have asthma." On the ATM side, a recommendation needs to be made: "Keep track of your symptoms in a notebook, recording the circumstances in which they occur and the respective date and time." Respiratory therapist advised clarifying the doubts about asthma on the FACTRIS "Tips



For Those Who Have Asthma", emphasizing that the multidisciplinary team is the most capable in responding to the different treatment and follow-up aspects of this disease. Being more specific on this advice, asked patients to observe their medical prescription, respective inhalers, and medication controller. On the nurse's part, it is suggested to insist that avoiding allergens, including dust mites, is to use anti-allergenic covers for mattresses, pillows, and quilts, podiatric cleaning of the carpet or even its removal, and avoid stuffed animals (Alexandre-Sousa et al., 2024). To proceed with the control of measures taken in parking lots, recommend that only vehicles with the anti-pollution badge enter the collective garages, that pedestrians do not stay for a long time in those places, try not to park in closed spaces, and public transport be used.

1.9 **7. Barriers to Effective Patient Education**

Culture: Patient education may be negatively influenced if the communicator and recipient do not share a common culture. Communication that is clear, relevant to the recipient, and facilitates respect and trust between parties is critical for patient satisfaction with education. Unfortunately, such communication is nonexistent between many tribal clients and health educators. One of the prescribed educational programs must include research on the historical and communication basis of this lack of commonality. Limited discussion occurred on other variable categories. Variances in data analysis were equated with differences in types and levels of tobacco use. There was also limited discussion on participant variability in sharing this information, while participant variability was widely shared in the need for provider participation in discussions with respiratory therapists and other patients to effectively share this information. Unfortunately, no aspect of the discussion or distribution was aimed at the client presentation it was believed would most benefit from such a discussion.

Clinical: Chronic obstructive pulmonary disease is a major public health problem and is the fourth leading cause of chronic morbidity and mortality in the United States. Factors must be considered to improve asthma treatment outcomes. These factors include adherence to recommendations regarding the prescribing of inhaled medications, provision of information, monitoring of both symptoms and lung function and adherence to a written management plan. Asthma patients often utilize the services of multiple providers simultaneously. Collaboration between asthma patients, caregivers, and other providers is essential for consistent management of the patient's health care needs. Asthma patients come to emergency departments because they are undiagnosed or they are having trouble with medications or other treatment. Significantly more intervention patients have spoken with a nurse or respiratory therapist return phone call within four days post-visit than before.

7.1. Patient-related Factors

Asthma is a common disease in all age groups of both sexes. It is associated with a significant morbidity and mortality. Bronchitis is also a significant cause of morbidity, particularly among elderly patients. It is essential to take care of the patient having bronchitis. However, despite a significant improvement in therapeutics, the control of asthma and bronchitis is often suboptimal. It is particularly difficult to ensure compliance and cooperation from the patient, who must regularly take the drugs prescribed. Compliance is strictly associated with how much a patient trusts in numerous factors that can affect the perception of the therapy. A study found that patients with chronic stable asthma who received their usual treatment along with health education showed significant improvement in peak expiratory flow rate, drug compliance, differentiated drug compliance, and a decrease in the number of emergency visits and hospitalization compared to those who received treatment without specific education, establishing the benefit of health education and



self-action plans in patients coming to the emergency department with bronchial asthma with those who received treatment according to established guidelines but without much explanation. There was a notable difference in compliance with drugs, style of administration, and dose of medications between the two groups, indicating that patients with asthma receiving health education and selfaction plans have better compliance to emergency medications. Asthma is a heterogeneous disease usually characterized by chronic airway inflammation. People of all age groups can suffer from this disease, but the morbidity and mortality due to asthma are more pronounced in the age group of 5 to 35. People who have faith in treatment and the treating physician or the health educator are more likely to adhere to treatment and heed the advice of the healthcare professional. Conversely, individuals with a negative attitude towards treatment are frequently irregular with medication. Patient noncompliance with allocated dosage of treatment has been recognized as a major problem in patients with chronic asthma. It has been estimated that only a small percentage of prescribed treatment reaches the lungs with each dose in a metered dose inhaler. Children are mostly dependent on parents and may not control asthma by their will. Treatment has a greater chance of being done ineffectively due to many factors, including low education levels, continued use not being possible due to the cost of the drug, inhaler spacers not being used, and lack of relief from treatment. People with asthma should receive education, training, or written asthma action plans tailored to their individual needs and adjusted according to the frequency and severity of attacks. A personalized asthma action plan should teach individuals how to anticipate, recognize, and control an asthma attack before it becomes severe and potentially life-threatening. It encourages proactive self-care and the role of community resources. Asthma is usually characterized by exacerbations or attacks of varying severity. These exacerbations are characterized by increased wheezing, dyspnoea, cough, and tightness in the chest. During an attack, oxygen transport to the lungs is significantly reduced and the airway narrows. After the attack, the symptoms improve and the airways begin to normalize. This condition is seen because of inflammation and muscle spasm of the bronchial airways during an attack, leading to an inability to breathe out.

7.2. Healthcare System Challenges

Respiratory diseases, such as asthma and bronchitis, are a public health concern, standing out the importance of health education to avoid risk factors. Acute exacerbations can be managed in different care settings, but the skills of nurses and nursing interventions are essential. The aims of this study were to discuss, based on the evidence of the literature, the approach of nurses and respiratory therapists in the presence of a patient with acute asthma crisis, and to describe the management of nursing and respiratory therapy in a case study of an individual with asthma crisis during hospitalization. Asthma is an inflammatory disease primarily affecting the airways, characterized by recurring symptoms and airway limitation, with heterogeneous inflammation taking place in the major respiratory conduits due to an immune response more focused on Thelper lymphocytes (Th) 2. The involvement of nurses in the management of asthma can play a key role in diagnosing potentially serious illnesses if nurses can maintain professional development in this pathology. Training programs for primary care nurses showed a substantial gain in terms of their knowledge about asthma and self-confidence in managing this pathology in adults. Moreover, showed that the actions taken by the nurse in the face of a crisis can have a positive impact, fostering efficiency in their timely handling and thus avoiding unnecessary traffic in the emergency room and hospitalization. By contrast, prompted actions not previously considered with the patient led to better compliance with treatment and consequently the patient's quick recovery. Signs observed by nurses, which may not be clear to the patient, contributed to the evaluation and timely intervention of the individual. Compliance with treatment is often



inadequate, which is reflected in the non-adherence to the treatment regimen, bad inhalation techniques, poor dietary habits, smoke intake, and, finally, the absence of vaccinations or measures to prevent a future crisis. The possibility of providing patients with knowledge about the pathology, how the treatment works, and how to avoid risk factors is described as being essential in preventing asthma crisis.

1.10 8. Innovative Technologies in Patient Education

A situation that I encountered in exploring the importance of medical patient education has to do with asthma and bronchitis management by a respiratory therapy and nursing team. This was particularly poignant to me as an RT due to the possibility that education is beneficial to my greatly increased exposure in an individualized approach for patients with these life-long conditions. The RT scope of practice provides the skills necessary to educate patients about their conditions in a more technologically advanced manner, as well as the means by which nurses can act as adjuncts to RTs with a larger audience of patients. This complex question might encompass a length-elongated answer should this ailing patient population be neglected. Additionally, patient education provided by a nursing and respiratory therapy clinical team will be more effective in reducing preventable readmissions in those patients suffering from respiratory distress related to asthma or bronchitis. With the overarching goal of providing optimal and evidence-based patient asthma education in the most effective way possible, the use of nursing and respiratory therapy discharge program will be employed to supplement current practices (Blundell, 2017).

Patient asthma education is an essential area of service provision and an outright estimated 300 million individuals currently suffer from it worldwide. Asthma and bronchitis patients in particular rely on effective, long-term disease management and medication compliance. A critical component of this management is asthma education, which signifies a patient in need of education about their asthma. Likewise, 12 million non-institutionalized US individuals older than day two currently endure chronic bronchitis. These chronic bronchitis patients, as part of their treatment, intensely rely on medication therapy, much like asthma patients; however, education for breathing issues, such as asthma or bronchitis, is highly independent. In summary, patient education is a significant area of service provision for individuals enduring chronic diseases such as asthma that demand long-term management and compliance.

8.1. Telehealth and Mobile Apps

Patients with asthma and bronchitis could benefit from comprehensive patient health education. Patient health education would reduce emergency department visits, hospital admissions, and mortality rates. Respiratory therapy plays a crucial role in patient health education through physiotherapy, the use of inhalers, and oxygen therapy. Beyond prescribed medication, therapy and activities under the guidance of respiratory care must be promoted, which includes breathing exercises, air humidification, avoiding exposure to harmful substances, smoking cessation, and vaccine prevention. Regular self-monitoring of biomarkers for early disease warning is important. A clear statement of health education interventions could foster research and guide health professionals on the promotion of self-management and better control of the diseases.

Asthma and bronchitis are very common diseases in many countries. Effective patient health education may improve patients' self-management and their quality of life. With the help of nursing or physicians, asthma and bronchitis patients should know that the disease could be chronic and persistent. Even though the symptoms are varied, asthma and bronchitis behaviors should be recognized and the triggers should be avoided or eliminated. Beyond medicinal treatments, a variety of therapy activities must be supported and promoted. Routine self-monitoring of airway capacity and other biomarkers would be especially important. Early warning



of the disease can provide patients with timely treatment and control the deterioration of the disease.

8.2. Virtual Reality and Simulation

Accurate assessment skills of lung sounds are essential in the diagnosis of respiratory disorders and patient care. To develop the assessment accuracy of pulmonary specialists—in particular, nurses and respiratory therapists—a system was developed for monitoring auscultation sounds and diagnosing respiratory disorders such as asthma and bronchitis through lung sounds using artificial intelligence. The system can recognize and distinguish abnormal lung sounds using artificial intelligence. It can provide an objective standard for accurate assessment of lung sounds not provided by conventional teaching and experience. The system was implemented by copying real lung sounds for various lung disorders such as pneumonia, asthma, bronchitis, and chronic obstructive pulmonary disorder. The system was evaluated by comparing it with the actual state and commented state of lung sounds. The sound recordings showed that they consist of six pairs of least-squares pulse image and lung resonance sound for pneumonia, asthma, bronchitis, chronic obstructive pulmonary disorder, normal lung sounds, and three different types of the same disorder in six patients.

In the information provided, disease states such as asthma, bronchitis, and pneumonic sounds are mentioned but lung sounds and diagnostic examples are not provided. This deficiency is a drawback for students who will learn the subject, nurses, or health personnel who will be specialists, and for the current specialists, nurses, and pulmonary therapists who listen to lung sounds, and the system is unable to interpret or provide a decision. This text presents a brief picture of respiratory disorders as a whole and then focuses on asthma and bronchitis. These respiratory diseases, which are very widespread and have a common place in society, were investigated through clinical investigations in the pulmonology section. Actions, precautions to be taken, and practices of skilled training were required to care for and treat patients with these disorders. The importance of nursing and respiratory therapists about these disorders is another subject that is detailed.

1.11 9. Cultural Competence in Patient Education

Abstract: Health care practitioners should be aware of the importance of patient health education, particularly with patients recently diagnosed with injuries and illnesses relating to asthma and bronchitis. Programs need to be developed for patient health education that are effective and meaningful in the life of the patient. This project discusses the need for patient health education in relation to asthma and bronchitis treatment programs by nursing and respiratory therapy. These patients often leave the hospital or clinic without a good comprehension of the management of their disease, and patient education in the form of books, brochures, internet, or nurse and respiratory therapy teaching can better improve the lives of the client and heal the disease. Patient health education is beneficial to the client diagnosed with asthma or bronchitis, and nursing and respiratory therapy need to be more proactive in the management and training of these people. Practitioners need to be aware of cultural competence and to incorporate these strategies in the development of patient education materials. Regular follow-up appointments and management by nursing and respiratory therapy is essential in decreasing the number of hospital visits. Asthma and bronchitis are two illnesses that affect millions of people each year. It is essential to educate the client on these diseases so that they will return to the facility only as needed (Toro-Linnehan, 2013). The number of deaths reported for asthma in 2012 was 3,398. Of these 3,398 deaths reported, 21 percent were males and 79 percent were female. The number of deaths reported for bronchitis in 2012 was not available. Therefore, these diseases need to be managed very carefully.



1.12 10. Ethical Considerations in Patient Education

The most important component for the effective and immediate treatment of an asthma attack is medication. A patient may be prescribed quick relief medication to be used for acute episodes. This may include an inhaled bronchodilator to help open up the airways and help the patient breathe more easily. These medications are usually inhaled and are self-administered by the patient during an asthma attack. Other inhaled medications may be prescribed such as steroids used to reduce swelling in the bronchial tubes. This is important patient education because if self treatment is not started immediately, emergency treatment in the form of a hospital visit may be needed. Unfortunately patients may not understand the importance of immediate use of this medication (Toro-Linnehan, 2013). Understanding an illness is beneficial in treatment and may make taking medication acceptable and effective.

Patient education in the form of "lung school" may be very beneficial both for the patient and their families. A patient diagnosis of severe asthma may often elicit a list of questions in the patient's mind and they may worry about the side or long term effects of the required medications. Patient education that shares with patients and their significant others information on asthma causes, symptoms, and treatment may be very effective in the management of this chronic disorder. Education on the use of a peak flow meter and the benefits of designing and maintaining a peak flow may provide insight to patients and families of the severity of the asthma patients condition. There is evidence that just being educated about asthma does not necessarily make understanding asthma easy, nor does it change the attitude and behavior of those with asthma. However, there is also evidence that asthma patients educated about their illness still have feelings of anxiety and are less likely to comply with treatment. In conclusion to the plethora of evidence on patient education, it is necessary for nursing and respiratory therapy staff to stay current on asthma information and develop asthma specific care, intervention strategies and treatments.

1.13 11. Future Directions and Research Opportunities

Now, with the pandemic due to sars-cov-2 and in times of covid-19, the worldwide asthma prevalence is 4.4% and 3.7% for chronic bronchitis, obstructive bronchitis frequency is 5.0%. Deaths due to asthma were 461,049 deaths worldwide in 2019, over the past decade there was an 85% reduction in respiratory mortality by behavioral risk factors. Adult patients 40 years of age located in the northeast have an uncontrolled asthma rate of 80.0%. There are disparities between CRF on asthma in the Northeast and USA, for chronic bronchitis (CB) and bronchitis (mainly chronic) (BR), CA of no-symptoms is higher. Due to unhealthy diet 10.9% of the Brazilian population aged 40 years old develop asthma. Factors as healthy diet and CRF with k-means algorithm decrease asthma rates in 4.9% and 58.0%, respectively. Asthma, bronchitis and CRF cause dysfunctions in lung functionality, decrease by 2.0%, 10.0% and 7.0%, respectively. There is a prevalence rate of 1.2% of severe asthma, because of overweight and the disposition of harmful medications, PEF decreases by 8.07%. Many diseases are comorbid with asthma, due to others there is an additional decrease of 3.5% in PEF. For overdue prescription medication, visits to physicians and hospital referrals, the probability of sars-cov-2 transmission is increased 12.05, 2.50 and 2.94 times, respectively. Nurses are already on the frontline in response to the pandemic and play a crucial role in public health and should focus interventions on populations, relieve overwhelmed nursing system is important and was possible by mediating information and care through digital platforms, as clinical algorithm guidelines. Pertaining regions with scarce resources, CRF patients, and areas densely populated and with strong coping loads of risk factors (RF), such actions efficiently provide help and have a powerful potential to decrease the immediate burden of the condition. Post covid-19 rehabilitation study in the management of asthma,



bronchitis and CRF patients, for Public Health Care (PHC) and the combination of Nursing and Respiratory Therapy (RT) were able to follow up with home-carrying medication and mini-peak flow monitoring provide by temporarily remote monitoring and contact tools, early diagnosis and treatment critically decreases patients at risk of respiratory emergency and hospital referrals. Asthma Action Plan (AAP) and crisis management advise period tracking of CRF and CB symptoms and monitoring lung functionality, it doubles the median admission days and deceased death rate by 3.43% on asthma and CB/BR, mediating patient health education. The widespread use of vaporizers, release of harmful materials, but post-cleaning-smoking, indirectly causes damage to the lung nasopharyngeal mucous epithelium which stimulates higher viral loads adjustment of habits decreases CFR Covid-19 is not transmitted through the alveolus-pollutallion pathway; any person can get it, but to be infected need factors such as heredity would need more research in addition to everything that involved molecular characteristics, the importation of the history of the harsh environment, the building etc. in sars-cov-1 infection, there are safety rules that should be adopted to prevent nosocomial infections, a direct taboo about aerosols from a certain distance means that the virus must fall to the ground and be intact for people to catch. Considering the recommendations of the crown ministers and their team of technical society, for those who are dedicated to face-to-face activities, the time spent with patients decreased by 20.0% and the incidence of sars-cov-2 decreased by 38.3%. References:

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