



Nurses' role and their knowledge in caring for severe asthma patients

A literature review

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Abstract	
<p>The main purpose of this thesis was to conduct a study on nurses' role and their knowledge in caring for severe asthma patients. The objective of doing the literature review is to comprehend the level and kind of evidence in line with severe asthma. The research questions that guided the study were: 1) What role does a nurse play in improving outcomes of patients with severe asthma? 2) What knowledge should a nurse have in supporting patients with severe asthma during asthmatic therapy? To respond to these research questions, an existing literature review was done for the study. The rationale for the literature review was based on the facts of severe asthma. Through the inclusion and exclusion criteria, research articles that had been peer reviewed and published as scientific journal within the past six years qualified for selection. The study didn't find any notable deviations from the methodological approaches that were taken. The outcomes of the research reveal that various support tools such as different means of communication and models of intervention in addition to the normal asthma care would raise the adherence and self-management of severe asthma, resulting in improved severe asthma therapy. Developing an improved understanding of psychosocial factors such as depression and emotional stress tend to improve the outcomes of severe asthma as compared with the usual care. Severe asthma nurses strive to improve the management of symptoms and to maximize the quality of life of patients.</p>	
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1 INTRODUCTION

Severe asthma may become controlled by sufficiently assessing, supporting and also treating at the primary care level and at specialist centers. Severe asthma nurses assume very important roles in valuing, observing and teaching asthmatic patients in primary level, secondary level and also tertiary level care (Chung, 2015).

The interest of pursuing this topic arose from the fact that severe asthma has a substantial burden for adults. Severe asthma being the commonest long-term medical condition intrigued me to try to understand deeper on the roles and knowledge of severe asthma nurses. For example, the prevalence of severe asthma in Finland is approximately at 10% of the adult population (Breen, 2016). Of this population, about five to ten per cent of them have severe cases of severe asthma which has highly adverse effects on their life's quality. Severe asthma also has radical consequences in terms of healthcare resources while its exacerbations might become fatal for the society (Chung, 2015).

The introduction chapter of this thesis offers a brief outline of the roles that severe asthma nurses play in managing severe asthma and the knowledge that they need in executing their duties. The background chapter explains extensively about severe asthma subtypes and severe asthma management. The theoretical framework is a reflection of Florence Nightingale theory of environment. The aim and objectives chapter is a reflection of the objective of the research and also the research questions utilized for investigating and discussing the study. Under methodology chapter, the data collection and content analysis is properly explained. Research results are summarized under the findings chapter while the discussion chapter clarifies the results. Finally, the conclusion chapter presents a summary of the study and also highlights limitations for this study.

2 BACKGROUND

Severe asthma is a chronic inflammatory illness that affects the lungs. The airways of the patient tend to be extremely responsive to some triggers such as animal furs, smoke, dust, mites, pollen and pollution. An exposure to such triggers stimulates bronchoconstriction and inflammation of the airway which result in a continuing penetration of inflammatory cells, accumulation of inflammatory cells and secretion of pro-inflammatory cytokines (Chung, 2015). A continuous airway inflammation will end up thickening the smooth muscle of the airway which causes a rise in bronchoconstriction and reveal all asthmatic signs and symptoms. Such signs are amongst excessive formation of mucus, gasping, wheezing and coughing (McDonald, Kennington & Hyland, 2019).

Severe asthma nurses use certain optimal treatments such as oral corticosteroids. Severe asthma tends to manifest in various ways including patients having constant symptoms while others tend to experience rather sudden and also unexpected exacerbations that call for emergency care.

Other patients may have a mix of consistent signs and regular exacerbations (McDonald, Kennington & Hyland, 2019).

The Nordic countries have experienced an increase in physician-diagnosed severe asthma cases over the past years. Adults living in Helsinki and suffering from severe asthma have shown an upward trends in terms obeying medical prescriptions and instructions (Kainu et al., 2015). For instance, there has been a significant adjustment in smoking behaviors after recommendation from the severe asthma nurse. This has resulted in reduction in most symptoms that are prevalent with asthma such as recurrent wheezing and breathlessness apart from the common colds amongst patients (Kainu et al., 2015).

For most patients, severe asthma is normally managed quite effectively upon the inhalation of corticosteroids and inhaled β_2 -agonists. This is for prevention and relief of symptoms respectively. A marginal number of these patients may have severe asthma that is managed poorly no matter the prescription of having taken medication. Such kind of patients need extra care therapies. Referral to a severe asthma specialist becomes necessary when there is a need for assessing and evaluating the suitability of individualized therapy (Medeiros et al., 2018).

2.1 Asthma subtypes

Practicing nurses must understand that severe asthma is split into two different subtypes where the first is difficult severe asthma and the other is severe refractory asthma. According to Foster et al., (2017), those patients suffering from severe refractory asthma tend to show various symptoms that are still badly controlled no matter the ability to stick to their ideal treatment. Those with difficult asthma show bad ability to stick to treatment that can become caused by different reasons such as difficult psychosocial factors, continuing contact with triggers and also pitiable comorbidities control. All these factors contribute to current symptoms and exacerbations. Other patients could show many signs that are attributed to asthma, but really no impartial evidence may exist for a genuine uncontrolled disease (McDonald, Kennington & Hyland, 2019).

Severe asthma impacts on people have been documented in many reports. Such reports show the descriptions given by patients in effect to treatment and also exacerbation that they go through in their daily lives. Some common exacerbations are: extremely restricted physical and also socio activities, cases of anxiety, depression, fatal asthma attacks and corticosteroid-linked effects and discrimination, overlooking opportunities at work or school and financial challenges.

According to Foster et al., (2017), nurses must understand that such patient categories tend to present the same symptoms. An in-depth and proper assessing by teams of specialists would be necessary for identifying the present causes of poor asthma management. A nurse would then define an effective personalized management strategy for the patient. It is very crucial to have a timely identification of the patient suffering from severe asthma. Referral to specialist services as well would become necessary for developing phenotypes and customized routine for treatment that attracts huge benefits to patients and the society at large.

2. 2 Severe asthma management

Professional severe asthma services offer detailed and complex evaluation for asthmatic patients. Severe asthma management call for systematic approaches for the patients. Correct diagnosis, sufficient support and accessibility to proper severe asthma management is critical (McDonald, Kennington & Hyland, 2019). Even though every specialist service would have a specified pathway, every service extended is normally commissioned under standard National Health Service contract which ensures a rather comparable kind of patient care. Nurses may utilize even a multidisciplinary approach always (McDonald, Kennington & Hyland, 2019).

A nursing team may be composed of up to two severe asthma respiratory consultants. Such teams may be a mix of a nurse specialist, dietitian, physiotherapist, pharmacist, speech therapist, allergy specialist or a clinical psychologist (Gibeon et al, 2015). These multidisciplinary teams play a role of evaluating patients who have been referred based on their asthmatic phenotypes and other correctly individualized plans of treatment (McDonald, Kennington & Hyland, 2019). Those patients who are managed by specialist asthma practitioners have shown improved outcomes such as lowered burden of steroids, reduced admission to hospitals and also improved

quality of life (Gibeon et al, 2015). Some of the advantages for patients care may not become overrated.

Upon an evaluation being conducted to a patient, their severe asthma subtype will then become ascertained. This process follows their devotion and concordance with the treatment that is being checked. A customized plan for treatment would then be drafted by a specialist therapist based on the features and comorbidities of the disease. Most therapies are usually readily available for those patients having severe refractory severe asthma. The specialist centers offer such kind of solutions making it very significant to refer those qualified patients under a timely manner to enhance their accessibility to treatment (McDonald, Kennington & Hyland, 2019).

3 THEORETICAL FRAMEWORK

The environmental theory by Florence Nightingale was chosen since it is very relevant to the study. Environmental theory was utilized since it is very applicable to the nursing profession. The theory makes seven different assumptions in relation to the nursing profession. This entire theory propagates that disease occurrence and exacerbation is a natural law. This theory defines nursing as an act to utilize the environment of patient to assist patient to recovery. The nurse role in patient recovery is to alter the environment to gradually create the optimal conditions for the body to heal itself. Nurses may do the right thing through manipulation of the environment in line with the natural laws with the objective of attaining perfect health. This scenario shows that nurses may become helpful in facilitating the prompt recovery of patients. Nurses should use their knowledge of medical education in maintaining patients alive and even out of danger (Medeiros et al., 2018).

3.1 Environmental theory

According to Medeiros et al., (2018), the environmental theory has seven key assumptions: nursing is a calling, natural laws, nursing is attained through alteration of the environment, humans can attain perfection, nursing is an art as well as a science, nursing is different from medicine and nursing need a particular educational base.

This thesis utilizes the whole of environmental theory that discusses four main concepts: the environment, person, health and also nursing. Environment emerges as a fundamental concept in this theory. Both person and health fits into this shadow. Given the fact that patients are individuals, this comes with several psycho-physical determinants of their healthcare. On the other hand, nurses are considered as a different entity since they also have their factors meant for environmental analysis (Medeiros et al., 2018).

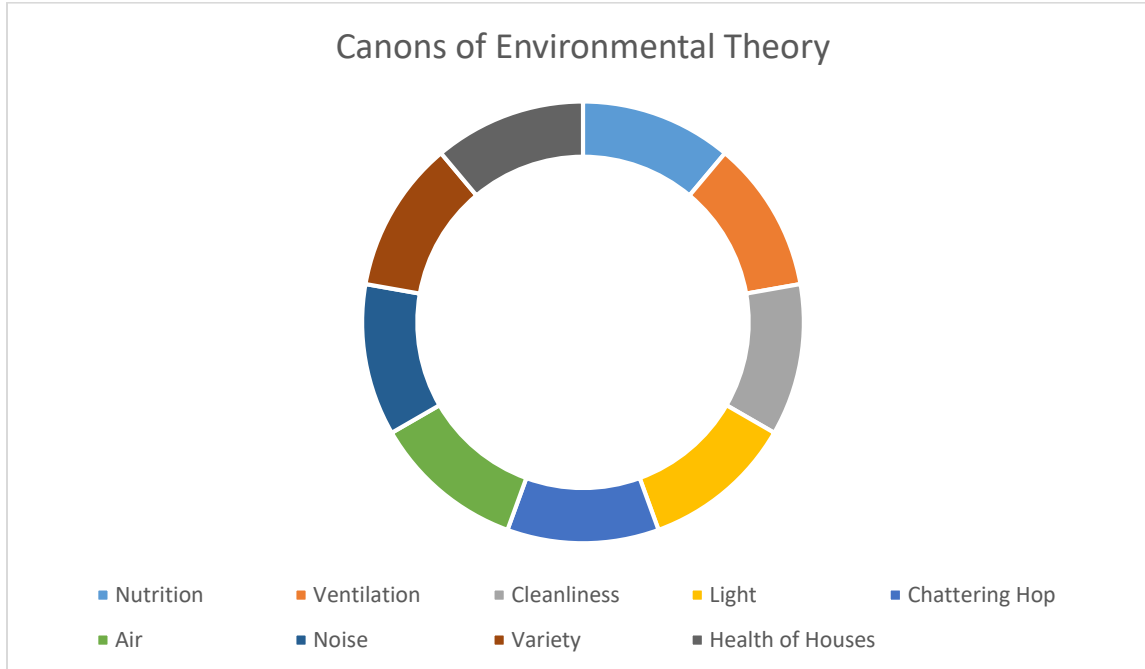


Fig 1. Canons of Environmental Theory (Medeiros et al., 2018)

3.1.1 Inputs

The environmental theory focus on the environment by interpreting the external conditions and also the kind of influences affecting the life and growth of the organism. Through the theory the ability to prevent, suppress or even contribute to the disease and perhaps death has been assessed (Trafford, 2018).

Environment theory considers disease as a restoration of the health process. The theory propagates that the function of the nurse is balancing the environment to save the life energy of the patient. The theory also urge the nurse to prioritize the delivery of stimulating environment for the growth of the patient's health. Environment theory has the conception of human being as members of nature. The theory claims that people will have their natural defenses becoming influenced by either healthy or unhealthy environment (Trafford, 2018).

Nightingale is seen addressing the provision of different factors in terms of keeping the environment under a favorable position that facilitates the healing and also the healthy living processes. Some of these factors include ventilation, cleaning, lighting, noise, smell, feeding and heat under the recovering process brought about by nature but not preventable (Trafford, 2018). Nursing has a concern on the environment which arose as a foundation for professional nursing later in the nineteenth century. Currently, humanized care is based on the environmental control surrounding the patient. Humanized care emerges as part of the relationship and interaction with the environment where one can be found (Trafford, 2018).

Nightingale propagates that ambience is amongst the many devices for developing humanized care. Other devices that could be added to humanized care include hosting with rates of risk, collegiate management, trainings, matrix support, ambience projects, reference groups, open visits and developing collective procedures for monitoring and evaluating humanization actions (Trafford, 2018).

3.1.2 Adaptive processes

Adaptive procedures include communication, decision making, professional socialization and actualization. Every one of these procedures serve in ordering, evaluating and adjusting the inputs. When a nurse and patient can communicate with or to one another, the entire system will gather information that would be important for the output stage (Karim, 2015).

Nightingale theory claims that the objective of nursing is to offer help to patients in terms of keeping their vital capacity and also satisfying their needs. Nightingale shows that nursing is surely a non-healing kind of practice whereby the patient is put under the best condition ever as per the action of nature (Karim, 2015).

This perspective maintains that the nursing care is based on environmental hygiene. Hygiene is the fundamental concept and characteristic of Nightingale works (Trafford, 2018). Nightingale lists certain tasks that nurses must undertake to help the sick people and most of which are relevant to this thesis.

Nursing theories has a critical significance going by the practice foundation. It appreciates the knowledge of the profession and also the kind of relation existing with performance of nurses. Nightingale theory critically analyses nursing bearing in mind that it helps in enhancing validity and proper information meant for development. The theory is relevant in all aspects starting with its significance, boundaries, concepts, variables and influence to the nursing practice (Karim, 2015).

3.1.3 Outputs

Nightingale presents environmental theory as the fact that causes disease and non-rehabilitation of patients to be linked to the environment of the patient. Most such an environment is unhealthy. Nightingale advocates for essential factors that ensures there is sanitation of residence through clean air, water, effective drainage, lighting and disease prevention amongst other factors. Nightingale believes that offering the right environment brings the difference in terms of patient recovery. This is the underlying perception of the environmental theory. Nightingale was popular for her actions that attracted innovative results in terms of treating patients (Karim, 2015).

4 AIMS AND OBJECTIVES

The aim of this study was to understand the roles that nurses play and knowledge that they need to administer therapy for severe asthma patients. To meet the aims, these two research questions have been posed:

- 1) What role does a nurse play in improving outcomes of patients with severe asthma?
- 2) What knowledge should a nurse have in supporting patients with severe asthma during asthmatic therapy?

5 METHODOLOGY

This study followed a literature review model. The study gathered and searched for present information on severe asthma. The purpose of the literature review was to identify existing gaps in the present knowledge of the topic. Thematic analysis is the method adopted for data analysis (Maguire & Delahunt, 2017). This choice was largely due to the clarity of data needed for the study. Therefore, research findings arose from the constantly dominating themes from the articles adopted for the study.

5.1 Data collection

The thesis adopted scientifically and scholarly reviewed journals which were retrieved from online sources. These online sources were largely nursing databases such as EBSCO, Pubmed, ScienceDirect amongst others. In retrieving these journals, some of the key phrases typed included asthma, severe asthma and asthma nurses. Every abstract from the journals were then assessed critically to know their relation to the topic in a bid to realize their relevance to the research questions for this study.

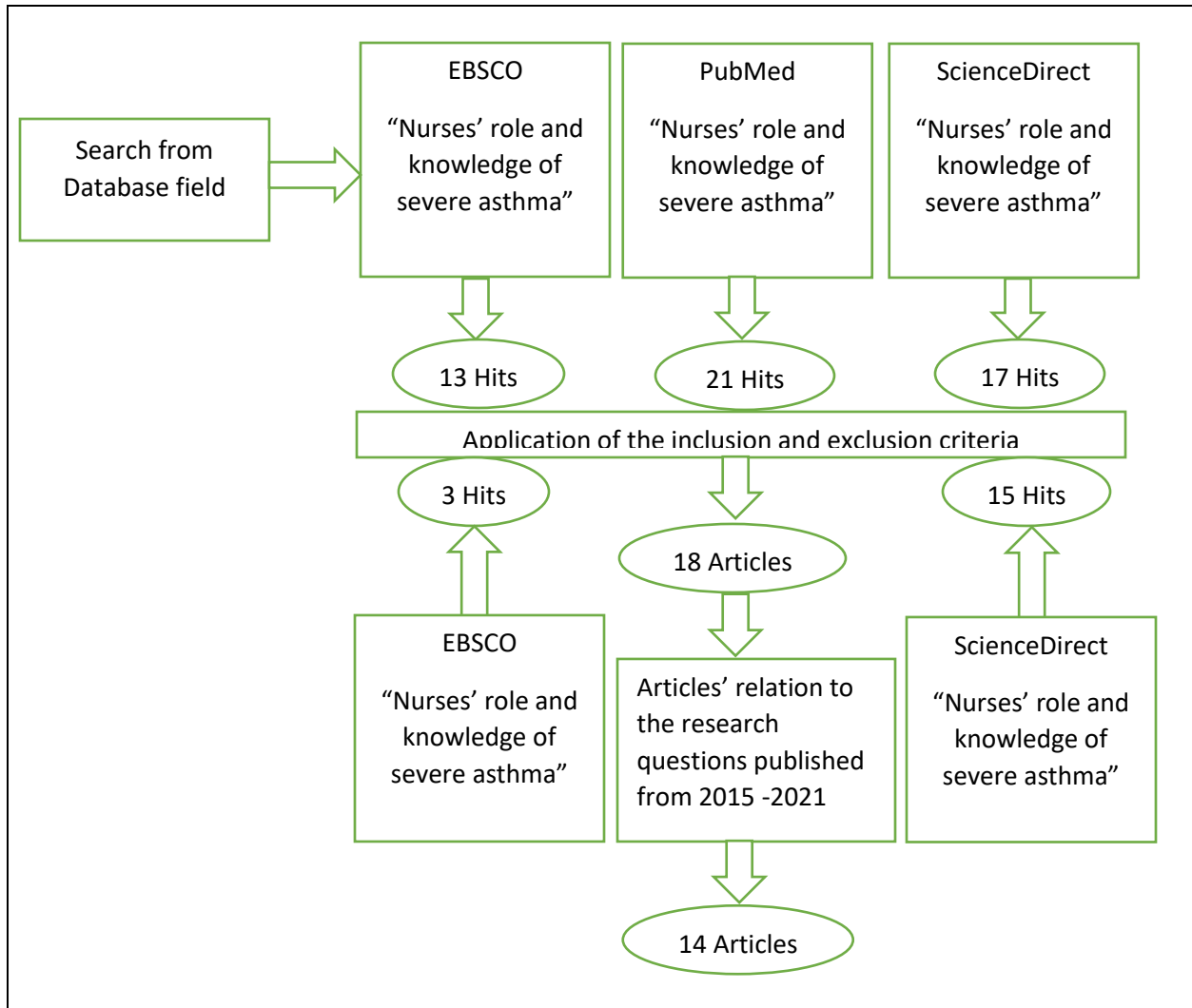


Fig 2. Flowchart reflecting the data collection and selection of 14 articles

5.2 Inclusion and exclusion criteria

For a journal to qualify for adoption by this study, it had to meet the inclusion and exclusion criteria. Articles that qualified for the inclusion criteria were the peer reviewed, published and scientific journal from the last six years, from 2015 to 2021. Thorough investigations were conducted to find out if the journal fit the criteria. Freely available journals fitted into the inclusion criteria while paid-for articles were not adopted for this study.

Table 1: Inclusion and Exclusion criteria of the study

Inclusion criteria	Exclusion criteria
Articles written in English language	Articles not written in English language
Articles bearing key words	Articles that are irrelevant to the topic
Peer reviewed articles	Articles not peer reviewed
Freely available articles	Paid-for articles
Articles from 2015 to date	Articles older than 2015

5.3 Presentation of the literature

The following 14 articles and journals were chosen based on the inclusion and exclusion criteria above:

1. Barnes, P.J., 2015. Biochemical basis of asthma therapy. *Journal of Biological Chemistry*, 286(38), pp.32899-32905.
2. de Graaff, M.B., Bendien, S.A. and van de Bovenkamp, H.M., 2021. ‘Like a fish on dry land’: an explorative qualitative study into severe asthma and the impact of biologicals on patients’ everyday life. *Journal of Asthma*, pp.1-9.
3. FitzGerald, J.M., Lemiere, C., Loughheed, M.D., Ducharme, F.M., Dell, S.D., Ramsey, C., Yang, M.C.L., Côté, A., Watson, W., Olivenstein, R. and Van Dam, A., 2017. Recognition and management of severe asthma: a Canadian Thoracic Society position statement.
4. Fingleton, J., Travers, J., Williams, M., Charles, T., Bowles, D., Strik, R., Shirtcliffe, P., Weatherall, M., Beasley, R., Braithwaite, I. and Dooney, N., 2015. Treatment responsiveness of phenotypes of symptomatic airways obstruction in adults. *Journal of Allergy and Clinical Immunology*, 136(3), pp.601-609.

5. Macedo, P., Hew, M., Torrego, A., Jouneau, S., Oates, T., Durham, A. and Chung, K.F., 2019. Inflammatory biomarkers in airways of patients with severe asthma compared with non-severe asthma. *Clinical & Experimental Allergy*, 39(11), pp.1668-1676.
6. McDonald, V.M., Kennington, E. and Hyland, M., 2019. Understanding the experience of people living with severe asthma. *Severe Asthma (ERS Monograph)*. Sheffield, *European Respiratory Society*, pp.16-29.
7. Medeiros, M.L., de Oliveira, M.G., Tavares, E.G., Mello, G.C., Anhê, G.F., Mônica, F.Z. and Antunes, E., 2020. Long-term methylglyoxal intake aggravates murine Th2-mediated airway eosinophil infiltration. *International immunopharmacology*, 81, p.106254.
8. Menzella, F., Lusuardi, M., Galeone, C. and Facciolongo, N., 2017. Bronchial thermoplasty and the role of airway smooth muscle: are we on the right direction?. *Therapeutics and clinical risk management*, 13, p.1213.
9. Nannini, L.J., 2020. Treat to target approach for asthma. *Journal of Asthma*, 57(6), pp.687-690.
10. Newell, K., 2015. Co-creating personalised asthma action plans. *Nursing Times*, 111(18), pp.12-15.
11. Niven, R.M., Saralaya, D., Chaudhuri, R., Masoli, M., Clifton, I., Mansur, A.H., Hacking, V., McLain-Smith, S. and Menzies-Gow, A., 2016. Impact of omalizumab on treatment of severe allergic asthma in UK clinical practice: a UK multicentre observational study (the APEX II study). *BMJ open*, 6(8).
12. Ray, A., Raundhal, M., Oriss, T.B., Ray, P. and Wenzel, S.E., 2016. Current concepts of severe asthma. *The Journal of clinical investigation*, 126(7), pp.2394-2403.

13. Tiotiu, A., 2021, January. Applying personalized medicine to adult severe asthma. In *Allergy & Asthma Proceedings* (Vol. 42, No. 1).
14. Thomson, N.C., 2019. Recent developments in bronchial thermoplasty for severe asthma. *Journal of asthma and allergy*, 12, p.375.

5.4 Data analysis

The data analysis process involved analyzing the 14 articles adopted. The thematic analysis technique was adopted for data analysis which followed a systematized way of classification, evaluation and finally unbiased verification of the data (Maguire & Delahunt, 2017). Some of the six steps involved in this process were: *data familiarization, coding, finding themes, reviewing themes, defining themes* and *concluding the write-up*. The process is not a linear but flexible in that the author progresses with the analysis process conveniently (Maguire & Delahunt, 2017). Both the manifest and latent meanings were present in the texts. The authors of these articles managed to explain the apparent and fundamental meanings.

Phrases, words and paragraphs that related to one another in terms of contents and contexts were adopted. Particular marks were placed in attempt to derive meaning and classify the content together. The markers were codes that had the same content placed into various categories.

Themes were derived as sequences of categories that managed to come up with main elements during the content analysis process. All the 14 articles were first read through then a repeat of the entire reading was also done as their meaning units were highlighted using codes to manifest the contents of the text. Highlighted codes followed the relationship of the keywords for the research and also allowed for easier identification.

During the familiarization process, a thorough reading of the material was done until total knowledge of the content was attained. While familiarizing with the content of these 14 journals,

a summary of the literature was undertaken in a bid to develop a thematic synthesis. Searching for themes was done by analyzing the codes that had been created. They were then sorted into prospective themes namely: roles of a nurse and knowledge of a nurse. All the relevant codes were combined to give the subthemes as shown in the tables below. For instance, from the tables below, two or three articles might have been combined to form two varying themes (Maguire & Delahunt, 2017).

Through the guidance of the 14 or less articles chosen, the thesis found out the following answers as shown in the tables and their explanations below. The numbers under the unit of analysis represents the alphabetical order with which the 14 articles were listed. The 14 articles contributed to finding out the following themes and subthemes as shown in the tables.

Theme	Role of a nurse					
Major categories	Causes of poor asthma management	Educational intervention	Holistic asthma management	Mental health care	Practical exhibitions	Public awareness
Minor categories	Investigation, education, management	Communication, decision-making, intervention	Assessment, Consulting, Prevention	Intervention, Control, depression	Demonstration, Handling, Repetition	Communication, insights, policies and guidelines
Unit of analysis	1,2,6	6,4,7	1,4	4,13	2,13	1,2,9

Table 2: Theme of nurses' role, categories and sub-categories used in data analysis

Theme	Knowledge of a nurse						
Major categories	Therapy	Key components	Types of asthma	Ethical dilemmas	Communication	Internet use	Telephone coaching
Minor categories	Treatment, medication, denial, communication	Decision-making, communication, intervention	Subtypes, Personalized treatment	Respect, policies, awareness, advocacy	Interaction, Instruction, Advise	Education, Searching, Explaining	Coaching, concentration
Unit of analysis	14,11, 13, 9	5, 10, 8	8, 10, 14	3, 14, 10, 5	3, 5	3,14	5, 14, 12

Table 3: Theme of nurses' knowledge, categories and sub-categories used in data analysis

5.5 Ethical considerations

There is a clear awareness on the risk arising from unsafe data happening in qualitative research. The data that has been adopted for review were attained from reliable databases such as PubMed, Science Direct, EBSCO amongst other. Citations and references are done in the right manner. Plagiarism was considered clearly in that paraphrased quotes and direct quotes have been referenced and cited. The literature review utilized data from secondary sources that have no sensitive information of any participant of the study. In accounting for objectivity, the personal reflection from external sources were factored in the introduction, body and conclusion chapters. The national guidelines called for a reliance on Finnish National Board on Research Integrity TENK (Breen, 2016). Ethical considerations followed included an advance scrutiny and also evaluation of the research plan to follow the laid-out procedures in discipline of science. Special emphasis was put on prevention of harm that this research might cause to the research subjects (McDonald et al., 2020).

6 FINDINGS

There were two research question that related to the objectives of the study. The first was about the role of a nurse in improving outcomes for patients with severe asthma. The second question was about the knowledge that a nurse should have in the administering therapy to asthma patients.

6.1 Role of a nurse

The general role of a nurse in caring for severe asthma patients may become conceptualized in different ways. However, severe asthma nursing may be augmented and integrated with different practice models. There are three roles for a severe asthma healthcare professional. These roles involve mainly investigation and education (Haahtela et al., 2017).

Prospective real-world data have since suggested a rise in work and education attendance and even employment status due to effectiveness of severe asthma nurses (Haahtela et al., 2017).

This Finnish nursing program involved in treating a patient with severe asthma called for a nurse to play different roles which are described below:

6.1.1 Identification of poor asthma management

Under the investigation aspect, a severe asthma nurse assist in assessing and evaluating the phases involved in the nursing process (Barnes, 2015). The study found out the following answers where nurses play as investigators: severe asthma nurses timely identify patients with severe asthma then refer patients with severe asthma for phenotyping and personalized treatment. According to McDonald et al., (2020), severe asthma nurses conduct cautious environmental health histories in a bid to find trends of exposure, illnesses and injuries then raise awareness on environmental concerns that tend to influence health. Severe asthma nurses work hand in hand

with interdisciplinary teams and agencies in determining if the exposure of the environment affects people's health. They also engage in research to discover and manage environmental exposures which affect human health. Finally, severe asthma nurses work with both public and private institutions in performing risk assessment (de Graaff, Bendien & van de Bovenkamp, 2021).

6.1.2 Educational intervention

For a long while now, severe asthma nurses have played the role of educating patients. As educators and advocates, these roles emerge just as interventions. The framework of nursing brings in a wide scope of actions such as working with the community on aspects of public policy amongst others (McDonald et al., 2020). Some of the areas which they teach patients include: changing their dressing, potential side effects of medication and significance of dieting and exercising to maintain good health.

Nurses educate patients, workers and also communities on the potentially adverse impacts of getting exposed to environmental hazards and the right manner of eliminating such exposure. Such kind of education shared with patients are known by public agencies and specialists of environmental health as hazard communication (Medeiros et al, 2020).

According to Fingleton et al., (2015), severe asthma nurses have the ability of developing this role through the provision of data on creation of safer homes, institutions and places of work.

Nurses are role models who may perform their practice while living in safe ways environmentally. They minimize unnecessary kind of exposures towards chemicals by conducting routine functions in ways that lowers injury. Nurses are educators who may speak at community gatherings and serve as community activists on environmental and human health.

Nurses can further participate in communicating risks for public health agencies (Medeiros et al., 2020).

6.1.3 Holistic asthma management approach

Theoretically, the aspects of human health on environmental issues may be isolated and even tackled under traditional medical systems (Maguire & Delahunt, 2017). As advocates for patients, severe asthma nurses play some roles such as: conducting initial and also follow-up assessments, acting as advocates for patients, offering continuity of care to the patients and enhancing a holistic approach towards patient management (Fingleton et al., 2015).

In practice, issues may unfold under fully charged social and political contexts. Both nurses and other healthcare providers need to assist patients in locating and securing their access to specialist services meant for health issues linked to environmental hazards. Severe asthma nurses may further be consulted to contact people, agencies and also organizations existing outside the healthcare system. These functions happen when they work on behalf of patients and communities in altering the hazardous factors and preventing future issues of health (Barnes, 2015).

6.1.4 Public awareness

By analyzing the articles, the study found out that the public need more information about severe asthma. This calls for severe asthma nurses to raise more public awareness in developing healthier living environment (Barnes, 2016). Additionally, this would further raise the existing understanding towards proper support of health care needs for severe asthma patients. In fact there were cases of severe asthma minors and caregivers reporting problems with medication.

Some wondered a lot about the right way of using inhalers. Others would worry even about the side effects of medicine that led to lesser adherence in taking severe asthma medications.

Certainly, this calls for severe asthma nurses to increase the level of public awareness (de Graaff, Bendien & van de Bovenkamp, 2021).

In studying severe asthma in children also, the study found out that there is a need of prescribing preventive medication to optimally manage severe asthma symptoms. However, to achieve this treatment results, patients should take regular medications and also avoid triggers. However, due to inadequate medication therapy, a significant problem still lingers in severe asthma children. It is the duty of an asthma nurse to keep raising awareness (Nanninni, 2020).

6.1.5 Mental health care

Tiotiu, (2021) argue that psychological intervention is yet a key health education need for several asthmatic patients and also their caregivers. Severe asthma patients may show depression symptoms that impact on their respiratory parameters. Those asthmatic adult have a common issue with symptoms control and depression. Depression may end up affecting the ability of the patient to solve issues and may result in anxiety Fingleton et al., (2015). Anxiety is linked with the rise in emergency visits that also impact on the quality of life of the patient. Kids with severe asthma show psychological issues coming from their parents while caregivers also suffer from huge pressure once their patients are at a high risk. Therefore, it is the role of severe asthma nurses to intervene psychologically during the treatment of their patients (Tiotiu, 2021). Severe asthma nurses must monitor and also care for the mental status of their patients too.

6.1.6 Practical exhibitions

According to de Graaff, Bendien & van de Bovenkamp, (2021), severe asthma nurses being healthcare professionals tend to use special demonstration devices such as inhalers, peak flow meters and also holding chambers. They have to practically teach their patients, their families and also their caregivers in the proper way of using every essential device correctly. That correct use of inhalers is necessary for the severe asthma patients to survive. Therefore, careful attention should constantly be paid while teaching such skills to patients and their caregivers. Therefore, those step-by-step instructions given by the nurse to patients and caregivers on handling devices or situations are important. To ensure that that patient or caregiver has understood, the nurse would request them to repeat every single step to ensure that they have properly mastered them (Tiotiu, 2021).

6.2 Knowledge of a nurse

According to Nannini, (2020), a severe asthma nurse should have different skills in administering therapy to severe asthma patients. This include: understanding the use of various medication, understanding the major components of severe asthma treatment and understanding the different subtypes of asthma.

6.2.1 Therapy

Skilled severe asthma nurses who work with community teams including matrons seek to prevent hospital admissions of severe asthma patients. They do this by managing long-term severe asthma conditions. Upon properly administering this medication, the patients register higher levels of satisfaction for the service that they offer to the community as opposed to if hospital admission was done. For a severe asthma nurse to administer medication in the

community level, she should have the knowledge of different kinds of medication available in containing severe asthma (Thomson, 2019).

According to Niven et al (2016), because severe asthma is a lifelong condition, a severe asthma nurse must understand different medication and how to administer them. Some of the ways of the knowledge needed here include developing a self-management plan. Upon identifying the right plan, severe asthma nurses will have a duty of evaluating and also systematically reviewing the best ways with which patients maintain their conditions (Tiotiu, 2021). A checklist may assist severe asthma nurses in identifying those patients with difficulties in attaining sufficient severe asthma management. Once the areas of concern have been identified then it becomes easier to put measures of control in place such as through: stepping up medication, assisting patients to have the right inhaler techniques and assisting patients to do away with severe asthma triggers through having the right support and advice. Other measures include following up with those patients who fail to attend their appointments, raising the frequency of reviews and developing personalized action plan with patients (Nannini, 2020).

6.2.2 Key components

Those patients who are under the management of specialist severe asthma nurses reveal improved results such as lesser steroid burden, lesser hospital admissions and improved quality of life (Macedo et al., 2019). This is because severe asthma nurses understand the main components in the treatment of severe asthma. This knowledge has life-changing impacts on the kind of care given to patients. Additionally, nurses must understand the main components of treating severe asthma such as educating patient on severe asthma management. Basic skills here involve how to correctly use peak flow meters for effective identification of triggers that raises the quality of life in the end (Menzella, et al., 2017).

Some of the key components that community nurses must understand in managing chronic health conditions include having a severe asthma action plan. Those with an action plan reveal that they are four times lesser likely to get hospital admissions due to severe asthma. The plans include: the patient name and the date of devising the plan, the date of the next severe asthma review, the contact details of the nurse and care-giver even out-of-hours services and how to use the plan and making it accessible to patient and family (Newell, 2015).

According to this action plan, there is an easy-to-use traffic light color-coordinated system. Green color show daily severe asthma care where the severe asthma nurse would write in the personal best peak flow value for the patient (Macedo et al., 2019). Other items written may include the preventer and the reliever inhalers such as colors and also puffs of every take just like other medication for severe asthma management. This plan will also advise the patient to have a nurse review when it is due.

6.2.3 Different types of asthma

According to Menzella et al., (2017), a nurse should understand the different asthma subtypes because this is what will allow them to come up with a personalized treatment plan.

Additionally, this will ensure that patients will get the best possible treatment. Understanding various asthma subtypes will also assist in conducting clinical trials and minimizing acute fatal or near-fatal exacerbations while raising symptom control for patients. Clear knowledge of asthma subtypes will result in maximizing the quality of life of patients. This specialist skill of a severe asthma nurse would further contribute to the current research about the effectiveness of specialist treatment under real-world clinical setting which assist in having an evidence base usable for informing treatment decisions (Newell, 2015).

There are two subtypes of severe asthma which are difficult and severe refractory. Asthma nurses must understand that those patients suffering from refractory asthma show symptoms that are controlled rather poorly even if they adhere to optimal treatment (Thomson, 2019). Difficult asthma pertains to those patients having a poor adherence to treatment due to varying reasons such as complex psychosocial elements, continued exposure to triggers and wanting control of comorbidities. All these reasons add to the prevailing symptoms and exacerbations. Other patients have symptoms which may be attributed to severe asthma without an objective evidence of any genuinely uncontrolled disease.

6.2.4 Ethical dilemmas

Severe asthma nurses can encounter ethical dilemmas associated to resistance from political and also community forces of various types. Those clients whose health is at a high risk may maintain silence of the hazard just because they fear losing their jobs should the hazard be known publicly. For instance, migrant workers may not be willing to risk their income for any issue linked to health and safety. Community leaders as well may deem commercial development to be more significant than the resulting pollution of water, air and noise (FitzGerald et al., 2020).

Another concern is about the confidentiality of healthcare information found from the workforce. This is very important in cases where nurses are threatened by their managers should they not relinquish particular health and medical data. Companies have a right on knowing if their employees have the physical and mental ability of performing a job but employees as well have that right of keeping particular information of their medical diagnosis private. Such situations tend to create conflicting loyalties amongst nurses. Nurses should be clearly guided through professional codes of ethics which are specific to their area of practice (Thomson, 2019).

Individuals have the right to understand critically their actual and prospective health exposure to come up with informed decisions about protecting their health and those their families (Newell, 2015). For instance, in the event of a toxic spill occurring in a community or a chemical toxicant exposure at the place of work, the health professional will have an ethical obligation of information various parties of the prospective consequence of such exposure.

Those in leadership may in some cases assume a paternalistic kind of posture since they may believe that they understand what is best in terms of disclosing information. Such an attitude has the ability of placing some populations in great risk such as lack of access to health care and prospective harm due to continuous exposure (Thomson, 2019). For instance, those living the closest to a spill, particularly the vulnerable ones such as kids and pregnant women have a bigger risk of suffering from adverse health effects as compared to other communities. These individuals must be given full access to information of the substances that they are potentially exposed to. Therefore, nurses must be constantly knowledgeable of prospective hazards and the urge to act autonomously in the supply of the right information based on professional and ethical responsibilities.

Ethical dilemmas are likely to arise at the course of undertaking research on environmental health concerns (Thomson, 2019). For instance, control groups may become identified and denied entry just for the purpose of the study. Many other concerns on environmental health intervention reveal the best way of protecting confidentiality and attaining meaningful and informed consent (Macedo et al., 2019).

6.2.5 Communication

Insufficient communication and absence of the right relationship between professionals and patients led to the poor medical instruction that faced patients. Other severe asthma patients

reveal that healthcare providers did not have sufficient time to even explain their detail case of severe asthma (FitzGerald et al., 2020). Very brief interaction between patients and doctors when seeking emergency care is a huge concern. Such need for more information about severe asthma is the duty of the severe asthma nurse to keep raising public awareness. There must be a sound communication knowledge for nurses if they seek to understand their patients further (Macedo et al., 2019). Through sound communication with patients, severe asthma nurses may comfortably advise patients on healthy living, exercising and good health in general.

6.2.6 Internet use

According to Thomson (2019), the healthcare sector has taken videos as easier ways of educating patients. For severe asthma nurses to easily and clearly explain the disease and treatment options to asthmatic patients, they ought to understand how to use internet and social media in finding the right content. Videos, for instance, are very sound ways for explaining treatment options to the elderly and kids. This is because they offer clearer visual ways of showing precisely how inhalers are used. Such videos could be tailored particularly for every target groups. Having cartoon characters explaining severe asthma to sick kids is a simpler language for explaining severe asthma at large to them. Additionally, such content could be reviewed again and again which makes them very relevant in educating the elderly and children about severe asthma disease. A severe asthma nurse must have such basic internet knowledge (FitzGerald et al., 2020).

6.2.7 Telephone coaching

Several educational patterns exist with which severe asthma patients, caregivers and families may be taught from a distance. Telephone coaching is one helpful criteria. To manage this, a severe asthma nurse must have sound telephone coaching intervention skills in educating about

severe asthma self-management behaviors (Thomson, 2019). This kind of coaching normally takes lesser than ten minutes in full length while the level of conversation would be based on the degree of concentration and also willingness to be contacted again for upcoming coaching calls. It is the duty of the severe asthma nurse to have sound telephone coaching skills if they seek to get positive responses. Severe asthma nurses must be delighted to search for skills on clear explanations of severe asthma by interacting fully with a physician and reading through useful severe asthma information (Macedo et al., 2019). Additionally, the severe asthma nurse must have sound knowledge about severe asthma home care including asthma action plans and the correct utilization of daily controller medications and the significance of monitoring daily severe asthma symptoms (Ray, 2015).

7 DISCUSSION

The aim of the study was to find out the roles that severe asthma nurses play and knowledge that they need to administer therapy for severe asthma patients. The study explored the concept of roles and knowledge that nurses need in offering therapy to severe asthma patients. From the references adopted, the authors found out that the findings were in tandem with Florence Nightingale framework that environment factors such as person, health and nursing impact on severe asthma.

Severe asthma nurses must understand that there are two different subtypes: difficult severe asthma and the other is severe refractory asthma. The role of the severe asthma nurse is to identify and care for all patients suffering from severe asthma symptoms. They are the ones to help them to stick to their ideal treatment. Difficult asthma patients show bad ability to stick to treatment that can become caused by different reasons such as difficult psychosocial factors, continuing contact with triggers and also pitiable comorbidities control. However, it is the role of severe asthma nurses to help them administer therapy.

From the thesis findings, nurses ought to act as educators and advocates for patients and their caregivers throughout their illness trajectory. There are three roles for a severe asthma healthcare professional. These roles involve mainly investigation and education. Severe asthma nurses play an integral part in severe asthma management chain loop and also on patient health education. The findings reveal that a severe asthma nurse assists as an investigator through assessing and evaluating different phases involved in the nursing process (Barnes, 2015).

As investigators severe asthma nurses timely identify those patients with severe asthma then refer them for phenotyping and personalized treatment. Additionally, severe asthma nurses conduct cautious environmental health histories to find trends of exposure and illnesses. They

then raise awareness on environmental concerns influencing health. Severe asthma nurses work hand in hand with interdisciplinary teams and agencies in determining if the exposure of the environment affects people's health (Barnes, 2015).

The results of analyzing these articles under review corroborated Nightingale environmental theory in that severe asthma nurses engage in research to discover and manage environmental exposures which affect human health. The findings reveal that treatment should be reviewed every three months to attain therapy and also slowly step down. The inhaler technique must be reviewed by nurses annually. Additionally, severe asthma nurse prescribers for respiratory patients within the community must have improved and also extended ways of accessing treatment. Severe asthma nurses should have the ability of prescribing improved job satisfaction and also self-confidence of the nurses while lowering unnecessary admission to hospital and raising patient satisfaction. Therapy management and treatment reviews assist in maintaining convenience (Gibeon et al, 2015).

Severe asthma nurses are guided by Nightingale's theory of environment which is applicable purely under clinical settings. The theory guides health care professionals in increasing the wellbeing of a patient. It also serves in restoring the health of a patient and altering the surrounding. In all these processes, nurses serve as the change agents making a difference in the health of the patient (Medeiros et al., 2018).

Severe asthma nurses work best in empowering people to become their own advocates. On the other hand, their scientific knowledge and experience in talking to scientists, physicians and many other authorities tend to equip them to become very effective advocates. The best situations where they act involve where they feel that they are not intimidated. This is a great skill especially whenever advocacy pertains to communicating with the public health agencies

and other private sectors. Inquiries made by citizens may often meet the response that had failed to address their particular concerns (Gibeon et al, 2015).

Through communication skills, the severe asthma nurse gets the ability of finding various levels of interconnectedness to the environment. This influences the opportunities set for the prevention of health issues and management of the overall cost systems that can become invaluable (Medeiros et al., 2018). Through good communication skills, severe asthma nurses can adopt a low-literacy approach in improving the effectiveness of severe asthma action plans because those plans that utilize difficult language brings confusion. In essence, self-explanatory plans are very effective once verbal communication has been made clear enough with the patients and the color-coordination has appealed nicely to young patients.

Unlike the stereotypic impression, severe asthma may attack at any age group but normally it starts right from childhood (Gibeon et al, 2015). Severe asthma diagnosis may depend on the physical exam of the physician, the symptoms and also the pulmonary function tests. Additional tests done by severe asthma nurses may be undertaken if need be. Most young patients are diagnosed as per their historical information. Severe asthma nurses understand that spirometer test is used for kids younger than five years. For those children around five years but cannot conduct spirometry tests, exhaled nitric oxide tests and impulse oscillometry can be done.

Artificial intelligence has recently brought the possibility of analyzing patient's datasets (Gibeon et al, 2015).

From the findings, understanding various asthma subtypes will also assist in conducting clinical trials and minimizing acute fatal or near-fatal exacerbations while raising symptom control for patients. Clear knowledge of asthma subtypes will result in maximizing the quality of life of patients. This specialist skill of a severe asthma nurse would further contribute to the current

research about the effectiveness of specialist treatment under real-world clinical setting which assist in having an evidence base usable for informing treatment decisions (Newell, 2015).

8 CONCLUSION

Practicing and respiratory nurses have a primary role in caring for patients with severe asthma (Medeiros et al., 2018). These professionals are uniquely positioned to identify and even support severely asthmatic patients. They offer specialist treatments beyond the administration of oral corticosteroids. Specialists are the only one who can access severe asthma services thereby timely referral is important for patients who have poorly managed severe asthma. At the specialist centers, multidisciplinary teams normally undertake intensive assessment in characterizing the subtypes of asthma for patients. This lets them to have individualized plans for treatment. Additionally, they ensure that such patients get the best possible treatment while accessing clinical trials and minimizing their exacerbations. Specialists strive to improve the management of symptoms and to maximize the quality of life of patients.

8.1 Future recommendations

Adequate management of severe asthma is a question of developing a common culture such that everybody understands their role and importance of severe asthma therapy. Despite the lack of evidence-based ways of preventing asthma in the first place, this implies that prevalence would still be high but it is possible to improve severe asthma detection and management. Specialist severe asthma nurses must strive further to develop individualized treatment plans.

8.2 Limitations

Even if the study attained its goal of finding solutions to the research questions, there were several limitations that followed in searching for these answers. There is less information on the techniques available for nurses when they do not have the knowledge of administering therapy. The scope of the study was limited by the availability of data for use in analysis.

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