Lifestyle and Patient knowledge Regarding Severity of Bronchial Asthma

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Abstract

Background: Asthma is a chronic respiratory disease that is a major health problem in many parts of the world. **The aim of the study** was to evaluate lifestyle and patient knowledge regarding the severity of bronchial asthma. **Subject and method: Research design:** A descriptive exploratory design was utilized. **Setting:** Data were collected from two settings; the outpatient chest clinic at Zagazig University Hospitals and the outpatient clinics of Chest Hospital in Zagazig city. **Subject:** The study was conducted on one hundred and fifty (150) patients. **Tool of data collection:** Two tools were used for data collection; **Tool (1):** was the Patient's Interviewing Assessment Questionnaire to collect data about patients 'demographic characteristics and assess the lifestyle and knowledge of studied patients. **Tool (2):** was Global Initiative for Asthma (GINA) severity scale to determine the severity of asthma. **Results** of this study showed that the majority (81.3%) of the studied patients had poor life style. About one third (32.0%) of studied patients had satisfactory total knowledge regarding bronchial asthma and 70.0% of studied patients had moderate persistent asthma. Furthermore, relation analysis showed a statistically significant negative correlation between patients' total knowledge and their disease severity score. Also, both age per year and severity of bronchial asthma were statistically significant positive predictors of the studied patient's lifestyle score. **Conclusion:** studied patients had an unsatisfactory level of knowledge regarding bronchial asthma and had affected lifestyle **recommendations:** design and apply training programs to improve patients' knowledge and lifestyle.

Keywords: Lifestyle, Knowledge, Bronchial asthma.

Introduction

Asthma is a chronic respiratory disease which significantly associated with global morbidity and mortality for decades [1] It is a serious global health problem affecting all age groups, with increasing prevalence in many developing countries, rising treatment costs, and a rising burden for patients and the community. It is tightness and cough that vary over time in their occurrence, frequency, and intensity [2]

Asthma cannot be cured completely but clinical episodes can be prevented and controlled by proper management and adequate knowledge of the disease. Proper management may relieve the symptoms of asthma and can help the patient to carry a normal social and professional life, while inadequate management can lead to significant consequences leading to social and professional dependence and can lead to death due to respiratory failure. [3]

Asthma severity is classified according to asthma day symptoms, night symptoms, and Peak Expiratory Flow (PEF) or Forced Expiratory Volume in the first second (FEV_1) to intermittent, mild persistent, moderate persistent, and severe persistent. The presence of one of the features of severity is sufficient to place a patient in that category and Patients at any level of severity even intermittent asthma can have severe attacks. [4]

Having asthma can affect a person in many ways of lifestyle, as Physical effects that can range from the somewhat annoying (an occasional cough) to the life-threatening (not being able to breathe). Emotional effects even when patients aren't currently having asthma symptoms, the fear of another attack could cause the patient to feel constantly anxious and afraid. Other people react in different ways. Instead of fear, they might feel embarrassed, angry, confused, or guilty. [5] Indirect costs include work-related losses (e.g. temporary disability in terms of partial or total lost-days; early disability; permanent disability…) and early mortality. Finally, intangible costs are those related to unquantifiable losses, such as the decrease in quality of life, increases in pain or suffering, limitation of physical activities, and job changes. [6]

To achieve success in the treatment of a patient with asthma, some goals should be applied as, maintenance of airway patency, expectoration of secretions, demonstration of absence/reduction of congestion with breath sounds clear, respirations noiseless, improved oxygen exchange, verbalization of understanding of causes and therapeutic management regimen, demonstration of behaviors to improve or maintain a clear airway, identification of potential complications and how to initiate appropriate preventive or corrective actions. [7]

The nurse generally performs interventions such as obtaining a history of allergic reactions to medications before administering medications, assessing the patient's respiratory status by monitoring the severity of symptoms, breath sounds, peak flow, pulse oximetry, and vital signs. Identify medications that the patient is currently taking, Administer medications as prescribed and monitor the patient's

responses to those medications, medications may include an antibiotic if the patient has an underlying respiratory infection, and administer fluids if the patient is dehydrated. [8]

Patient education is one of the pillars for proper asthma management. The patients should have knowledge about their asthma etiology, pathophysiology, precipitating factors, and dangers of underuse or over-use of medications. As a result, an evaluation of patients' knowledge of medicine and its use may help to screen the problems in therapy and improve the therapeutic outcomes. Asthma patients should be made aware of the positive attitude towards treatment, which is needed for good disease management. [9]

The nurse plays a very important role regarding patient education of self-care practices, as well as the patients should be trained before discharge about using their inhaler, the patient should be taught how to self monitor her ∕ his symptoms, A written action plan is given to all patients who present with exacerbation, regular review which include 1 week after an exacerbation, 1-3 months after commencing treatment and thereafter every 3-12 month. [10]

Significance of the study:

Asthma affects an estimated 300 million individuals worldwide. It is a serious global health problem affecting all age groups with increasing prevalence in many developing countries, rising treatment costs, and a rising burden for patients and the community. Health care providers managing asthma face different issues around the world, depending on the local context, the health system, and access to resources. [2] In Egypt, asthma is estimated to be 8.2% and 6.7% among children and adults respectively. [11] Asthma has a negative impact on patients' lifestyles including

lower participation in sports, physical activity, social activities, and daily activities, as well as school/work absenteeism. [12]

Aim of the study

This study aims to assess lifestyle and patient knowledge regarding the severity of bronchial asthma.

Research questions

- What is the effect of bronchial on patients' lifestyles?

- What is the level of knowledge for patients with bronchial asthma?

- What is the level of disease severity for patients with bronchial asthma?

Subjects and Methods:

Research design:

A descriptive exploratory design was used to achieve the aim of this study. Descriptive research is a type of research that describes a population, situation, or phenomenon that is being studied. It focuses on answering the *how, what, when, and where* questions of a research problem, rather than the *why.*

Study setting:

The study was conducted at the outpatient chest clinic at Zagazig University Hospitals and the outpatient clinics of Chest Hospital in Zagazig city. The outpatient clinics at Zagazig University Hospitals consisted of six floors and outpatient chest clinic presented in the third one. Chest Hospital in Zagazig city consisted of two buildings, the first was for the outpatient clinics and consist of two floors, and the study was carried out in.

Study subjects:

A purposive sample of 150 adult patients with bronchial asthma who met the following inclusion criteria; age ranged between 18-65 years old, both sexes, diagnosed with bronchial asthma at least for 3 months, able to communicate and accept to participate in the study. Exclusion criteria were patients at the end-stage of chronic illness.

Tools of data collection:

Two tools were utilized in this study:

Tool I: Patient's Interviewing Assessment Questionnaire: It was designed by the researcher after literature reviewing. It has consisted of three parts:

Part I: Patient's demographic characteristics: These are composed of seven items covered (age, gender, marital status, educational level, job status, residence, and monthly income).

Part II: Lifestyle Assessment Questionnaire: It was designed and used by the researcher guided by literature reviews to assess the effect of bronchial asthma disease on different dimensions as the effect of bronchial asthma on patients' physical status (daily activity, work, sleep pattern, doing exercise, and doing breathing exercise), psychological status, and social status).

The scoring system:

The affected point of the patient was scored one and the not affected point was scored zero. The total score of lifestyle assessment items was seven grades. Lifestyle was considered affected by the disease if the percent score was Equal to 60% or more based on statistical analysis.

Part III: Patient's knowledge questionnaire: It was designed and used by the researcher guided by literature reviews to assess patients' knowledge regarding bronchial asthma disease.

The scoring system:

For the knowledge items, the correct answer was scored one and the incorrect answer was scored zero. The knowledge was considered satisfactory if the percent score was 60% or more based on statistical analysis.

Tool III: Global Initiative for Asthma (GINA) severity scale: It was used to determine the severity of asthma. It was adopted from (**Global Initiative for Asthma, 2010)**. It included (Intermittent asthma, mild persistent asthma, moderate persistent asthma, and severe persistent asthma).

The scoring system:

Daytime symptoms were scored as follows: once per week or less (score 0), 2-6 times per week (score 1), daily (score 2). Nighttime awakenings: were scored as follows: once per month or less (score 0), 2-6 times per month (score 1), daily (score 2). short-acting beta-agonist use was scored as follows: no short-acting beta-agonist use (score 0), sometimes during acute attacks (score 1), usually during acute attacks (score 2), and daily (score 3) even without shortness of breath. interfere with normal activities was scored as follows: none interfere with normal activities (score 0), minor limitation (score 1), some limitation (score 2), and extremely limited (score 3). Spirometry was scored as follows: forced expiratory volume (FEV1) >80% of predicted value (score 0), 60-80% of predicted value (score 1) and < 60% of predicted value (score 2). These five scores were summed up to give an overall score of asthma severity levels. These scores were categorized into intermittent (0-1), mild (2-4) moderate (5-9), and severe score (10-12).

Content validity and Reliability:

Once the tool was prepared in its preliminary form, it was presented to a panel of 5 experts, 2 from medical staff in faculty of medicine and 3 from nursing faculty staff at Zagazig University. These experts reviewed the tools for content validation, clarity, ease of implementation, and internal consistency reliability which was measured by the Alpha Cronbach test and was 0.87 for knowledge, and 0.82 for the severity then the tool was modified according to their comments and opinions.

Pilot study:

A pilot study was carried out on 10% (15patient) of the sample size to test the applicability and clarity of the tool to identify the difficulties that may be faced during data collection. Since no modifications were done in the tool, patients who shared in the pilot study were included in the main study sample.

Fieldwork:

The data collection process of this study was carried out through six months in the period from the beginning of June 2019 to the end of November 2019. The researcher collected data three days per week. The researcher met with each patient individually and explained to them the aim of the study as well as the process of data collection and invited them to participate after being informed about their rights. For those who gave their consent, the researcher had read the questionnaire to patients and filled it with the researcher. The researcher clarified any ambiguities and responded to any queries, then the filled form for each patient was revised for completeness. To assess patient practice, the researcher used the observational checklist to assess areas of practice like breathing exercise, using the inhaler, preventing measures of asthma triggers, and controlling measures of asthma symptoms. Each interview took about 45-60 minutes.

Administrative and Ethical consideration:

Official permission was obtained from the responsible administrative personnel at the outpatient chest clinic at Zagazig University Hospitals and the outpatient clinics of Chest Hospital in Zagazig city to conduct the present study by the submission of a formal letter from the Dean of the Faculty of Nursing, Zagazig University explaining the aim of the study to obtain their permission and help. The participant patients were informed that their participation is voluntary and confidential and they have the right to withdraw from the study at any time without giving any reason.

Statistical analysis:

Data collected, coded, entered, and analyzed using Microsoft Excel software. Data were then imported into Statistical Package for the Social Sciences (SPSS version 20.0) software for analysis. According to the type of data, qualitative represent as number and percentage, quantitative continues group represented by mean and standard deviations.

Results

Table 1 illustrates the demographic characteristics of studied patients whose ages ranged between 22 and 60 years, their median age was 49 years and 71.3% of them were over 40years old. Regarding sex, 62% of studied patients were female, also 90.7% of studied patients were married and 51.3% of studied patients were not educated. As regard occupation, 52% were not working, the majority of the studied patients were from a rural area (80.7%) and only 42% of them had enough income.

Table 2 indicates that 32% of studied patients had satisfactory knowledge score and 68% of them had unsatisfactory knowledge score.

Table 3 demonstrates that 70% of studied patients were had moderate persistent asthma, 14% were had mild persistent asthma,11.3% were had severe persistent asthma and only 4.7% of studied patients had intermittent asthma.

Table 4 shows that 81.3% of studied patients their daily activity and work were affected by BA, also most of them their sleep pattern was affected by BA. Furthermore, only 10% of studied patients did exercise, and no one of them did breathing exercise. Moreover, all of the studied patients their psychological and social status had affected also. Generally, the majority of the studied patient's lifestyle was affected by the disease.

Table 5 shows that there was a statistically significant relation between patients' demographic characteristics and their knowledge about bronchial asthma disease, As the table shows, the percentages of patients with satisfactory knowledge were higher in the female group with a P value at 0.003, married patients with a p-value at 0.007 and educated patients with a p-value at 0.0007.

Table 6 shows that there was a statistically significant relation between patients' demographic characteristics and their lifestyle, the table shows, the percentages of patients who had affected lifestyles were higher in age more than forty years old with a P-value of 0.0001, married patients with a p-value at 0.002, not educated patients with a p-value at 0.0001, working patients with p-value 0.0001, patients living in a rural area with a p-value at p=0.0001 and patients have enough income with a p-value at p=0.0001.

Table 7 clarifies that there was a statistically significant negative correlation between patients' total knowledge and their disease severity score with r square 0.205 and p=0.012. while there was no statistical significance between the total knowledge score and the age of studied patients.

Table 8 demonstrated that both the age per year and severity of bronchial asthma were statistically significant positive predictors of the studied patient's lifestyle score. It means that elderly asthmatic patients and severe bronchial asthma are predictors to impair the lifestyle of asthmatic patients.

Discussion

The present study was conducted on 150 patients, the present study reveals that more than two-thirds of studied patients were aged over 40 years old. This finding is in accordance with Abo El-Fadl et al [13] who mentioned in their study that the majority of studied patients were over 40 years old. Regarding the gender, the majority of studied patients were females, this may be due to staying of the females at their homes most of the time which exposed them to indoor pollution during cooking and other home activities rather than men. This finding agrees with Abbas et al [14] who found in their study that the majority of studied patients were female.

The result of this study revealed that the majority of the studied patients were married. This finding agrees with Esmaeily et al [15] who revealed in their study that the majority of the studied patients were married. As regards the educational level of the studied patients, the present study revealed that more than half of the studied patients were not educated. this finding agrees with Nair et al [16] who mentioned that majority of studied patients were illiterate.

The present study showed that more than half of the studied patients were not working. This result is supported by Bayomi [17] who mentioned in their published study that more than half of the participants were unemployed. As regards the residence of the studied patients, the present study revealed that more than two-thirds of the studied patients were from rural areas result agrees with Kebede et al [18] who cleared that more than half of the participants were from the rural area.

As regards the income of the studied patients, the present study revealed that more than half of the studied patients have not had enough income. This finding is consistent with Mohammod et al [19] who found that more than half of the studied patients have not had enough income.

Regarding the effect of bronchial asthma disease on studied patients' lifestyles, the present study revealed that most of studied patients' daily activities and work had affected by the disease, also all of the studied patients had affected psychological and social status. This reflects that studied patients didn't control their asthma well. These findings supported by Abd El-Wahab et al [20] who found that most of the studied patients were had impacted lifestyle as impacted daily activities and impacted work.

Concerning doing breathing exercises, the present study revealed that all of the studied patients didn't perform breathing exercises. This reflects the patient's lack of awareness about the importance of breathing exercises. This finding resembles Yossif et al [21] who showed that more than two-thirds of studied patients had unsatisfactory practice regarding breathing exercises.

The present study emphasized that more than two-thirds of studied patients had unsatisfactory total knowledge about bronchial asthma. This is in agreement with Gare et al [22] who mentioned that the majority of studied patients had poor knowledge. This result may be due to the illiteracy of more than half of the studied patients as patients with less education may not fully understand the information given by health caregivers.

The present study reported that more than two-thirds of the studied patients were had moderate persistent asthma. This agrees with Elbanna et al [23] who found that more than half of the studied patients were had moderate persistent asthma. While the current result disagrees with Mohammod et al [19] who found that less than one-quarter of studied patients were had moderate persistent asthma.

The present study revealed that there was a statistically significant relation between studied patient demographic characteristics such as sex, marital status, education, and occupation, and their total knowledge score. This finding resembles Madhushani et al [24] who stated that patients' knowledge about asthma and its medication are significantly associated with demographic factors of patients.

The present study showed that there were statistically significant relations between patients' demographic characteristics and their lifestyle, as poor lifestyle was high in patients with age over forty, married, working, and residing in rural areas. These findings agree with Uchmanowicz et al [25] who mentioned that factors that negatively influence patients' lifestyles were older age. Conversely, John et al [26] reported that no significant correlation between demographic characteristics and lifestyle of studied patients.

The present study revealed that there was a significant negative correlation between knowledge score and disease severity score. These findings agree with Attia et al [27] who revealed that there was a correlation between knowledge score and severity of the disease.

The result of the present study indicates that there was no statistical significance between the total knowledge score and the age of studied patients. These results were supported by Ahmed & Kafl [28] who showed that there was no statistical significance between patients' level of knowledge and their age.

Conclusion

Based on the result of this study it can be concluded that more than two-thirds of studied patients had unsatisfactory knowledge regarding bronchial asthma and the majority of studied patients had affected lifestyle. additionally, there was a statistically significant negative correlation between patients' total knowledge and their disease severity score, and both age per year, the severity of bronchial asthma were statistically significant positive predictors of the studied patient's lifestyle score.

Recommendations

Based on the findings of the present study, the following recommendations can be suggested:
- Comprehensive health education program to improve patients' knowledge regarding bronchial asthma and lifestyle.
- Regular training sessions regarding breathing exercises and therapeutic regimens for patients with bronchial asthma.
- Further studies are necessary to identify the effect of educational programs on lifestyle changes, knowledge, and severity of the disease for patients with bronchial as

Table 1: Frequency and percentage distribution of demographic characteristics of the studied patients (n= 150)

Socio-demographic characteristics	Frequency	Percent
Age:		
- ≤ 40	43	28.7
- > 40	107	71.3
- Mean± SD	46.35±10.75	
- Median	49	
- Range	(22-60)	
Sex:		
- Male	57	38
- Female	93	62
Marital status:		
- Married	136	90.7
- Not married	14	9.3
Education level;		
- Educated	73	48.7
- Not educated	77	51.3
Occupation;		
- Working	72	48
- Not working	78	52
Residence:		
- Rural	121	80.7
- Urban	29	19.3
Income :		
- Enough	63	42
- Not enough	87	58

Table 2: Frequency and percentage distribution of total knowledge score about bronchial asthma among studied patients (n=150)

Total knowledge		No	%
	Satisfactory ≥ 60%	48	32
Total knowledge score	Unsatisfactory < 60%	102	68
	Mean ± SD	16.22±2.59	

Table 3: Frequency and percentage distribution of asthma severity level among studied patients (n=150)

Asthma severity level	Frequency	Percent
Intermittent	7	4.7
Mild persistent	21	14
Moderate persistent	105	70
Severe persistent	17	11.3

Table 4: Frequency and percentage distribution of the effect of bronchial asthma on the lifestyle of the studied patients: (n=150)

Effect of bronchial asthma on the lifestyle of the studied patients	Frequency	Percent
Affected physical status:		
Affected daily activity by asthma attack:		
- Yes	122	81.3
- No	28	18.7
Affected work:		
- Yes	122	81.3
- No	28	18.7
Affected sleep pattern:		
- Yes	143	95.3
- No	7	4.7
Doing exercise:		
- Yes	15	10
- No	135	90
Doing breathing exercises:		
- Yes	0	0
- No	150	100
Affected psychological status:		
- Yes	150	100
- No	0	0
Affected social status:		
- Yes	150	100
- No	0	0
Lifestyle level:		
- ≥ 60% Affected	122	81.3
- < 60 % Not affected	28	18.7
- Mean± SD	3.7±0.89	
- Median	4	
- Range	1-5	

Table 5: Relation between the demographic characteristic of studied patients and their total knowledge score (n=150)

Demographic characteristics	Total knowledge				t/ X^2	P-value
	Unsatisfactory		Satisfactory			
	No	%	No	%		
Age per year:						
- ≤ 40	33	76.7	10	23.3	2.1	0.15
- > 40	69	64.5	38	35.5		
Sex:						
- Female	55	59.1	38	40.9 17.4	8.82	0.003*
- Male	47	82.5	10			
Marital status:						
- Married	88	64.7	48	35.3	7.26	0.007*
- Not married	14	100	0	0		
Education:						
- Educated	40	54.8	33	45.2	11.32	0.0007**
- Not educated	62	80.6	15	19.4		
Occupation:						
- Not work	43	55.1	35	44.9	12.37	0.00**
- Work	59	81.9	13	18.1		
Residence:						
- Rural	83	86.6	38	31.4	0.15	0.74
- Urban	19	65.6	10	34.4		
Income:						
- Not enough	59	67.8	28	32.2	0.003	0.95
- Enough	43	68.3	20	31.7		

*p<0.05 Significant   **p<0.01 High significant

t = t test X^2 = chi square   P = P value

Table 6: Relation between the demographic characteristic of studied patients and their total lifestyle (n=150)

Demographic characteristics	Life style				n.	χ^2	p-value
	Affected		Not affected				
	No.	%	No.	%			
Age per year:							
- ≤40	15	34.9	28	65.1	43	85.66	0.0001**
- > 40	107	100	0	0	107		
Sex:							
- Females	72	77.4	21	22.6	93	2.47	0.12
- Male	50	87.7	7	12.3	57		
Marital status:							
- Married	115	84.6	21	15.4	136	9.99	0.002*
- Not married	7	50	7	50	14		
Education:							
- Educated	45	61.6	28	38.4	73	36.31	0.0001**
- Not educated	77	100	0	0	77		
Occupation:							
- Not working	50	64.1	28	35.9	78	31.78	0.0001**
- Working	72	100	0	0	72		
Residence:							
- Rural	107	88.4	14	11.6	121	20.76	0.0001**
- Urban	15	51.7	14	48.3	29		
Income:							
- Not enough	59	67.8	28	32.2	87	24.93	0.0001**
- Enough	63	100	0	0	63		

*p<0.05 Significant   **p<0.001 High significant

 $\chi 2$ = chi square   P = P value

Table 7: Correlation between total knowledge score of studied patients and their age and severity score of bronchial asthma:

Items		Age	Severity score
Total knowledge	R	0.114	-0.205[*]
	P	0.165	0.012

r = Pearson's correlation   P = P value

*p<0.05 Significant   **p<0.01 High significant

Table 8: Multiple linear regression model for predicted lifestyle score among studied patients(n=150):

Items	Unstandardized Coefficients		t	Sig.	R	R^2
	B	Std. Error				
(Constant)	-0.026					
Age per years	0.029	0.005	6.066	.0001*	0.86	0.737
The severity of bronchial asthma	0.869	0.073	11.911	.0001*		
R square = 73.7% of predict Model ANOVA: F=136, p=0.000						

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