

SELF-MANAGEMENT IN PATIENTS WITH ASTHMA BRONCHIAL

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ABSTRACT

The burden of asthma affects the patients, families, society in terms of lost work, lessened quality of life, hospitalizations, and death. Continuing adult asthma morbidity is evident in the increasing number of outpatient and emergency visits to asthma. Many factors described as possible causes for the increased morbidity and mortality includes poor patient understanding of the disease process in appropriate medication use, non adherence with prescribe preventive medication, and poor inhaler technique. Because of the asthma impact of rising severity, morbidity and mortality for human being, self-management is an important things developed for asthma patients to improve self-care and maintain healthy life. Many of people are associated with self-management, particularly patients, caregivers, health care providers, and policy providers to make a planning partnership in caring asthma patients. The self-management that involve four components namely assessing and monitoring asthma severity and asthma control, education for partnerships in care, control of environment factors and comorbid condition, and medications. The design of study was descriptive explorative for three patients in Songkla Nagarind Hospital, Hatyai, Thailand. The aim of study was to describe the phenomenon of self-management in patients with asthma by using four questionnaires that consisted of ASQ, ACQ, ACECC, and MARS. Data collection divided into two parts was pretest and posttest, except for asthma severity only for pretest because its focused to identify level of asthma severity. The study was analyzed by using descriptive statistic with mean (X) and standard deviation (SD). The result of the study showed that asthma severity for mild, moderate, and severe levels for patients 1, 2 and 3. Moreover, asthma control was moderate level, control of environment factor and comorbid conditions was moderate level, and medication adherence was moderate level as well. These components could be improve in asthma care and significantly reduce asthma trigger and statistically can be viewed as effective cost ways to maintain quality of life in asthma patients.

Keyword: self-management, asthma bronchial, patients' admitted, hospital

INTRODUCTION

Asthma is a chronic disease that has been increasing in prevalence and approximately 22 million in U.S and currently affects 7.2% adults. The burden of asthma affects to the patients, families, society in terms of lost work, lessened quality of life, hospitalized and death. Continuing adult asthma morbidity is evident in the increasing number of outpatient and emergency visits to asthma. Factors that related to possible causes for the increased morbidity and mortality included poor patients understanding of the disease process in appropriate medication use, non-adherence with prescribe preventive medication and poor inhaler technique (Ingorreta, Leung, Berkbigler, Evan, & Liu cited in Schaffer & Yarandi, 2007).

According to American Academy Allergy, Asthma & Immunology (2007) self-management to asthma patient involved good partnership between patients,

caregivers, health care providers, and health care policies. The self management that involve four components: assessing and monitoring asthma severity and asthma control, education for partnerships in care, control of environment factors and comorbid condition and medications. These components could be improved in asthma care and significantly reduce asthma trigger and statistically can be viewed as effective cost ways to maintain quality of life in asthma patients.

National Institution of Health, National Health, Lung and Blood Institution, as cited in Schaffer & Yarandi (2007) stated one of way that more important to improving self management in asthma is required specific knowledge about asthma condition to maintaining asthma control. Koch (2003) stated important knowledge are included pathophysiology of asthma, purpose of different types of medication, management of environmental asthma

trigger, identification and management of symptom that represent asthma exacerbations and use self monitoring and medication delivery devices. In other hand, recent evidence indicates that asthma self-management education is effective in improving outcomes of chronic asthma. Guidelines specify essential components of asthma management, including of patient education, objective monitoring of symptoms, and avoiding asthma triggers.

Lack of knowledge, support systems such as family, society, financial and environment supports, and psychological conditions are common factors poor of self management in patients with asthma and will be worsen trigger asthma. Many of patients reported that poor of self-management because of lack of knowledge and poor of support systems regarding patient's illness. The most important ways to practice patient's self management by providing appropriate of health educations considered will increase in patient's self management and decrease morbidity and mortality in patients with asthma, so that will increase quality of life of the patients as well.

Objective of the Phenomenon

To describe the phenomenon of self-management in patient with asthma

Assessment Tools

Patient's self-management with asthma was assessed by using assessment tools adopted and developed from American Academy of Allergy, Asthma & Immunology (2007) which is there are four components of asthma self-management are those asthma severity, asthma control, control of environmental factors and comorbid conditions, and medication adherence.

Asthma severity Questionnaire (ASQ), measurement tool derived from Asthma Quality of Life Questionnaire (ASLQ) that consists of 10 items. The original of tool consist of 20 items, but only 10 items from of them that related to asthma severity. Those items are measured by using Likert scale 1 to 5 (1 = not at all, 2 = mildly, 3 = moderately, 4 = severely, and 5 = very severely). Interpretation of the result

study was used standard deviation (SD) formula that divided into 3 categories; severe: $X \geq (x+SD.1)$, moderate: $(x-SD.1) < X < (x+SD.1)$ and mild: $X < (x-SD.1)$.

The Asthma Control Questionnaire (ACQ), measurement tool developed by researcher. It is consists of 8 items relating to the level asthma control, including asthma symptoms, activity limitation, bronchoconstriction, and use of short-acting bronchodilators. The items of questionnaire by using Likert scale (1 = very strongly disagree, 2 = strongly disagree, 3 = agree, 4 = strongly agree and 5 = very strongly agree). Interpretation of the result study will use standard deviation (SD) formula that divided into 3 categories; good: $X \geq (x+SD.1)$, moderate: $(x-SD.1) < X < (x+SD.1)$ and fair: $X < (x-SD.1)$

Asthma Control of Environment and Comorbid Conditions (ACECC), measurement tool developed by researcher based on literature review. The items of questionnaire consists of 10 items, by using Likert scale (1=very strongly disagree, 2=strongly disagree, 3 = agree, 4 = strongly agree and 5 = very strongly agree). Interpretation of the result study will use standard deviation (SD) formula that divided into 3 categories; good: $X \geq (x+SD.1)$, moderate: $(x-SD.1) < X < (x+SD.1)$ and fair: $X < (x-SD.1)$.

The Medication Adherence Report Scale (MARS). Developed by Horne. R, & Hankins M, consists of 5 items in negative statement in which asks respondents to rate the frequency with which they engage in non-adherent behavior on a 1-5 Likert scale (1 = always, 2 = often, 3 = sometimes, 4 = rarely, 5 = never. Interpretation of the result study will use standard deviation (SD) formula that divided into 3 categories, high: $X \geq (x+SD.1)$, moderate: $(x-SD.1) < X < (x+SD.1)$ and low: $X < (x-SD.1)$.

METHODOLOGY OF PHENOMENON

The target patients were determinate based on inclusion criteria were those willing to participate in this study, patients that diagnosed with asthma, consciousness, level of severity: mild and moderate, able to communicate to answer the items of the questionnaires.

The patients were asked to answer by putting mark in the appropriate column of

the questionnaire and the nurse was directed them to give correctly answer.

Table 1 Characteristic of demographic data in patients with asthma bronchial

Cases	Age	Gender	Marital status	Med. Diagnosis	Religion	Education	LOS	Frequency of admitted	History using asthma medication
1	71	Male	Married	Asthma + lung cancer	Bud	H.S	4	1	yes
2	73	Male	Widower	Asthma exacerbation + Pneumonia	Bud	E.S	8	4	yes
3	82	Female	Widow	Asthma exacerbation + old MI	Bud	E.S	12	6	yes

All of the questionnaires were conducted for pretest and posttest except only pre test for asthma severity, because its focused to indentify levels of asthma severity. After implementing pretest, performed health education on self-management in patients with asthma and then was evaluated for posttest by using the same questionnaires.

RESULTS

Demographic data

Demographic data consist of age, gender, marital status, medical diagnosis, religion, level of education, length of stay in hospital, frequency of admitted, and history of using asthma medication are showed as the following:

RESULTS AND DISCUSSION

The result of the phenomenon will be explained based on four components of self-management, consisting of asthma severity, asthma control, control environment factors and comorbid conditions, and medication adherence.

Asthma severity

The result of asthma severity was summed by using mean (X) and standard deviation (SD) formulas. Mean (X) score is 35.3 and SD is 4.63.

Table 2 Asthma severity in patients with asthma bronchial

Cases	Scores	Levels
1	29	Mild
2	37	Moderate
3	40	Severe

Asthma severity is overall asthma severity, severity of an attack, or severity of airflow obstruction at one point in time. Overall, asthma severity has been defined by some combination of the symptoms, medication requirements, physiologic abnormalities, and morbidity (Bateman, 2006). Asthma severity is assessed to guide decisions for initiating the appropriate nursing intervention, medication and other therapeutic intervention. Roles of nurses for this component were assessing signs and symptoms of asthma attack, and assessed impairment of the organ function, such as breathlessness, tight chest, and weakness and anxiety. Based on the assessment the nurses provide appropriate intervention related to initiate therapy.

The finding showed that there is a difference between three of cases on asthma severity. Case 1 showed that with mild severity. In this case, patient was admitted for 4 days, general appearance no fatigue and weakness, dyspnea only with heavy activity (jogging), and no significant abnormal in vital signs, and he received asthma medication for 4 days, so that his condition was better. The case 2 showed that in moderate levels of asthma severity. For this case, patient has 73 year olds with asthma exacerbation and pneumonia, He got BiPAP ventilator for bronchodilator therapy and looked at fatigue and weakness, severe dyspnea, cough, and all activity daily living helped by nurses and caregivers. He had admitted for 4 times in Songkla Nagarind Hospital with asthma exacerbation. The case 3 showed that in severe levels of asthma severity. For this case, female 82 years-old with frequency of admitted 6 times for

asthma exacerbation. The patient showed severely with progressive dyspnea, continuing of BiPAP ventilator for bronchodilator therapy every 2 hours, oxygen therapy 6 L/minute, moderate anxiety, cough, wheezing, rhonchi, tachycardia, hyperventilation, and fatigue. The condition and vital signs have to monitored for 30 minutes and patient showed severe abnormal on pathophysiologic functions.

According to American Academy of Allergy, Asthma & Immunology (2007) described that severity is considered a property of the disease, reflecting the grade of pathophysiologic abnormality; severity is most easily and directly measured in a patient who is not receiving long-term control therapy.

Asthma control

The result of asthma control was summed by using mean (X) and standard deviation (SD) formulas. Pre test for mean (X) score is 21 and SD is 2.1, and posttest for mean (X) score is 34.3 and SD is 2.48.

Table 3: Asthma Control in Patients with Asthma Bronchial

Cases	Pre test		Post test	
	Scores	Levels	Scores	Levels
1	18	Fair	35	Moderate
2	23	Moderate	31	Moderate
3	22	Moderate	37	Good

Table analysis: Based on the table showed that distribution of patient's asthma control in moderate level on pre test and post test scores.

Asthma control is ability of patient to manage or control their asthma that involves asthma symptom, activity limitation, bronchoconstriction, and using of shorting acting bronchodilator. According to Cockcroft (2008) described asthma control is related to a guideline that involves symptoms, activity, and medication for clinical management degree of asthma severity. Assess asthma control focus on treatment or intervention guidelines establishing and achieving certain goals of

treatment, emphasis for clinical management degrees of asthma severity.

The finding showed that there is a different between pre test and post test the result of asthma control. The result pre test showed two of patients in the moderate levels of asthma control that involve control of physical activity, control by regularly exercise (jogging, yoga, meditation), and avoid exhausting activity and hardly emotional stress, and seeking for asthma medication. Both of the patients had been history suffering of asthma exacerbation for long time (case 2 more than 5 years ago and case 3 more than 20 years ago). Therefore, I assumed the patients and care givers have been more knowledge and experience regarding asthma control, and only case 1 showed that fair levels of asthma control because the patient had first experience in asthma attacked due to had history heavy smoking for more than 30 years ago, and no have experience and knowledge how to control asthma triggers. Furthermore, for post test of asthma control after providing health education on self-management showed that asthma control in the levels moderate (case 1 and case 2) and high level for case 3. I assumed that health education regarding asthma control has an associated to increasing patient's and caregivers knowledge to manage asthma control in their life so that will be useful how to control their asthma triggers in the future.

According to Cockcroft (2008) said that control is achieved by standardized approach to therapy with patient education, environmental control, and adequate anti-inflammatory medications, accompanied by an as needed symptom reliever, usually an inhaled beta 2-agonist. Asthma control refers to reduction of the clinical manifestations of disease achieved with self-management and reflects adequacy of treatment.

Control of environment factors and comorbid conditions

The result control of environment factors and comorbid conditions was summed by using mean (X) and standard deviation (SD) formulas. Pre test for mean

(X) score is 26.3 and SD is 7.4, and posttest for mean (X) score is 1.4 and SD is 2.48.

Table 4 Control of environment factors and comorbid conditions in patients with asthma bronchial

Cases	Pre test		Post test	
	Scores	Levels	Scores	Levels
1	20	Moderate	40	Moderate
2	16	Fair	40	Moderate
3	33	Moderate	43	Good

Cases	Pre test		Post test	
	Scores	Levels	Scores	Levels
1	20	Moderate	40	Moderate
2	16	Fair	40	Moderate
3	33	Moderate	43	Good

Table analysis: Based on the table, showed that patient's control of environment factors and comorbid conditions in moderate level on pre test and posttest scores.

The finding showed that there is a different between pre test and posttest of control of environment factors and comorbid conditions. Two of cases (case 1 and case 3) are moderate levels regarding of avoiding contact with allergens, pollutants, irritants, food allergy, extremely weathers (cold), avoiding upper respiratory infection (URI) or rhinitis, and cool drinks, using facemask when contact allergens, and providing good ventilation at home. The case 1 had 71 years old, high school, good physical condition, and had history regularly exercise for jogging and short running every 3 times/week. Therefore, I assumed that those factors that contribute in moderate levels of control of environment factors and comorbid conditions.

Furthermore, for cases 3 on pretest of control environment, the patient had history suffering for long time of asthma exacerbation for more than 20 years ago, the caregivers (her son) have already known about environment factors that trigger asthma, patient had history regularly exercise (walking 200-300 meters), also patient leaved with her daughter that always supported her to control environment factors that induce asthma attacked. For cases 2, the patient had fair levels of control of environment factors and comorbid conditions. This patient had 73 years old, had asthma exacerbation and pneumonia, susceptibility with cold weathers, allergen and emotional stress, poor control to

extremely weather, and deficit patient's and caregivers' knowledge regarding control environment factors, therefore I assumed that those factors may influence of fair levels of control environment factors and comorbid conditions.

Nursing intervention for health education on self-management in patients with asthma was implemented, the results showed that increasing of control environment factors for cases 2 and 3 on moderate and high levels of control environment factors. I assumed that increasing knowledge during health education had changed in patient' and caregivers' perception and knowledge regarding environment factors and comorbid condition induce asthma attacked.

According to American Academy of Allergy, Asthma & Immunology and (2007) described that the upper and lower respiratory infection (rhinitis or sinusitis symptoms) has interrelationship will improve asthma control. Stress and depression should be considered in patients who have asthma that is not well controlled. Additional education to improve self-management and coping skills may be helpful.

Medication adherence

The result of medication adherence was summed by using mean (X) and standard deviation (SD) formulas. Pre test for mean (X) score is 24.3 and SD is 0.27, and posttest for mean (X) score is 23.3 and SD is 1.7.

Table 5 Medication adherence in patients with asthma bronchial

Cases	Pre test		Post test	
	Scores	Levels	Scores	Levels
1	24	Moderate	21	Moderate
2	24	Moderate	24	Moderate
3	25	High	25	High

Table analysis: Based on the table, showed that more of patient's medication adherence in moderate levels on pretest and post test scores.

The finding showed that there is a similar of result in pre test and posttest on medication adherence for patients with asthma. The cases 1 and 2 were answer “never”, “rarely” and “sometimes”, except case 3 was answer “never” for negative statements for forgot medicine, alter the dose, stop taking medicine for a while, decide to miss out a dose, and take less than instruct. The cases 1 and 2 had moderate levels of medication adherence for pre test and post test because the patients said sometime stop taking medication for a while and forgot to take medicine for few days.

Furthermore, the case 3 said that “never” for all negative statements of medication adherence because patient had along of history for using asthma medication at home such Seretide evohaler 25/125, salbutamol respiratory solution, Singulair, Theophilline, and Acethylcystene. Therefore, the result showed that in high levels for medication adherence. According to Borrelli (2007) said that self-management approaches including self-monitoring medication have result in fewer urgent care visits, higher asthma management self-efficacy, improved quality of life, reduced asthma symptoms, and less β_2 -agonist use.

Self-Management in Patients with Asthma Bronchial

The result of self-management in patients with asthma was summed by using mean (X) and standard deviation (SD) formulas. Mean (X) score is 107 and SD is 9.19.

Table 6 Self-management in patients with asthma bronchial

Cases	Scores	Levels
1	101	Moderate
2	100	Moderate
3	120	Good

Table analysis: based on the table showed self-management in patients with asthma is moderate level.

The finding showed that more of patients had moderate levels on self-

management. For case 1, patient was first admitted with asthma, had history with heavy smoking and drinking alcohol for more than 30 years ago, lack of knowledge about asthma management, misunderstanding of pathophysiology, signs, and symptoms of asthma, and how to control asthma. However, patient had known about environment factors that worsen asthma triggers and activities may promote and maintain healthy life such as yoga, walking, jogging, and short running. For cases 2, the patient had lack of controlling and managing of asthma symptoms, lack of adherence to treatment and lack of managing the environment factors that impact of the illness such as extremely weathers (cold weather) and comorbid conditions such as upper respiratory infection (influenza, and rhinitis). Furthermore, for case 3 patient had got a good support system from the family to manage her asthma (caregivers had provided compressor nebulizer system to control asthma trigger at home), had history along time with asthma exacerbation more than 20 years ago, and had a long experience to control asthma by using adherence asthma medication (Seretide Evohaler and Salbutamol).

Lemaigre et al. (2005) stated that successful of self-management are based on the actively participate the patients in caring of their chronic condition and adherence of treatment. Asthma self-management is set up to teach asthmatic patients better to self care including by education, making action plan, regular medication review, and self monitoring exercises. Effectiveness of self-management encompassed ability to monitor owns condition and to affect the cognitive, behavioral, and emotional responses necessary to maintain a satisfactory quality of life. Self-management does not only require knowledge and skills, but also considerable effort and discipline.

The roles of health care providers are to facilitate and support adequate of self-management for patients with chronic illness such as asthma. Firstly is the role of education to improve self-management knowledge and skills, and secondly requirement to change and improve self-

management behavior in order to bring about the desired reduction in morbidity and mortality. In other words, self-management is also proved in improving of patient self-care, self-confidence, quality of life and reducing hospitalized that affects to severity and effective cost.

Summary of the phenomenon

Nursing care for patients with chronic illness such as asthma, not only focus on treatment of medications, but also many of factors may contribute to maintaining and improving quality of life with self-management strategy. Self-management for asthma adults consisting of 4 basic components: asthma severity, asthma control, control of environmental factors and comorbid conditions, and medication. Self-management could be considered for all nurses as important things applied in nursing care, particularly during patient's admission and discharge planning. Self-management had maintaining and improving healthy life, reducing risk factors that worsen asthma and comorbid conditions, controlling asthma trigger and thus increasing patients' quality of life.

Lesson learnt

Implementing of health education on self-management in patients with asthma, the nurses should consider many aspect that contribute such as the nurses have to sufficient knowledge of self-management in patients with asthma, communication skills, and trust relationship with patients and caregivers. Furthermore, health education will be better if the nurses provide some media such as leaflet, booklet, and some pictures regarding the appropriate topic of health education. Trust relationship with patients and caregiver, and support system (family, society, and environment) are essential factors to successful of self-management in patients with asthma. Another thing in health education is nurses should consider factors that influence of knowledge such as age, gender, educational level, training, and experience.

Recommendations

Health education is independently of nurses roles should be applied for patients

with chronic disease such as asthma. The nurses should explain the concept of asthma self-management regarding definition, signs and symptoms, environment factors that worsen asthma trigger, the ways avoiding these factors, how to control side effect of asthma medication. For successful of health education, involvement of caregiver becomes an importance part of self-management.

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