Self-Management written action plan impacts on asthmatic patients' outcomes and asthma coping strategies.

Prof. Dr./Wafaa Hassan Alseraty[1],Dr./Walaa Ahmad Hamaad Eisa[2], and Dr./ Sahar Mohamed Abdullhameed[3].

1-Professor of Pediatric Nursing at faculty of nursing, Tanta University, Egypt and currently associate professor of pediatric nursing at Dawadmi Applied Medical Science College, Shaqra University, KSA, e mail,walseraty@su.edu.sa

2- PhD, of Medical Surgical Nursing at faculty of nursing, El –Menofiya University, Egypt and currently Lecturer of Medical Surgical Nursing at Dawadmi Applied Medical Science College, Shaqra University, KSA., e mail**;** walaa.shakra@su.edu.sa

3-Lecturer of Psychiatric and Mental Health Nursing-Faculty of Nursing-El Minia University, Egypt, and currently assistant professor of Psychiatric and Mental Health Nursing at Dawadmi Applied Medical Science College, Shaqra University, KSA,e mail;sabdullhameed@su.edu.sa

Abstract

Asthma is a chronic disease that had negative impact on asthmatic patients. Living with asthma constitute stressful burden for patients to provide daily self-management ,coping with and control manifestation so this study aimed to evaluate impacts of Self- management written action plan on asthmatic patients' outcomes and their coping strategy. A Quasi experimental research design, was used and a purposive sample of 100 asthmatic patients fromTanta Military Hospital, Egypt.49% from subjects 15-25 years and 71% had asthma hereditary history. Patients' knowledge was improved significantly post the intervention. Highly statistical significant differences before and after plan implementation regarding Zone of action which reflect patients' improvement and their coping with asthma stress was improved significantly post the intervention. Conclusion; asthma self- management written action plan was improved subjects' management practice, asthma outcomes and subjects' coping strategy. Recommendation; Asthmatic patients should trained carefully on applying their management plan effectively.

Key words; Self- management, written action plan, patients' outcomes and coping strategy.

Literature review

Asthma is respiratory tract chronic disorder affecting more than 334 million people of all ages over world(The Global Asthma Report Auckland, New Zealand,2014)and it is predicted number of asthmatic patients will increase by 100 million more by 2025 (Masoliet. al., 2004&Farzandipour, et.,al., 2017). Asthmatic patient quality was decrease (Sawyer, et .al., 2001, Van De Ven, et. al 2007, Sawyer, et .al., 2001, Warschburger,et. al., 2004,Somerville, 2004&Tousman, et. al., 2012). In Egypt bronchial asthma accounts for 6.9% of all respiratory disorders and affect 300millions of people across the world (WHO, 2012and Bayomi,et. al,2018).Asthma is one from the most frequent reasons for hospital admissions (Ritz, et. al., 2013). Increased incidence of asthma worldwide attributed to the modernization of societies, changes in lifestyle, food habits, environmental exposure and cigarette smoking (Center for Disease Control and Prevention,

2014&Alotaibi, 2015).The causes of asthma are uncertain, but there are riskfactors.(WHO 2017 &Qiu, Huang, Li, 2017).

Nurses in primary care play a key role in checking asthmatic patients and refer them when appropriate(Holmes 2017 &Farzandipour, et. al., 2017). Asthmatic people have to accommodate their long-term condition with their daily life (Pinnock, 2015). Adherence to anti-inflammatory and self-management skills are essential (Janson, et. al., 2009).Asthma management focuses on preventing or treating symptoms and achieve or maintain asthma control (Campbell, 2017). Asthma treatment goal are to prevent chronic troublesome symptoms, maintain optimal lung function, maintain normal activity, prevent recurrent, minimize the need for emergency care, provide optimal pharmacotherapy and satisfy expectations of asthma care(Jansen, et.al., 2009 &Linnehan ,2013[15]).Treatment focuses primarilyon pharmacotherapy (Alotaibi, 2015).

Self-management is effective approach to control asthma(Miles, et.,al2017). Asthma education led to improvement in asthma symptoms, better adherence to medication and improved level of asthma knowledge (Elbanna, et.al., 2017).Asthma management plans an important tool in management of patient (Global Initiative for Asthma2017& Murray& 'Neill,2018). Asthma action plan consists from written instructions help patients understand disease severity, act upon the degree of symptom, and reduce hospital visits and absenteeism from school or work. It is aimed to shift towards patients' engagement in treating(Suresh & Suresh 2013 andAlotaibi, 2015).Asthma action plan is a written plan effective in increasing patients' knowledge, improving their quality of life, and increasing their confidence level about controlling their asthma (Goronfolah, et. al., 2019).

Significance of the study:
Asthma is a major cause of patients' disability and it impacts all aspects of a patient's life. Coping with asthma and its consequence constitute hard challenging and burden for patients' and their care providers. So this study aimed to provide asthmatic patients' with individualized self-management written action plan as a baseline to help them to provide optimal self-management practice, cope with asthma and improve asthma outcome.

Subjects and methods:

Study aim:
Evaluate impacts of self-management written action plan on asthmatic patients' outcomes and asthma coping strategy.

Subjects& setting:
A purposive sample of 100 admitted asthmatic patients at medical and pediatric departments of Tanta Military Hospital from 3 November 2019 - 23 January 2020 and accepted to participate in the study.

Research design:
Quasi experimental research design was used.

Research questions:
1. Is action plan improving asthmatic patients' outcomes?
2. Is action plan impact asthma patients' coping strategy?

Type of the study: It is an intervention study.

Study tools:

1. Questionnaire sheet prepared by researchers to assesses social characteristic of subjects and their knowledge regarding asthma (pre and post intervention).
2. Asthma control questionnaire; to assess severity of manifestations prepared by Juniper et al., in 1999(27) (pre / post intervention). Its reliability was tested by authors as r= 0. 79.
3. Written action plan prepared by Polgar&Promadhatin; 2000 (28) by using A peak flow meter helps to check how well asthma is controlled (pre and post the intervention). To find personal best peak flow number, take peak flow each day for two to three weeks. To check asthma, each day take peak flow in the morning, between noon and 2:00 p.m. each day. Each time take the quick-relief medicine to relieve symptoms. Measure peak flow after take medicine. The highest peak flow number during the two to three weeks is personal best. Obtain the normal predicted average peak expiratory flow based on the patient's height for and age. Enter the measured personal best peak flow and percent of predicted will be calculated as well. An acceptable peak flow "Green Zone" 80-100% signals good control. Patients should take usual daily long-term-control medicines. Keep taking these medicines even when the zone becomes yellow or red zones. Yellow Zone (50-79 %) signals indicate asthma is getting worse. Patients should add quick relief medicines& need to increase other asthma medicines as ordered. Red Zone (below 50 % of personal best) signals medical alert. Patients should add or increase quick-relief medicines and call doctor now.
4. Coping Strategies Inventory (Addison et. al., 2007) (used pre / post intervention). Its reliability = 0.58-0.72 scales. It consists 16 items in 4 subscales: (a) Problem–Focused Engagement, (b) Problem-Focused Disengagement, (c) Emotion-Focused Engagement, and (d) Emotion-Focused Disengagement. Each subscale was measured by 4 questions and subject choose the suitable answer from; Never(0), Seldom(1), Sometimes (2), Often(3) and almost always(4)

Ethical consideration:

Study was approved by department ethical committee and information confidentiality maintained was maintained. Subjects'agreement was a prerequisite to be included.

Administrative design:

Official permission was obtained from head of the departments.

Validity of the study tools:

Tools were translated into Arabic and tested for its content validity by 3experts in pediatric and medical surgical nursing.

Pilot study:

Conducted on 10 subjects (5 subjects from each department) to test the clarity and simplicity of the tools. Necessary modifications were done and subjects whom participated in the pilot study were excluded.

Methods:

A review of significant references to get acquainted with aspects of the problem was done. Based on the pilot study and review literature; plan was formulated to cover study aim and satisfy subject's needs. Data was collected from 3 November 2019 -23January 2020.Each patient met individually, in afternoon shift to avoid crowded in departments. A written asthma action plan was discussed at 7 sessions. Each session 40-50 minute.1stsession for identification, maintain therapeutic relation, study aim and pretest and 2nd session for discussing meaning & causes of asthma and manifestations. At 3rd session subjects instructed about asthma drugs, ideal, how to comply with drugs, drug side effects, asthma manifestation intervention, manifestation which

indicate which indicate that asthma under control and complication of asthma. In 4thsession each subject instructed about asthma action plan, aim of using it as management tool, its contents and advantages for using.

Through the 5th session the researchers explain for each subject asthma action plan colored zone; green zone indicate that asthma is under control(breathing is normal no trouble sleeping, no coughing or wheezing and patient do all normal activities), yellow zone indicate that asthma is getting worse(patient has symptoms, like wheezing or cough in activity or at night, using reliever more than prescribed , can't do many usual activities) and red zone indicate asthma is emergency(breathing is difficult, wheezing during rest, difficulty walking and/or talking patients' lips and reliever does not help in 10 minutes or it is needed every 4 hours or more).Patient taught to differentiate between manifestations and provide suitable self-management care practice during each stage. At six session the researchers illustrate effective methods to deal with asthma stress and each subject discuss asthma manifestations which indicate; green, yellow and red zone of asthma and how to differentiate between zones and demonstrate on doll, how to provide care for each zone and each subjects illustrate coping strategy with stress and through 7thsession Posttest was done after ending the intervention and before hospital charge for each subject.

Statistical analysis:
Collected data analyzed through SPSS23. Frequencies& percentages were calculated for each item. Mean and standard deviation was used to compare between knowledge, outcomes and asthma coping strategies pre / post intervention.

Results:

Table (1) Subjects' socialcharacteristics (N= 100).

Items	%	Mean	Std. Deviation
Age:			
• 15-25 years	49	2.6200	.67838
• 26-35 years	40		
• 36-50 years	11		
Positive Family History:	71	1.2900	.45605
Education:			
• Primary	19	2.2100	.74275
• Secondary	41		
• College	40		
Suffering from asthma more than 3 years:	100	4.0000	.0000

Table (1);49% of participant aged 15-25 years old, 71% from them had positive asthma family history and all subjects suffer from asthma more than 3 years.

Table (2) Percentage distribution of subjects' knowledge (pre and post intervention(N= 100).

Items	Pre %	Post %	Mean	SD
1. Do you know causes of asthma?				
• Yes	25	55	1.7500	.43519
• No	75	45		
2. Does air pollution affected asthmatic patients?				
• Yes	50	65	1.5000	.50252
• No	50	35		
3. Does air movement affect asthmatic patients?				
• Yes	58	75	1.4200	.49604
• No	42	25		
4. Does level of activity affect asthmatic patients?				
• Yes	41	78	1.5900	.49431
• No	59	22		
5. Does dust affect asthmatic patients?				
• Yes	52	88	1.4800	.50212
• No	48	12		
6. Does indoor temperature affect asthmatic patients?				
• Yes	41	78	1.5900	.49431
• No	59	22		
7. Does outdoor temperature affect asthmatic patients?	45	68	1.5500	.50000
• Yes	55	32		
• No				

Table (2); 75% of participants don't know causes of asthmaprealso59%of them answered with no when asked that level of activity affect asthmatic patients and indoor temperature affect asthmatic patient compared post intervention with 45%, 32% & 22% of them.

Table (3) Severity of asthma manifestations as reported by subjects' pre /post the intervention (N= 100).

Items	Pre %	Post %	Mean	SD	t- test	P-value
1) Patient woken by asthma at night.						
0 Never	0.0	18				
1 Hardly ever	0.0	27	3.7200	1.356	27.424	.000
2 A few times	0.0	30				
3 Several times	0.0	24				
4 Many times	11	1				
5 A great many time	43	0.0				
6 Unable to sleep	46	0.0				

2. Bad symptoms in the morning.						
0 No symptoms	0.0	24				
1 very mild symptoms	0.0	42	3.4600	1.250	27.666	.000
2 Mild symptoms	0.0	21				
3 Moderate symptoms	6	12				
4 Quit severe symptoms	33	1				
5 Severe Symptoms	46	0.0				
6 Very severe symptoms.	15	0.0				
3. Limited daily activities because of asthma.						
0 Not limited at all	0.0	27				
1 Very slightly limited	0.0	46				
2 Slightly limited	0.0	15				
3 Moderately limited	2	14	3.7600	1.464	25.680	.000
4 Very limited.	32	3				
5 Extremely limited	34	0.0				
6 Totally limited	32	0.0				
4. Shortness of breath because of asthma.						
0 No symptoms	0.0	23				
1 Very mild symptoms	0.0	22				
2 Mild symptoms	0.0	43	3.3500	1.233	27.148	.000
3 Moderate symptoms	4	15				
4 Quite severe symptoms	26	2				
5 Severe symptoms	55	0.0				
6 Very severe symptoms	15	0.0				
5. Time the patient wheeze.						
0 Not at all	0.0	23				
1 Hardly any of the time	0.0	34	3.3300	1.255	26.518	.000
2 A little of the time	0.0	30				
3 A moderate amount of the time	0.0	11				
4 A lot of the time	54	2				
5 Most of the time 6	24	0.0				
All the time	22	0.0				
6. Numbers of puffs of bronchodilators used.						
1 1–2 puffs most days	0.0	39				
2 3–4 puffs most days	0.0	32	3.5700	1.499	23.813	.000
3 4-5 puffs most days	6	9				
4 9–12 puffs most days	33	17				
5 13–16 puffs most days	46	3				
6 More than 16 puffs most days	15	0.0				

Table (3); 46% of subjects unable to sleep, have bad symptoms in the morning, have severe shortness of breath (55%) pre which compared with none of them post the intervention.

Table (4) Distributions of PEFR before / after intervention. (N= 100).

PEFR	Pre	Post	Mean	SD	Paired sample t- test	P-value

1. 100-200	0.0	0.0	-1.35000	1.14922	-11.747	.000
2. 201-301	29	6				
3. 302-402	67	25				
4. 403-503	4	22				
5. 504-604	0.0	47				

Highly statistically significant differences before and after action plan implementation regarding measurements of peak flow meter which indicate impact of the intervention.

Table (5) Distributions of Zone for asthma action plan.(N= 100).

Zone	Zone Pre	Zone Post	Mean	SD	One sample –t- test	P-value
1. Green Zone	**33**	**64**	**063000**	**1.00698**	**5.889**	**.000**
2. Yellow zone	**22**	**23**				
3. Red zone	**45**	**13**				

Table (5) highly statistical significant differences before and after intervention regarding Zone of action where 33% from subjects are in green zone pre compared with 64% post .

Table (6) Distribution of coping strategies inventory with asthma attack.(N= 100).

	Survey items	Pre%	Post %	Mean	SD	t- test	P-value
1.	**Problem focused engagement.**						
	1. Never.	7	31				
	2. Seldom.	5	54	1.96000	1.6692	11.742	.000
	3. Sometimes.	16	5				
	4. Often.	30	5				
	5. Almost always.	42	5				
2.	**Problem focused disengagement**	28	6				
	1. Never.	27	8	-1.43000	1.37991	-10.363	.000
	2. Seldom.	38	25				
	3. Sometimes.	5	33				
	4. Often.	2	28				
	5. Almost always.						
3.	**Emotion focused engagement.**						
	1. Never.	9	30				
	2. Seldom.	6	39	2.2200	5.33254	4.163	.000
	3. Sometimes.	9	19				
	4. Often.	37	8				
	5. Almost always.	38	4				

4.	**Emotion focused disengagement**	44	34				
	1. Never.	41	37	-.3000	1.41778	-2.116	.037
	2. Seldom.	7	18				
	3. Sometimes.	5	5				
	4. Often.	3	6				
	5. Almost always.						

Table (6) showed highly statistically significant differences in subjects' coping with asthma manifestation stress before and after implementation of action plan

Discussion:

From table 2 patients' knowledge about asthma and its triggers was improved significantly post the intervention, this results supported with Mammen, et. al., in 2018[30] whom found appropriate training is effective in increasing critical self-management, knowledge and self-efficacy in also Farag, et al., in 2018[31] found asthma action plan enhance patient knowledge, skills, capacity, confidence, self-management and achieve better asthma control. Regarding Manchana, & Mahal, in 2014 [32] found; educating patients remarkably increased their knowledge and asthma triggers knowledge scores and warning signs enhanced. Bayoumy, and Osman, in 2015 [33] found, self-regulation intervention has been demonstrated a beneficial addition to asthmatic patients' knowledge and disease control and Elbanna,et. al., in 2017[22]found educational intervention improved understanding of patients about medications and how to deal with asthma symptoms, led to improvement in asthma symptoms earlier, better adherence and improve knowledge level also Goronfolah, et al., in 2019 [26]reported written asthma action plan was effective in increasing patients' knowledge, improving their quality of life and increase their confidence level about controlling asthma

Highly statistical significant differences regarding severity of asthma manifestations and measurements of peak flow meter was found before and after implementation of the plan (tables 3 &4) this findingsupported by Elbanna, et al., in 2017[22] found asthma education improve asthma symptoms control and increase asthma knowledge and Murray & Neill, in 2018 [24]reported provision of a written 'action plan' can help patients to avoid severe attacks & hospitalization also Pinnock, in 2015 [34]found self-management improves clinical outcomes and self-management education should be reinforced by a written personalized asthma action plan which provides a summary of the regular management strategy, how to recognize deterioration and the action to take.

In table 5 highly statistically significant differences before and after plan implementation regarding Zone of which reflect improvement of patients' condition and outcomes so the first research question was answered positively; Goel, et. al., in 2016[35] mentioned that the intervention had a positive effect on asthma outcomes also Taibet. et.al., in 2017 [36]found education program had improved the children's quality of life,regardingde Ridder and Schreursin 2001 [37]support the above mentioned resultsalsoAdams, et al. [38], in 2004 &Hesselink, et al. in 2004[39]agree with the current study results. Regarding Farag, et al., in 2018[31] found using self-management plan with asthmatic patients produced a significant improvement in clinical outcome measures so asthma action plan was the basis for effective patient–health care provider communication and Jansen, et. al., in 2009[18] found individualized asthma self-management education improve patients'

medication adherence and improves asthma. Control and Lakupoch, et. al., in 2018[40]support the above mentioned results also Kuhn in 2015, [41]reported patient self-management plays an important role in reducing asthma exacerbations. Table 6 showed highly statistical significant differences regarding coping with stress before and after intervention so the second research question was answered positively this finding agree with Perrin, & Maclean, in 1992 [42] found intervention group had a significant improvement in behavior problems score and the intervention had a beneficial effect on in children psychological status. This is in line with Folkman & Moskowitz in 2000[43].

Conclusion: Subjects' knowledge and self-management practice was improved significantly post applying the plan which improve their outcomes and improve their coping with stress.

Study limitation related to the purposive sample also the impact of Self-management written action plan on subjects were assessed for short period.

Recommendations;

1. Self-management written action plan should taught to asthmatic patienttoapply it as time of diagnosis.
2. The study should be conducted on large sample group for long periods.

Authors' contributions:

Authors are responsible for the design, development of tools and interpretation of data.

References:

1. The Global Asthma Report Auckland, New Zealand, (2014).
2. Masoli M, Fabian D, Holt S, Beasley R, Global Initiative for Asthma(2004); 59(5):469-78.
3. Farzandipour,M, Nabovati,E, Sharif,R, Arani,H., and Anvari,S., Patient Self-Management of Asthma Using Mobile Health Applications: A Systematic Review of the Functionalities and Effects, ApplClin Inform. 2017, 8(4): 1068–1081.
4. Sawyer, M., Spurrier, N., Whaites, L., Kennedy, D., Martin, A., &Baghurst, P., (2001): The 2 relationship between asthma severity, family functioning and the healthrelated quality of life of children with asthma. Quality of Life Research, 9, 1105–1115.
5. Van De Ven, M., Engels, R., Sawyer, S., Otten, R., & Van Den Eijnden, R. (2007): The role of coping strategies in quality of life of adolescents with asthma. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation, 16(4), 625–634.
6. Warschburger, P., Busch, S., Bauer, P., Kiosz, D., Stachow, R., &Petermann, F. (2004). Health-related quality of life in children and adolescents with asthma. Journal of Asthma, 41, 463–470.
7. Somerville, A., Knopfli, B., &Rutishauser, C. (2004). Health-related quality of life in Swiss adolescents with asthma, 134, 91–96.
8. Tousman S, Zeitz H, Taylor L ,Bristol C. Development, implementation and evaluation of a new adult asthma self-management program. J Commun Health Nurs., 24(4): 237–251, (2007).
9. The World Health Organization (2012): Chronic Diseases and Health Promotion Department.
10. Bayomi, R., Taha,N, Zatton,H and Elshora,A.,(2018):Effect of Nursing Intervention Program on Nurses Knowledge, Practices and Patients Outcomes with Bronchial Asthma, Journal of Nursing and Care, Volume 7 , Issue 2, 7: 448.

11. Ritz,T., Meuret,A., Trueba,A., Fritzsche,A., Leupold,A., (2013):Factors and Behavioral Medicine Interventions in Asthma, J Consult Clin Psychol. ; 81(2): 231–250.
12. Center for Disease Control and Prevention (2014):National Asthma Control Program. http://www.cdc.gov/asthma/pdfs/investment_americas_health.
13. Alotaibi.G.,(2015): Asthma control and self-management: The role of asthma education. Saudi J Health Sci;4:16-22.
14. World Health Organization(2017). http://www.who.int/mediacentre/factsheets/fs307/en/.
15. Qiu,,B., Huang, L., Li,Y., (2017): Health education for asthmatic patients and care from nurses perspective. Turku University of Applied Sciences/Bachelor Thesis,1-73.
16. Holmes L (2017) Nurses' role in improving outcomes for patients with severe asthma. 113: 4, 22-25.
17. Pinnock,H.,(2015): Supported self-management for asthma, 11(2): 98–109.
18. Jansen, L., McGrath, W., Covington, K., Cheng, C., &Boushey, A. (2009): Individualized asthma self-management improves medication adherence and markers of asthma control. clinical immunology journal, 123(4), 840-846.
19. Campbell, J., (2017):Implications for Asthma Treatment Strategies in Managed Care,lement/advancements-in-asthma-therapy-and-their-impact-on-managed-care/implications-for-asthma-treatment-strategies-in-managed-care.
20. Linnehan ,J., (2013): Evidenced Based Asthma Education Intervention For Adults In A Primary Care Setting Using Self- management Guidelines, University of Massachusetts , Doctor of Nursing Practice,1-76.
21. Miles, C., Close, E., Thomas, M., Bruton, A., Yardley, L., Hankins,M., Kirby.S.,(2017): Barriers and facilitators of effective self-management in asthma:systematic review and thematic synthesis of patient and healthcare professional views, Prim Care Respir Med.; 27: 57.
22. Elbanna,R., Sileem , A., Bahgat , R., Ibrahem,G.,(2017): Effect of bronchial asthma education program on asthma control among adults at Mansoura district Egyptian Journal of Chest Diseases and Tuberculosis, 66, Issue 4, 561-569.
23. Global Initiative for Asthma (2017): Global strategy for asthma management and prevention. http://tinyurl.com/y7ugl3es .
24. Murray,B.,&'Neill,M.,(2018): Supporting self-management of asthma through patient education, British journal of nursing, 27(7):396-401.
25. Suresh,J., Suresh, A.,(2013): Impact of health education on health behaviour, health locus of control and social support.Indian J Health Wellbeing 2013;4:806-10.
26. Goronfolah, L., Abulaban, A., Barnawi, A, ,Jawi, M., Alhadhrami,W., Baatiah,N., (2019): The Effectiveness of Written Asthma Action Plan at the National Guard Health Affairs' Asthma Clinic. Cureus 11(11): e6247.
27. Juniper F,Byrne M, Guyatt GH, et al. EurRespir J. 1999;14:902-907.
28. Polgar G, Promadhat V. Pulmonary Function Testing in Children: Techniques and standards. Philadelphia. W.B. Saunders Company, 2000.
29. Addison ,C., Campbell-Jenkins,B., Sarpong,D., Kibler,J., Singh,M., Dubbert,B., Wilson,G., Payne,T., and Taylor,H.,in(2007), Psychometric evaluation of a Coping Strategies Inventory Short-Form International Journal of Environmental Research and Public Health, 4(4), (289-295).

30. Mammen, J., Rhee, H., Atis, S., & Grape, A. (2018): Changes in asthma self-management knowledge in inner city adolescents following developmentally sensitive self-management training. Patient education and counseling, 101(4), 687–695.
31. Farag, H., Abd El-Wahab,E., El-Nimr,N., and Saad El-Din,H., (2018): Asthma action plan for proactive bronchial asthma self-management in adults: a randomized controlled trial; Oxford University ;10: 502–516.
32. Manchana, V, Mahal, R., (2014): Impact of Asthma Educational Intervention on Self-Care Management of Bronchial Asthma among Adult Asthmatics, Open Journal of Nursing 04(11):743-753.
33. Bayoumy ,H., and Osman,S., (2015): Development and Implementation of an Evidence-based Self-regulation Intervention: Effect on Knowledge and Perceived Control Among Adult Patients with Asthma, International Journal of Nursing & Clinical Practices Volume 2.
34. Pinnock, H.,(2015): Supported self-management for asthma, Breathe 2015 11: 98-109.
35. Goel, G., Armour, C., Van Asperen, P., Gaur, S., Moles, R., Saini,B., (2016):Medication education program for Indian children with asthma: A feasibility study, Nigerian Journal of Clinical Practice ,19 ,Issue 1;76-84.
36. Taib, F., Isa,R., Pubalan,J., Arifin,W.,(2017): MANAGEMENT BEHAVIOUR OF CAREGIVERS FOLLOWING PAEDIATRIC ASTHMA EDUCATION PROGRAMME , THE MALAYSIAN JOURNAL OF NURSING , 8 (3),35-40.
37. Ridder, D., &Schreurs, K. (2001): Developing interventions for chronically ill patients: is coping a helpful concept? Clinical Psychology Review, 21, 205–40.
38. Adams, J., Wilson, D., Smith, J., & Ruffin, E., (2004): Impact of coping and socioeconomic factors on quality of life in adults with asthma. Respirology, 9, 87–95.
39. Hesselink, E., Penninx, W., Schlosser, A., et al. (2004). The role of coping resources and coping style in quality of life of patients with asthma. Quality of Life Research, 13, 509–518.
40. Lakupoch, K., Manuyakorn, W., Preutthipan, A., Kamalaporn, H.,(2018):The effectiveness of newly developed written asthma action plan in improvement of asthma outcome in children, Asian Pac J Allergy Immunol. 36(2):88-92.
41. Kuhn ,L., Reeves,K., Taylor ,Y., Tapp,H., McWilliams,A., Gunter ,A., Cleveland ,J.,&Dulin,M.,(2015):The Impact of an Asthma Action Plan Decision Support Tool Integrated into an Electronic Health Record at a Large Health Care SystemAsthma Decision Support Tool Integrated into an HER.
42. Perrin, J., & Maclean, W., (1992): Improving the Psychological Status of Children with Asthma, Journal of Developmental & Behavioral Pediatrics 13(4):241-7 ·
43. Folkman, S., & Moskowitz, T. (2000):Positive affect and the other side of coping. American Psychologist, 55, 647– 654.