



# **Asthma Patient Education (Adult Onset) From Nursing Perspective**

A literature Review

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<b>Abstract:</b>	
<p>Asthma has been known as a long chronic disease, the most common symptoms for adult asthmatic patients can be difficulty breathing, shortness of breath, and wheezing, there is no cure for asthma up to now but with the right education, management and treatment asthmatic people can live a healthy and normal life. The main purpose of conducting this study was to investigate the needs of asthma patient education, and how nurses can effectively promote the patient's quality of life. The research questions that have been guiding this study are 1. What are the needs of asthma patient education? 2. How can a nurse effectively demonstrate teaching strategies for an adult asthmatic patient? Inductive qualitative content analysis has been conducted as a method for data analysis in this study, that focuses on nurses' role and asthma education. The data collection of this research consists of 10 scientific articles. The used theory for this study was Barbara Carper's (1978) Fundamental patterns of knowing which focuses on four patterns of knowing in the nursing profession. The study results show that a good knowledge of asthma nurses and patients is vital and needed in disease control, through asthma nurse educators, the patients' needs are met, by working in partnership and taking care of patients' mental health during the teaching process, such as medication adherence, providing proper knowledge, open communication, delivering up-to-date instructions, and information. Additionally, effective demonstration of proper inhaler devices techniques is essential for asthma patients to manage and promote their quality of life. The study stated, every adult asthmatic patient should be provided a personal asthma action plan which should be made jointly with their asthma nurse educator to be able to control their asthma self-management and related issues.</p>	
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## **FOREWORD**

I would like to take this chance to thank my supervising teachers for taking time and providing me great support and help during my study and thesis writing process, I would like to give special thanks to my teacher Pauleen Mannevaara for her unlimited support, encouragement, guiding and supervising me throughout the thesis writing process. In addition, I would like to give special thanks to my teacher Pamela Gray for her great support and encouragement. I would like to thank all my lecturers and teachers at Arcada University of Applied Sciences. Additionally, I would like to give special thanks to my family for giving me their emotional support and encouragement throughout my study and thesis writing journey.

# 1 INTRODUCTION

According to the latest World Health Organization in 2019, it has been estimated 262 million people are suffering from asthma currently and there were 461000 deaths because of asthma. It is one of the main diseases which can not be transmitted from one person to another, it is an incurable disease of the airways which differ in frequency and severity from person to person, it affects old and young people, and it can start at any age which means it can affect adults and children as well, but it is more common in children. Asthma symptoms can be combinations of chest tightness, wheezing, coughing, and shortness of breath. Some common asthma triggers such as dust mites, smoking, stress, environmental and allergens, perfume smell, pillows, outdoor air pollution, exercise, pets, flu, and humidity, these triggers differ from one person to another. Patients and their families need asthma education to know and understand more about the disease, to be able to manage their asthma medications and symptoms at home, to prevent triggers and attacks, additionally to increase community awareness, to minimize stigma and myths related to asthma. (WHO, 2021).

In Finland, it has been estimated about 10% of the adult population have asthma, which is published in 2016, it is most common in children, nearly 5% experience similar symptoms at times. Most Finnish asthmatic people have allergies, they experience inside air allergies with age, and the impact decreases. (Allergia.fi, 2016). According to the WebMD website when asthma is diagnosed and symptoms seem in people above twenty years old it is called and known as adult-onset asthma, approximately half of the adults who have allergies have asthma, adult-onset asthma can be caused and irritants from the home environment or workplace it makes the asthma symptoms occur suddenly which is called occupational asthma. (WebMD, 2021).

The main reason behind the author's chosen topic and being inspired to write about this specific subject, when the author worked as a healthcare assistant and in her practical training as a nursing student, she took care of many asthmatic patients that encouraged her to choose this topic to promote the patients quality of life and additionally to widen her knowledge and make a leaflet for other nurses and people who are inspired and in need to learn more about asthma education, because educating asthmatic patients is the most essential role for nurses and their patients to find out the effectiveness and needs of patient's self-management education.

The first chapter of this research is the introduction which gives a short explanation about some asthma facts in adults and in general and asthma education. The second chapter is the background, which outlines asthma, symptoms, causes, and patient education. Chapter three is the theoretical framework, which discusses and reflects Barbara Carper's Fundamental Patterns of Knowing model. The aim and research questions of this thesis have been presented in chapter four. The purpose of this thesis is to investigate the needs of asthma patient education, and how nurses can effectively promote the patient's quality of life. The fifth chapter is the methodology of the study which discusses and explains the study methods that have been done by the author. Chapter six is containing the outcome and results of the study. Chapter seven is the discussion of the findings which is assessing if the objectives of the study have been attained by investigating. Chapter eight is the conclusion, of this study which gives the strength and summary of the research, additionally, chapter eight includes study recommendations and limitations. The final section is the references and articles of this study that have been used and listed for the whole study process.

## **2 BACKGROUND**

In this background chapter, the author will discuss and define the main important terms such as asthma, symptoms, causes, and patient education.

### **2.1 Definition of Asthma**

Asthma is described as a long-term lung chronic disease that swells especially the linings of the airways, they get narrowed and inflamed, because of the muscle's contractions that are surrounding the airways. It can make people to have shortness of breath, trigger coughing, wheezing and difficulty breathing, and it makes additional and thicker mucus production than normal it can trigger, while contacting with irritations or allergic reactions, exercise, while having emotional stress, viruses and so on. There is no cure for asthma, but the proper management of asthma can help and allow people to have an active and good quality of life, it can be controlled by medications and avoiding triggers to decrease asthma severity. In some conditions, inflammation in the airways could stop the oxygen from getting to the lungs, which means the oxygen will not pass inside the bloodstream or get into important organs, that is why those people who are experiencing serious symptoms must call for immediate medical help. (Brazier Yvette, 2020).

Furthermore "Asthma is an inflammatory disease of the airway mucous membranes. An asthma inflammation causes a constriction of the airways. The most common asthma symptoms are coughing, wheezing, separation of the mucous membranes, and shortness of breath" (Thl. fi, 2021). According to the American lung association website asthma is a respiratory disease that it makes hard for asthmatic patients to inhale and exhale, is a chronic and serious disease and there is no cure for it until now but with the right management and treatment asthmatic people can live a healthy and normal life, The most common symptoms for adult asthmatic patients can be difficulty breathing, shortness of breath, wheezing such as whistling sound comes from the chest while breathing specifically while exhaling and coughing particularly during doing exercises and at night.



The causes of asthma are not very clear and unknown yet, but environmental factors can play a main role and it can be inherited and run-in families as well, Scientists are still discovering and exploring what exactly causes asthma, but here are some known important factors in the development and progressing of asthma which is: Genetics, Allergies, respiratory infections, and environment. (American Lung Association, 2020). Here are some common asthma types which include: Adult-onset asthma, childhood asthma, severe asthma, occupational asthma, allergic and non-allergic asthma, seasonal asthma, exercise-induced asthma. (Asthma UK, 2021).

## **2.2 Patient Education**

Patient education means to give knowledge, instruction, and health information to the asthmatic patients, community members, staff, and family members, to teach, assist and make the patients be able to learn about general medical subjects and devices or special health problems or disease, such as the right uses of taking medications, using medical devices the correct care of injuries or care at home, the implementation of a healthy lifestyle and the needs of preventive services as well. The nursing teaching process is helping the patient to achieve skills, knowledge and assess the health problems and it makes the patient work forward to have a normal and active lifestyle. (Medical Dictionary, 2021). Moreover, asthma Education is defined as a continuous process that must be combined into asthma management and evaluated at each visit such as intellectual levels, have self-confidence in the disease management, learning styles, the readiness of behavior-changing all these must be reviewed regularly while education the asthmatic patient. The asthma nurse educator must have experience and knowledge of educational values and principles together with asthma care. Asthma education can decrease asthma symptoms as a disease and morality. (Wanger, Christine Waldman, 2008).

### 3 THEORETICAL FRAMEWORK

The Fundamental Patterns of Knowing model by Barbara Carper (1978) was chosen for the study because it is relevant and applicable to the nursing profession. In the 1970s fundamental patterns of knowing in nursing was introduced by Carper, which describes knowledge as patterns, forms, and structure that provides horizons of exemplifying and prospects the typical and new phase of thinking concerning phenomena. Carper’s nursing model identifies four patterns of knowing, these are containing: Empirical knowing, es-  
 thetical knowing, personal knowing, and ethical knowing. Carper states that the obtained knowledge brings foundations for the nursing practice and understanding of those pat-  
 terns of knowing are the main keys of the more complete phases of learning and teaching of nursing which is raising awareness and the complexity of differences in nursing. It provides a chance for the nurses to get a hold and grasp of the significance of understand-  
 ing and getting the questions that arise and find the right knowledge to assist the nurses out there to find the answer to those questions. Carper’s explained that professionals from different fields also might use knowledge as well, which they use, practice, and promote. Those ways of getting knowledge would be, organized, tested, and applied, and further four patterns of knowing have been explained in this nursing theory. (Carper, Barbara A. 1978).

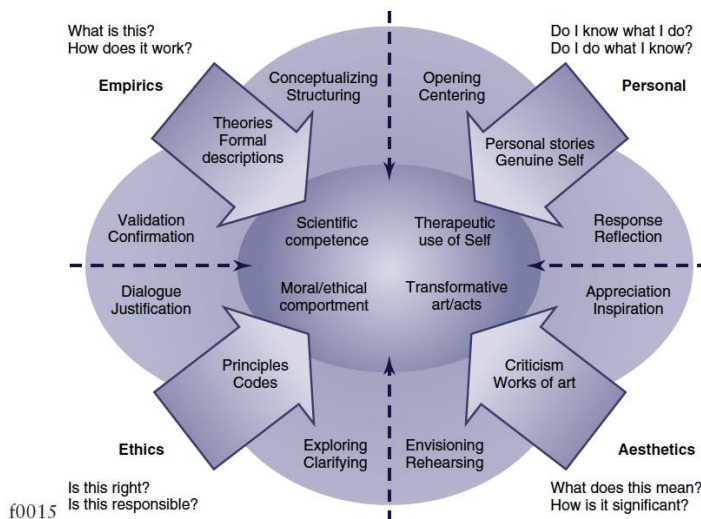


FIG. 1.2 Fundamental Patterns of Knowing.

Figure 1: Fundamental patterns of knowing in nursing (Carper, B. A. 1978).

### **3.1 Barbara Carper's (1978) Fundamental Patterns of Knowing in Nursing Theory**

According to Carper's theory, the first pattern is described as empirical knowing it means the science of nursing, which is descriptive, realistic, and supported to improve abstract and theoretical clarifications. Nurses deliver empiric knowing on practicing throughout the skillful performance of actions carried out by theory, the knowledge that has been learned and gained by research, which is formed through general theories laws that define, explain, and assess various phenomena in the nursing field discipline. The increasing of nursing studies and research have made it achievable for researchers to think about health, then, they could organize, divide, and change various stages in health status and as knowing factors which that might have hurried the changes in health care status. In the late 1950s, nursing science has practiced shifting from expressing phenomena toward theoretical creation of earlier classifying and arranging empirical truths. This has led toward increasing further nursing theories and attention. (Carper, Barbara A. 1978).

The second pattern is described as esthetical knowing, the art of nursing. Nursing art is described as a nursing practice that needs technical, practical, physical skills and knowledge. Those skills have been educated, taught, and learned as a beginner kind of educating and teaching system, that it has long been considered as blame by people who were desired to present nursing such as science making use of empirical knowledge. Here the esthetical experience is described as the knowledge that has been formed throughout the personal expression of pictured possibilities. For example, all nurses have their way of giving care that ought to bring the wished-for and required results. Nurses can obtain esthetical knowledge through empathy, which means the nurses can experience other individuals' feelings and some other human beings' feelings. additionally, understanding others' feelings can help and support nurses to pick up among a great diversity of methods and techniques in the best practical and powerful way of giving care to a specific person. (Carper, Barbara A. 1978).

The third pattern is the component of personal knowledge, which is described as very complicated and hard to master and teach but still very essential to comprehend and teach the meaning and terms of an individual's form of health. Nursing has been taken into consideration such as social progression, which is including, transactions, relationships, and interactions among the nurses and patients. Additionally, the relationships between the nurses and patients by the way of their communication and interaction can have a great outcome and promote the patient's condition and wellbeing. Within the therapeutic relationship, the nurses should not see the patients same as an object simply they have to make a truly personal relationship. Although, the nurses might not be capable to see their patients as individuals until they get to know themselves. (Carper, Barbara A. 1978).

The fourth and last pattern of knowing from Carper's nursing model is ethical knowledge, which means the moral component, the knowledge, and attitudes should be achieved as of an ethical framework containing such as being aware of moral selections and questions. The current health care is having difficulty and having no choice choosing between moral rights and immoral actions, to treat the diseases and improve health. For example, the main goal of rehabilitation of health might be to help the patients to reach the level wherever they can do their activities independently. However, this might affect some conditions and situations when the patients do not learn to deal with social and physical independence whenever needed. Therefore, these two cases of health conflict. For instance, here the pattern of knowing contains, the nurses must understand various types of philosophical positions that are referred to questions like what ought to be wished, what is proper, and what is good. (Carper, Barbara A. 1978). According to Carper, all patterns can be considered as necessary for attaining mastery in the nursing discipline, neither are they conflicting but no one of them lonely ought to be considered enough, the learning and teaching of one pattern do not necessarily mean ignoring or refusing any of the other patterns.

## **4 AIM AND RESEARCH QUESTIONS**

This chapter discusses the objectives and research questions of this study which are related to the use of asthma patient education.

The aim of this study is to investigate the needs of asthma patient education, and how nurses can effectively promote the patient's quality of life.

The author has formulated the two following research questions to meet the aim of the study.

### **The Thesis Research Questions:**

1. What are the needs of asthma patient education?
2. How can a nurse effectively demonstrate teaching strategies for an adult asthmatic patient?

## **5 RESEARCH METHODOLOGY**

In this chapter the author will present and explain a summary of the thesis process, firstly will describe the literature review and the research method. Next the data collection such as searching for the literature and how steps were taken and a list of the ten chosen articles for the study, to answer the research questions. The Content analysis explains information like looking for answers to the research questions and problems this thesis is following. The final section of this fifth chapter is the ethical conduct, which has been taken into consideration to respect the study works and accomplishments that have been done by other researchers and give credit and citation to other researchers' work to ensure the integrity of the investigation.

### **5.1 Literature review as a research method**

A literature review is described as a written summary of books, journals, articles, and other material that defines, assesses, and clarifies the current and past information. It helps the author to determine the nature of the study. In the literature review writing process, the aim is to convey to the reader what knowledge has been organized by the author on the chosen topic interest and what are the weakness and strengths, the literature should be defined by supporting concepts like research problems, objectives, or issue that are discussed. In the literature review, secondary data, and peer-reviewed articles are used. (Fink, Arlene. 2014).

When conducting a literature review here are some central points that should be checked before starting, it's very important for the writer to check who is the author, and what kind of information can be found about the author, has the author written some other articles, books and so on. The position of the author should be taken into consideration in the research procedures, for instance, the author's life and previous experience. Also, it is good to check when the research was done and what type of research, it can show if the study is original, or the information has been used already. When conducting a review, it is very important to check if it is scientific, academic, or popular, it is formal or informal and the design can say a lot about it. (SkillsYouNeed, 2021).

## 5.2 Data collection

The articles were chosen for this study depending on how relevant and suitable they were based on their content relating to asthma and patient education, their goals, topics, and headings, afterwards, the abstracts of the journals were read and assessed carefully to make sure they are relevant to answer the study research questions. The data collection of this research has been conducted to Arcada's library guide and from online sources, such as Cinahl (EBSCO), PubMed, EBSCOhost, ScienceDirect, and Sage. Searching Engines from the year 2011 to the year 2021, and in these databases general search has been done also to get the right articles with the used term, asthma OR patient education OR teaching strategies OR needs. The publication of the articles within the past 10 years.

**Table 1:** The summary of the study search process

Databases	Keywords	Hits	Articles
CINAHL EBSCO	asthma OR patient education OR teaching strategies OR needs	643,294 hits	Picked: 4
PubMed	asthma OR patient education OR teaching strategies OR needs	69,302 hits	Picked: 2
EBSCOhost	asthma OR patient education OR teaching strategies OR needs	390,486 hits	Picked: 1
Sage	asthma OR patient education OR teaching strategies OR needs	3313 hits	Picked: 2
ScienceDirect	asthma OR patient education OR teaching strategies OR needs	66,606 hits	Picked: 1

The academic journal that had been accepted and used for this study; had to meet the inclusion criteria, such as the ones which were written from a nursing perspective, based on the publication date within the past 10 years, from 2011-2021, written in the English language, accessible and free of charge, full text, and peer-reviewed articles. Finally, articles were selected by the author based on how relevant and good quality they were on the subject, and they were relevant to answer the research questions. In table 2 the including and excluding criteria have been listed.

**Table 2:** The inclusion and exclusion criteria of this study

<b>The inclusion criteria</b>	<b>The exclusion criteria</b>
Articles with full text and were written in the English language were included.	Articles were not written in the English language and full texts were excluded.
Articles that had relevant titles and related to the thesis topic and research questions were included.	Articles were not relevant to the thesis topic and research question and had only abstracts been excluded.
Articles were free of charge and peer-reviewed were included.	Articles were not accessible and free of charge and peer-reviewed were excluded.
Articles were related to adults, and they had been published between the years (2011–2021) were included.	Articles that were not related to adults’ asthmatics and older than 2011 were excluded.



### 5.3 Presentation of the 10 chosen articles

1. Espinoza, Luis Enrique, Espinoza, Lucas Enrique, Wilson, ML & Denton, TE, 2018. 'Asthma Predictors Influence on Self-management Asthma Education Status'. *American Journal of Health Behaviour*, 42 (5), pp. 74-84.
2. George, M. and Stoloff, S. 2012. 'Teaching Patients, the Critical Components of Asthma self-management. *Journal of Asthma & Allergy Educators*, 3(1), pp. 10-19.
3. Gardner, Emily A, Barbara M. Kaplan, Pamela Collins, and Hatice Zahran. 2021. 'Breathe Well, Live Well: Implementing an Adult Asthma Self-Management Education Program'. *Health Promotion Practice*, 22(5), pp. 702-713.
4. Hasan Farag, Ekram W Abd El-Wahabd, Nessrin A EL-Nimr, Hoda A Saad El-Din. 2018. 'Asthma action plan for proactive bronchial asthma self-management in adults: a randomized controlled trial'. *International Health*, 10 (6), pp. 502-516.
5. Murray, B., and O'Neill, M. 2018. 'Supporting self-management of asthma through patient education. *British Journal of Nursing*, 27(7), pp. 396-401.
6. Pornthip Kaewsing, Darawan Thapinta, Jindarat Chaiard and Chomphoonut Srirat. 2021. 'Effectiveness of a Self-Management Enhancement Program Among Adults with Uncontrolled Asthma: A Randomized Controlled Trial'. *Pacific Rim International Journal of Nursing Research*, 25(3), pp. 375-388.
7. Shamsuriani. M.J and Norhidayah M.S. 2020. 'Written Asthma Action Plan in Emergency Department Improves Knowledge and Asthma Control among Adult Acute Asthma Patients'. *Medicine & Health, (Universiti Kebangsaan Malaysia)*, 15(1), PP. 218-224.
8. Scullion Jane, 2018. 'The nurse Practitioners' Perspective on Inhaler Education in Asthma and Chronic Obstructive Pulmonary Disease'. *Canadian Respiratory Journal*; pp.1-9.

9. Urrutia Isabel and Resler Gustavo 2020. 'How real patients with severe asthma experience their disease: An ethnographic study'. *Atencion Primaria Practica*, 2(4-5), p.100057.
10. Zarmouh, Anas, 2019. 'Does clinic-based education have a sustainable impact on asthma patient awareness?'. *Libyan Journal of Medicine*, 14(1), pp. 1-6.

#### **5.4 Content analysis**

An inductive content analysis method has been done for this qualitative literature review, the data analysis process included 10 scientific articles chosen based on the relevant content, they have been found with the help of internet sources online like journals, and research peer-reviewed articles which means it is a secondary data. The empirical and observant data has been collected which is relevant to the nursing model, by following secondary data such as textbooks, journals, and scientific articles were used. The data has been revised, the content and information have been evaluated before choosing it and checking the suitability of data. Content analysis is a technique for coding the qualitative data to classify the most and main important themes related to a specific context. (Mayring, Philipp, 2000).

The purpose of the research is to first see the data according to the chosen subject. Afterward, the study material was collected and analyzed, the themes and patterns have been settled. The conclusion of the study has been compared and reflected with the nursing model which has been used to support this literature review. (DeVault Gigi, 2019). Through reading the chosen articles, carefully and reviewing them again to be able to make coding, themes, categories, and subcategories, and have a clear concept of content, then themes were made based on the research questions, the author focused on the same headings, meaning, paragraphs, and sentences to combine as main and subcategories to be more familiar with the data. Also, the codes analyzing process were made relating to the research questions of the study. By developing coding to answer research questions,

Careful and repeated reading was done until the research questions were answered. Eventually, after reading many times, the chosen peer-reviewed articles were analyzed systematically, then finding and summarizing patterns and codes were made in the content, and they were combined to answer the research questions.

## **5.5 Research Ethics**

“Research ethics are the set of ethics that govern how scientific and other research is performed at research institutions such as universities, and how it is disseminated.” (SkillsYouNeed, 2021). The importance of research ethics supports the purpose of the study, they assist to increase and improve knowledge and guide the essential values for teamwork like equity and respect, this is very important since scientific studies rely on collaboration among researchers and groups of people, practicing research ethics assists to be away from wrongdoing, (SkillsYouNeed, 2021). According to Finnish Advisory Board on Research Integrity (2012), The research follows the principles that are approved by the research community, which is, accuracy, integrity and carefulness, such as in conducting, presenting, recording and assessing the results of the research. “The methods applied for data acquisition as well as for research and evaluation, conform to scientific criteria and are ethically sustainable”. Researcher should take into consideration to respect other researchers work and accomplishments that have been done and give credit and citation to their work. This thesis paper has been done according to Arcada’s research writing guidelines, such as references, paraphrasing, citations, and quotations have been done in a proper manner.

## 6 RESULTS

Two research questions are related to the aim of this study. The first research question is: What are the needs of asthma patient education? The second research question is: How a nurse can effectively demonstrate teaching strategies for an adult asthmatic patient?

**Table 3:** The themes: 1. Needs of asthma education 2. Teaching strategies. The themes, Categories, and Sub-categories are presented in the below table.

Theme 1. Needs of asthma education				
Categories	Asthma self-management	Asthma action plan	Psychological factors	Identification of poor asthma control
Sub-categories	Follow up	Instructions	Autonomy	Medications
Theme 2. Teaching strategies				
Categories	Educational intervention	Nurse-led in-haler education	Nurse-patient partnership	Barriers to in-haler adherence
Sub-categories	Knowledge	Demonstration	Communication	Explanation

## 6.1 Needs of asthma education

According to Zarmouh, Anas, (2019), many asthma health care professions worldwide advocate the needs of asthma patient education as a role of holistic asthma self-management, the three vital elements of asthma education are knowledge, inhaler techniques, and adherence. Asthma education is a key recommendation to promote asthma patient well-being, self-management, and health care outcome. An essential rule to keep in mind while educating adult asthmatic patients on inhaler device techniques is to minimize the number of devices and constantly check out the teaching session together with written printed instructions in a simple way to read the leaflets. Nurses have an important role to play in educating asthma patients on the importance of compliance with their treatment and with the correct inhaler techniques. The development of communication in delivering health messages is vital as it affects how information is used and understood to allow people to increase their health possibilities. (Murray. B et al. 2018).

The needs of asthma education must be repeated, assessed, and taught throughout the education process. In the delivery of asthma patient education, nurses must respect the health literacy of their patients and need to be culturally sensitive, additionally, nurses must check up on the education of their patient's messages to match their personal needs. Asthma and practice nurses' specialists are playing a vital role in educating and caring for asthmatic patients, such as evaluating, monitoring, reviewing systematically, and doing follow up assessments, they act as their patient's advocates and recognize their needs, they are responsible for supporting and identifying those patients with asthma to know how asthmatic patients manage their daily conditions by delivering continues and holistic care. The needs of asthma patient educations include two main keys including increasing knowledge of proper inhaler techniques and supporting asthma self-management control by avoiding asthma symptoms and triggers. The partnership is very important while delivering education to asthmatic patient's, education ought to be delivered at first and each following up patient's visit, it is stated that it is very important for nurses to not overwhelm their asthmatic patients with a lot of information all at the same time, it is best if asthma nurses to repeat important messages at every possible patient visits. Asthma education is an essential part of asthma self-management, such as inhaler techniques education and treatment adherence.

The main goal of each nurse is to enhance and encourage their patients to decide on their health care choices. Nurse-patient education is provided by a good effective nurse-patient partnership, which increases inhaler uses abilities and minimizes non-compliant behaviors, such as development ought to have positive clinical results, which might minimize the disease morbidity, emergency departments, hospital visits, and health care costs. Proper education makes asthmatic patients understand their medications, have the basic knowledge of symptoms, and triggers and it teaches them to have a healthy lifestyle, because poor disease-associated communication and education, with health care providers, probably causes asthmatic patients' delayed capability and understanding to control and manage their disease. Without proper education and social support, the agreement on asthma medication can make the asthmatic patients lose confidence and interest in both agreements on medications and health care, which will affect overall health such as being absent from work or school, increase emergency department or hospitals and be on sick leave which can cause harm and will encourage the patients to the dilemma of negativism concerning actions to take to enhance condition. When asthma patients are aware of their asthma, they know they need asthma education about disease knowledge and being aware and have better effective communication with their asthma nurses and educators from the starting point. (Urrutia. I et al. 2020) & (Hasan. Farag et al. 2018) & (M. George et al. 2012) & (Espinoza, Luis Enrique et al.2018) & (Murray. B et al. 2018.) & (Scullion Jane, 2018) & (Shamsuriani. M.J et al. 2020).

### **6.1.1 Asthma self-management**

Asthma self-management education teaches asthmatic patients various subjects such as recognizing symptoms and signs of asthma attack, how to take medications correctly, recognizing and preventing environmental irritants and factors, and looking for medical care as needed. (Espinoza, Luis Enrique et al. 2018). The study argues that asthma self-management education, is not optional further, that asthma patients are already managing their daily disease, it is the healthcare professional responsibility to make sure that their self-management approach is the proper one. (Murray. B. 2018).

Asthma self-management is described as learning practical skills and knowledge needed to live with a good quality of life, even though to have a chronic disease. Asthma self-management is defined as duties that people must take on to live with this chronic health disease. The effectiveness of asthma self-management relies on having a good education and understanding of asthma action plan, how health care professionals and asthma nurses deliver the quality of asthma education is supremely important to help asthma patients to understand their condition and promote their skills for excellent health care. Asthma self-management with a conducted written asthma action plan enhances asthma control with fewer asthma attacks, emergency department visits, fewer days off work, and minimizes reliever medication intake. The main goal of asthma management is to minimize exacerbations with good asthma symptoms and control and lower asthma-associated death. Usually, it contains emotional and social control, a well-informed and organized asthma education supported by nurses is vital to reach effective asthma self-care management. (Jane Scullion.2018) & (Gardner, E.A. et al. 2021) & (Pornthip. K et al. 2021) & (Urrutia. I et al. 2020) & (Hasan. Farag et al. 2018) & (George. M et al. 2012) & (Shamsuriani. M.J et al. 2020).

Self-management is related to medical treatment, but it lets the asthma patient make a partnership with their asthma health care providers, this includes people having responsibilities for their wellbeing and health, also to cope with any incurable chronic diseases. It is the using process of having control of everyday behaviors and enhancing needed skills to achieve a suitable level of psychosocial function and proper quality of life and outcome. Maintainable self-management efforts need essential motivation which is a challenging matter for both asthma nurses and patients it requires an advanced level of basic motivation is reflecting on someone's competence, connection to perform self-care tasks, and autonomy. Asthma self-management includes avoiding asthma triggers, self-monitoring, adhering to prescribed asthma controller medications, recognizing and reacting to asthma symptoms, though many adult asthmatics are not adherent to asthma treatment, which they might not recognize regular symptoms, and health care usage showing poor asthma control and can have a better quality of life, for adults patients, asthma self-management programs are effective in minimizing asthma symptoms and health care costs. An effective asthma self-management care must be carried out in matching every single patient to the proper medication, here are three essential components within this decision, such as medication, device, and patient and all three are matching one another. (Jane Scullion.2018) & (Gardner, E.A. et al. 2021) & (Pornthip. K et al. 2021) & (Urrutia. I et al. 2020) & (Hasan. Farag et al. 2018) & (George. M et al. 2012) & (Shamsuriani. M.J et al. 2020).



### **6.1.2 Asthma action plan**

Asthma action plan is adopted by regular health care professional reviewers that minimize half of the risk of emergency visits, hospitalizations, and unplanned consultations. Some recommendations to enhance self-management is to have a personal asthma action plan and all asthmatic patients must be offered asthma self-management education. Patients with asthma action plans are four times less possibly going to the hospital with an asthma attack which enhances asthma control and patients' quality of life, a personal written action plan is the main tool in managing asthma conditions like a chronic disease. Is designed of personalized written instructions, to promote the asthma patient's skills, confidence, and knowledge, and the main time flaring up self-management to attain well asthma control, it is made jointly by the physician or asthma nurse and patient it helps the patients to have control over their condition everywhere. It consists of asthma warning signs and symptoms, emergency care, like phone numbers, locations, instructions, a list of asthma triggers and in need medications such as doses, schedule, and names of the medication which is based on asthma symptoms and peak flow meter.

The Asthma action plan includes three dividing traffic signal zones, green, yellow, and red, which helps the asthma patient and nurse to adjust medication doses and decision making to keep the asthma patient under control. Which educates patients on how to make instant changes to their asthma treatment depending on asthma peak flow meter and symptoms. it created to help asthma patients to recognize early signs of poor asthma control and take the right reaction for asthmatic patients having a plan is vital by understanding how to use it to enhance asthma control. (George. M et al. 2012) & (Shamsuriani. M.J et al. 2020) & (Hasan. Farag et al. 2018) & (Espinoza, Luis Enrique et al.2018).

### **6.1.3 Psychological factors**

For some asthmatic patients, their asthma symptoms might be triggered by psychological factors like stress, anxiety, and depression. Asthma triggers are related to adverse psychological triggers and asthma attacks, particularly which can be identified as poor asthma control. The nurses must know that when asthmatic patients are exposed to asthma triggers might cause them to remember the effect of earlier triggers which affects the asthma patient's overall health, asthma nurse's role to be involved psychologically also throughout the treatment and educate their asthmatic patients, and they must take care of their asthmatic patient's mental health status as well. Right instructions and education can minimize asthma symptoms severity and enhance the management of asthma disease because anxiety and stress can cause asthma attacks and poor asthma control. (Murray. B et al. 2018) According to Urrutia. I et al. (2020), Some psychological factors like health beliefs can be influencing the effectiveness of asthma control and self-management, because of the lack of studies concentrated on the life practice of asthmatic patients and universal understanding of their attitudes and awareness towards asthma disease yet is missing.

#### **6.1.4 Identification of poor asthma control**

Patients with uncontrolled asthma regularly are not having correct self-management behaviors for instance the lack of skills and knowledge to cope and know asthma symptoms, improper use of the inhaler and usually are not able to know and prevent exacerbating agents, additionally to achieve asthma control four components of care are needed such as education in partnership, control of environmental factors, controls of comorbidity conditions that affect medications assessment and monitoring. Patients with poor asthma control cause regular hospitalization and emergency department visits, the main key to managing and having good control over asthma is minimizing emergency department visits, constant asthma education with follow-up and adherence to medications is vital to control asthma effectively. Additionally, asthma self-management with guiding personal asthma action plan, that enhances asthma control and reduces asthma attacks emergency department visits, minimize reliever medication taken few days off work adult asthma patients with uncontrolled asthma may affect the community if different ways such as efficiency in working places and to premature death and health care costs. The education of asthma self-management supports people reach control their asthma which is critical for the wellbeing and overall health of people with asthma. Adult asthmatic patients can control their asthma by being active in self-care management and taking part effectively with their asthma nurse and health care providers. (Gardner, E.A. et al. 2021) & (Shamsuriani. M.J et al. 2020) & (Pornthip. K et al. 2021).

## 6.2 Teaching strategies

According to the studies, the errors of inhalers devices techniques are common among asthmatic patients, when the patients use their inhalers improperly, it can be their lungs have not reached the medicine or got a little bit of it, which it can be caused by many factors such as the inhaler has not been shaken before using it or failing to correctly locate the inhaler or when the patient does not hold his or her breath after the inhalation of the medicine or the patient's failure to inhale or exhale correctly. Inhalers are the foundation of asthma treatment, they enhance symptoms and patients' quality of life, they save patients' lives. (Scullion Jane, 2018) & (Murray. B et al. 2018) & (George. M et al. 2012).

Asthma nurses should demonstrate and perform different inhaler techniques repeatedly and effectively such as teaching their patients' inhalation medications skills. Asthmatic patient care can enhance with continuous and regular monitoring of inhaler devices techniques, the Studies show that incorrect use of inhalers leads to higher health care costs, minimized clinical outcomes, medication wasted. Incorrect inhaler techniques are related to rising severe asthma, lacking asthma control, and a higher possibility of hospitalization. Educational programs recommend that all asthmatic patients must receive education on their medication dosages and inhaler devices techniques without the proper inhaler technique, patients' benefit is minimized, hence, the inhaler technique that has been used by asthma patients must be reviewed every time for best health benefits. It is found that many health care professionals or educators and their adult asthmatic patients do not have enough asthma knowledge and are lacking advanced skills to be able to educate their patients effectively and achieve the goal. (Scullion Jane, 2018) & (Murray. B et al. 2018) & (George. M et al. 2012).

The effectiveness of delivering teaching strategies relies on asthma nurses having enough knowledge and skills to help and teach their patients to understand their condition to be well educated and have a good quality of life. The teaching of asthma self-management includes teaching asthma patients about medication behaviors, like the usage of personal written asthma action plans to support short period relief and everyday controller treatment. It delivers instructions on monitoring behaviors like symptoms and triggers prevention, peak flow meter, and to minimize exposure these all together can minimize attacks and promote the patient's quality of life. Teaching asthma patients about self-management is always delivered one on one over several visits, it allows asthma patients to increase skill master and knowledge overtimes. Inhaler devices are the main foundation of asthma self-management hence good and proper inhaler techniques are very important when medication intakes are effectively delivered. (Scullion Jane, 2018) & (Murray. B et al. 2018) & (George. M et al. 2012).

A lot of health care providers do not have enough time, or they are not paid for clinic visits, many health care professionals or educators and their asthmatic patients do not have enough asthma knowledge and are lacking advanced skills to be able to teach their patients effectively and achieve the goal and they fail to consult their asthma patients to other health care professionals those are having comprehensive knowledge foundation such as certified asthma nurse educators, respiratory therapist, pulmonologist or allergist. Every asthma patient must be offered optimal medication, to be skilled in using their inhaler devices properly to increase the effectiveness. Having the proper inhaler devices for asthma patients, which is not a simple task, a lot of factors must be taken into consideration such as cognitive impairment, age, manual dexterity, inspiratory flow rate, ease of use, medication needed, allowing options and personal preference, with inhaler devices techniques. Health care professionals more often do not review inhaler techniques and at the same time when they are doing it, they are not aware of the proper inhaler technique for the devices, in both when they prescribe or review. When health care professionals are not able to demonstrate, proper inhaler techniques, they are unable to effectively, give instructions to the patients or correct their errors. (Scullion Jane, 2018) & (Murray. B et al. 2018) & (George. M et al. 2012).

### **6.2.1 Educational intervention**

Some asthma clinic-based educational and teaching interventions, consisting of leaflets, educational posters, and video teaching demonstrations such as inhaler techniques use, have been designed to answer approaching questions, correct mistakes and misunderstanding, the demonstration of teaching techniques of inhaler devices, assessment and correction of the errors were done by the asthma clinic nurse, the study shows that the most effective educational methods were the group of asthmatic patients who had received the video and written leaflet education and had a better outcome with managing their asthma symptoms and control over other groups, who were provided by one of two options, there was a significant difference in all other teaching groups. The effectiveness of demonstrating teaching strategies for adult patients contains various topics for the nurses to teach and educate asthmatic patients such as taking their asthma medications and using their inhalers correctly, calling on medical care as needed, how to recognize and identify avoiding environmental irritants, triggers, factors and teach them how to recognize their asthma attacks, symptoms, and signs and using asthma written action plan, afterwar they can minimize asthma healthcare costs such as emergency room, doctor visits and additionally they can promote the asthmatic's patients quality of life. (Espinoza, Luis Enrique et al.2018) & (Murray. B et al. 2018) & (Zarmouh, Anas, 2019).

### **6.2.2 Nurse-led inhaler education**

Nurses play a vital role in inhaler education by having good communication with their patients, and when they can work in partnership to reach the goal and manage the disease. Asthma nurses play an essential role in teaching inhaler techniques, for nurses to deliver effective teaching they should have good communication skills, answer upcoming questions, Nurses and asthma patients have a good partnership, help the education and teaching process, how the disease is managed, nurses are the main key to check inhaler devices techniques, communicate with asthma patient to enhance adherence. The study found the main four principles for delivering effective teaching inhaler techniques which are: Know it, it means when nurses learn the required techniques and understand how different devices are working then the patients using technique will be succeeded. Show it, it means when nurses successfully demonstrate to asthmatic patients how inhaler devices are working. Teach it, it means when nurses teach their pat proper techniques. Review it, it means when asthma nurses are continuously assessing their patients' techniques while using the inhalers and correcting wrong techniques by asthmatic patients, for nurse-led inhaler education to reach these four principles, nurses must be "trained to train". The great quality of teaching inhaler techniques is effective in the prevention of asthma symptoms and management, (Murray. B et al. 2018) & (Scullion Jane, 2018).

### **6.2.3 Nurse-patient partnership**

According to Hasan. Farag et al (2018), the program of expert asthma patient self-management is a basic approach for asthma patients with chronic disease depends on the nurse and patient partnership includes two fundamentals: joint patient or collaborative care nurse decision making and self-management or deliver patient education such as enhance communication with health care professionals, problem-solving skills, increase abilities in using medical sources, minimize asthma symptoms severity, satisfaction and enhance patients quality of life. Through effective communication, nurses' other health care providers can make a good relationship with their asthmatic patients such as supporting them to manage the disease and answering questions. By working in partnership, it gives nurses a main key to figuring out poor asthma control and delivering improved care for those patients who are at high risk. One more key role of an effective nurse-patient partnership is the chance for asthma nurses to provide patient education, a vital part of that is the inhaler technique, a good relationship between asthma nurse and patient including patient education they are considered vital to reach effective asthma self-management. The relationship between Asthma nurses and patients is the main foundation that makes an effective asthma self-management program that asthmatic patients, agree with, understand, and is adherence to medications. When patients are involved in their chronic disease and participating in activities that keep and enhance health, managing and monitoring asthma signs and symptoms, and dealing with the effect of the disease functioning, emotions, social interaction, and its adherence to asthma treatments. (Scullion Jane, 2018) & (George. M et al 2012).



#### **6.2.4 Barriers to inhaler adherence**

Asthma nurses must understand and familiarize themselves with the cause behind asthma patients' nonadherence to asthma treatment and the key obstacles that can affect inhaler technique, nonadherence to asthma therapy can be intended or unintended. When it comes to unintended the result can be, poor inhaler technique, asthmatic patients' forgetfulness, insufficient understanding of given instructions, all of them could be opposed by enhanced and effective patient education by asthma nurses or other health care professionals. Asthma nurses must have effective communication with their patients to have a better understanding of their concerns, preferences, and motivations. Through careful consultations and clarification of the significance of adherence to reduce exacerbation and increase disease control will be necessary to defeat this kind of barrier. Nurses must discuss the expectation, concerns, and ideas of the asthma patient or caregiver, since if patients are not involved with their health care providers, but then they unlikely to use their inhalers, patients are more likely to use their inhalers effectively when they are comfortable with their devices and know the uses, hence they must be engaged in their choice of asthma inhaler devices.

Adhering asthma patients with chronic diseases to medications are very challenging, though an asthma action plan is done correctly with the patient, might support enhanced adherence by minimizing confusion with various treatment options, and reminding asthma patients to take their medications on time and properly. Nonadherence to asthma medications might be intentional when asthma patients decide not to take prescribing medications after seeing the perceived need for taking their medications regularly. Non-intentional, which involves asthma patients forgetfulness, misunderstanding or not being able to afford medications costs. (Scullion Jane, 2018) & (Hasan. Farag et al. 2018).

According to Murray. B et al (2018) ineffective inhaler device technique leads to decreased clinical results, higher health care costs, poor asthma control, the severity of asthma symptoms arise and wasting of medications a bigger possibility of hospitalization. The study found and recommended that all asthmatic patients must get education on their medication dosage and inhaler technique. The Misconduct of inhaler techniques are very common in asthmatic patients; hence, patients must master their adherence to make sure good conformity with their prescribed medications. Asthma nurses play a critical role in educating asthmatic patients on the meaning of compliance with their proper inhaler uses and medications. Additionally, it is important to remember that because of behavioral and lifestyle changes asthma patients may minimize the effect of disease on their lives, possibly minimizing the need for costly medication.

According to Espinoza, Luis Enrique et al (2018), adult asthmatic patients who have access to healthcare, have enough knowledge and education of care about asthma medications, they manage to monitor their asthma symptoms and use their inhalers properly, which supports promoting self-management. As it shows older adults have lesser adherence to medication regimens because lacking adherence might come from inadequate, health literacy and access to asthma self-management education which are usually delivered by primary care physicians. According to George. M et al. (2012), at least asthma patients must understand the two roles of self-management in asthma medications, such as controller medications are used every day continuously to attain and keep control of constant asthma. Rescue medications are used to avoid exacerbations and treat asthma. Low adherence keeps going even though in clinical trials while asthma patients obtain asthma medications, have their adherence monitored and payment for participation. According to Urrutia. I et al. (2020), emotional distress and some other factors related to the asthma disease management and diagnosis which influences the quality of asthma care that had been known such as having poor medication adherence and incorrect inhaler uses, also it shifts the severity of asthma. Some attempts consisting of educational sessions, provided by other health care professionals and nurses have been known to enhance knowledge limitations, adherence, and inhaler device uses related to clinical results like hospitalization, emergency department visits reduce asthma symptoms, and medication intake. (Zarmouh, Anas, 2019).

## 7 DISCUSSION

The aim of this study is to investigate the needs of asthma patient education, and how nurses can effectively promote the patient's quality of life.

This literature review explored the concept of asthma patient education needs and nurses' role in delivering health education and demonstrating teaching strategies for adult asthmatic patients. Even though asthma is an incurable and preventable disease, but proper education is vital for asthmatic patients to manage and control their asthma symptoms and conditions related to the disease and enhance patients' quality of life.

The study findings and the used theory for the study indicate the same results which are Barbara Carper Fundamental Patterns of Knowing model, which focuses on knowing, learning, and teaching of nursing and existing knowledge that is applicable in nursing practice. Those ways of gaining knowledge would be, applied, tested, and organized in the nursing profession. Carper states that the obtained knowledge brings foundations for the nursing practice and understanding of those patterns of knowing are the main keys of the learning and teaching of nursing. Here the knowledge consists of structure, forms, patterns, and understanding, these are the keys for those being a part of nursing practice. It provides a chance to the nurses to get a hold of the significance of understanding and getting the questions that arise and find the right information and knowledge to help the nurses to answer the questions. Carper's nursing model identifies four patterns of knowing, these are including Empirical knowing, esthetical knowing, personal knowing, and ethical knowing. (Carper, Barbara A. 1978)

According to the finding, the most important parts of asthma education are knowledge, inhaler techniques, and adherence. The main goal of each nurse is to enhance and encourage their patients to decide on their health care choices. Additionally, through asthma nurse educators, the patients' needs are met, by working in partnership, such as taking care of patient's mental care during the teaching process, providing proper knowledge, effective and open communication, and given up to date instructions and information, which is an important role in minimizing asthma symptoms, effective, and appropriate inhaler teaching techniques are vital for asthma patients to manage and promote their quality of life, the asthmatic nurse must give to the patient good clarification about the

disease, treatment choices and medication adherence, these are the nurses' clinical parts caring of asthmatic patient in holistic ways.

Asthma Education is described as a continuous process that must be combined into asthma management and evaluated at each visit such as intellectual levels, have self-confidence in the disease management, learning styles, the readiness for behavior-changing all these must be reviewed regularly while education the asthmatic patient. The asthma nurse educator must have experience and knowledge of educational values and principles together with asthma care. Asthma education can decrease asthma symptoms as a disease and morality. (Wanger, Christine Waldman, 2008).

Based on one of the study findings, there are four main principles of delivering effective teaching inhaler techniques which are: know it, show it, teach it, and review it. Know, it means when nurses learn the required techniques and understand how different devices are working then the patients using the technique will be succeeded. Show it, it means when nurses successfully demonstrate to asthmatic patients how inhaler devices are working. Teach it, it means when nurses teach their patients proper techniques. Review it, it means when asthma nurses are continuously assessing their patients' techniques while using the inhalers and correcting wrong techniques by asthmatic patients, for nurse-led inhaler education to reach these four principles, nurses must be "trained to train".

Study results indicate that the effectiveness of demonstrating teaching strategies for adult patients contains various topics for the nurse to teach and educate adult asthmatic patients such as taking their asthma medications and using their inhalers correctly, calling on medical care as needed, how to recognize and identify avoiding environmental irritant, triggers and factors and teach them how to recognize their asthma attacks, symptoms, and signs and using asthma written action plan based on peak flow meter measurements, afterwar they can minimize asthma healthcare costs such as emergency room, doctor visits and additionally they can promote the asthmatic's patients quality of life.

## 8 CONCLUSION

Based on the findings of this literature review, in the agreement of several studies chosen for this study, the author found out that, a personal written asthma action plan is a main effective tool in asthma self-management and condition as a chronic disease. Moreover, the proper inhaler techniques are powerful in asthma self-management. The effectiveness of asthma self-management relies on having proper education and understanding of the disease. Good knowledge of both asthma patients and nurses about the disease is needed to control conditions, which relates to better conformity and asthma self-management, patient education is one of the vital prevention strategies and complications minimizing asthma-associated mortality and morbidity rates.

In addition, the study results show that educating adult asthmatic patients can be the process of promoting patients', knowledge, skills, behavior, attitudes, enhancing patient quality of life, and making adult asthmatic patients active and more confident in self-care management. Delivering teaching strategies relies on asthma nurses having enough knowledge and skills to help and teach their patients to understand their condition, to be well educated, and have a good quality of life and a better outcome.

Moreover, based on the study, asthma nurses teach healthcare resources, such as inhalers devise techniques, environmental factors improvement, and medications intakes. Asthma nurses work with their patients in partnership to create and teach personalized written asthma action plans and during the teaching process is vital. According to the study findings, asthma self-management personal action plan teaches asthmatic patients various subjects such as recognizing symptoms and signs of asthma attack, how to take medications and use inhalers correctly, recognizing and preventing environmental irritants factors, and seeking medical care as needed depending on peak flow meter device measurement. Additionally, study findings indicate that asthma nurses must understand and familiarize themselves with the cause behind asthma patients' nonadherence to asthma medications, which affects inhaler technique, nonadherence to asthma therapy can be intended or unintended. When it comes to unintended the result can be, poor inhaler technique, asthmatic patients' forgetfulness, insufficient understanding of given instructions, all of them could be opposed by enhanced and effective patient education by asthma nurses or other health care professionals.

## **8.1 Recommendation**

This study is aimed to educate adult asthmatic patients therefore, the author would like to recommend adding some teaching methods regarding asthma education for nurses and adult asthma patients into the nursing field. Additionally, to provide visual education and up to date information, and written teaching instructions about the proper usage of medical inhaler devices and asthma self-management, which will help asthma patients and nurses to work effectively in partnership to achieve their asthma education, self-management, and treatment goals to control the disease because for adult asthmatic patients these two teaching tools are vital since individual learn and prefer differently.

## **8.2 Limitations of this study**

Even though the aim of the study was met, and research questions have been answered, but the author faced some difficulties and limitations in searching for the right articles. There is limited information on teaching and educating for nurses and adults' asthmatic patients, therefore, one of the main limitations was difficulty finding enough and relevant articles, that dealt with asthma education for adults. Mainly of found articles were dealt with asthma in children, quantitative, inaccessible, or old studies, Therefore the author did not have other choices such as choosing articles to specific countries or publication years; hence, the study was done worldwide.

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