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ASSESSMENT OF KNOWLEDGE, AWARENESS AND PRACTICE OF ASTHMA DISEASE AMONG MEDICAL STUDENTS

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ABSTRACT: Asthma is a common chronic disease with underlying inflammation of the airway. Advances in science have led to increased understanding of the heterogeneous nature of asthma and its complex mechanisms. It affects more than 344 million people worldwide and 25 million people in the USA. In order to monitor its prevalence among medical students & to scrutinize people affected by this hazardous disease; a cross sectional study was carried out to evaluate knowledge, awareness & practice of asthma among medical scholars and non-medical graduates. A questionnaire was prepared w/c included knowledgeable questions related to asthma & also for patients who are being affected by this disease. Survey lasted from March to April in Jinnah University for women and also by online survey forms. Total 100 respondents accomplished to fill the questionnaire. From above study it can be concluded that high proportion of individuals have awareness of asthma. Regardless of awareness it is observed that high amount of individuals are suffering from this disease & drug salbutamol is being preferred as medication by a number of respondents. This study also gives knowledge about this disease i.e. in the beginning we firstly discussed asthma (its symptoms, causes, treatment, outcomes etc.) so that reader can be benefited & take measures regarding its outcomes as asthma can also be controlled & prevented by self-management. Clinical practices and research studies concerning asthma can benefit from harmonizing the major outcome measures so that comparisons across studies can be made. This survey gives an idea about patients w/c are suffering from this disease & are in an increase ratio therefore government should take steps against this disease & people should also take self-management steps.

KEYWORDS: Asthma, causes, beta blockers, NSAIDs, allergy, infection.

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1.INTRODUCTION

This article reflects the prevalence of asthma disease among medical students & for this activity it is obligatory to fully understand the disease. Asthma is characterized by chronic inflammatory disease of the bronchioles of lungs or airflow obstruction and bronchospasm [1-2]. Symptoms of asthma may be mild, moderate or severe. Most common symptoms are cough, Shortness of breath, sore throat, headache, and trouble sleeping, wheezing, dyspnea and chest tightness. If early warning signs and symptoms are not recognized and treated, the asthma episode can progress and symptoms might worsen [3, 4, 5, 6, 7]. Cell types and components of immune system which are involved in asthma are T -lymphocytes, Macrophages, Neutrophils, Eosinophils, Cytokines, Chemokines, Leukotrienes & Histamine [8]. Asthma can be classified into following types: Child-onset asthma, adult-onset asthma, seasonal asthma, cough-variant asthma, work related/aggravated asthma, occupational asthma with latency, irritant-induced asthma, exercise induced asthma, nocturnal asthma, premenstrual asthma, status asthmatics, medication induce asthma [9-19]. Asthma may be disease induced (atopic disease), drug induced (Beta blockers, ACEIs, NSAIDS), due to any environmental factor (smoke) or may be inherited [5, 6, 7, 20]. Asthma is suppressed or treated by two methods i.e. short term relief and long term relief. Short term relief is associated with the relaxation of airway smooth muscles to relieve the symptoms of asthma. Short term treatment of asthma includes; Beta adrenoceptor stimulant (albuterol, terbutaline), Methylxanthine drugs (Theophylline) and Antimuscarinic agents (ipratropium bromide). They are also known as quick relief or rescue medicines. Long term relief includes the most effective anti-inflammatory agents like; Corticosteroids (Baclomethasone, Ciclesonide etc), leukotriene pathway inhibitors (Montelukast, zafirlukast) and IgEMonoclonal Antibodies (Omalizumab) [21-22]. Expertise identifies the triggers behind the asthma to plan the treatment of it [23]. Following are the possible triggers that can cause asthma; allergens (dust, mites, cockroaches, molds, pets, pollens) and irritants (strong sprays odors and smokes, tobacco smoke). Continuous contact of irritants can cause irritation in trachea and small air tubules which results in increased secretion of mucus that causes difficulty in breathing. Other triggers include cold and respiratory infections, food sensitivities, exercise, stress and weather [24-27]. Pathogenesis of asthma can be classified as allergic or non-allergic i.e. asthma can be induced by allergens that may

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cause bronchoconstriction & increase mucus production. Furthermore asthma can also be caused by immune response [28-31]. In the response of inhaled allergens, humoral immune system activates w/c produces antibodies & memorized them, when same allergens again enter the body it activates the humoral system. As a result of inflammation, wall of airways become thicker due to the production of chemicals; proliferated cells produce, remodeling of airways, causing increased and thicker secretion of mucus from mucus secreting cells, arm of immune system is also activated. It also promotes bronchospasm because inflammation makes airways more hyper reactive [32]. Pro-coagulant state in bronchi alveolar space is also one of the main factors of asthma [33]. Diagnosis of asthma takes place in 3 steps i.e. Medical history of patient, Physical examination of patient, other symptoms. Medical history includes questions related to the symptoms the patient may suffer from & whether the symptoms arise due to specific triggers & family history of patient. Physical examination of ears, eyes, nose, throat, skin, chest, lungs & skin for signs of allergic conditions such as eczema and hives may also give clue to a doctor. Wheezing is one of the main signs of asthma. If the patient gives positive test towards all the symptoms & examinations following confirmatory examination/tests are done: - lung function test, spirometry, peak airflow, trigger tests. If doctors think you have condition other than asthma, they may run other tests such as chest X-ray, acid reflux test; sinus X-rays [34-35]. The objective of this study is to evaluate the knowledge, awareness & practice of asthma disease among medical and non-medical students in view of the fact to identify knowledge.

2. MATERIALS AND METHODS

A retrospective study was conducted among medical professionals, medical students & individual from different fields. This study was conducted manually and also by online survey forms from March -June 2015 among medical students of Jinnah university for women particularly of pharmacy department. This randomized study was approved by dean of department of pharmacy of Jinnah University for women. Total 100 individuals (n=100) participated in the survey. An executive questionnaire was designed which consist of 15 questions in which 1st four questions reflected the socio demographic data of participants while others were based on knowledge, awareness & practice of asthma to pursue the prevalence of this disease among individuals. Data were recorded anonymously and we respected the confidentiality of respondents. Data was analyzed carefully by SPSS version 20 and categorical variables in terms self-administered of frequency and percentage while chi-square test was applied for the determination of relation between two categorical variables. P<0.05 considered as significant statistically in all results.

3. RESULTS AND DISCUSSION

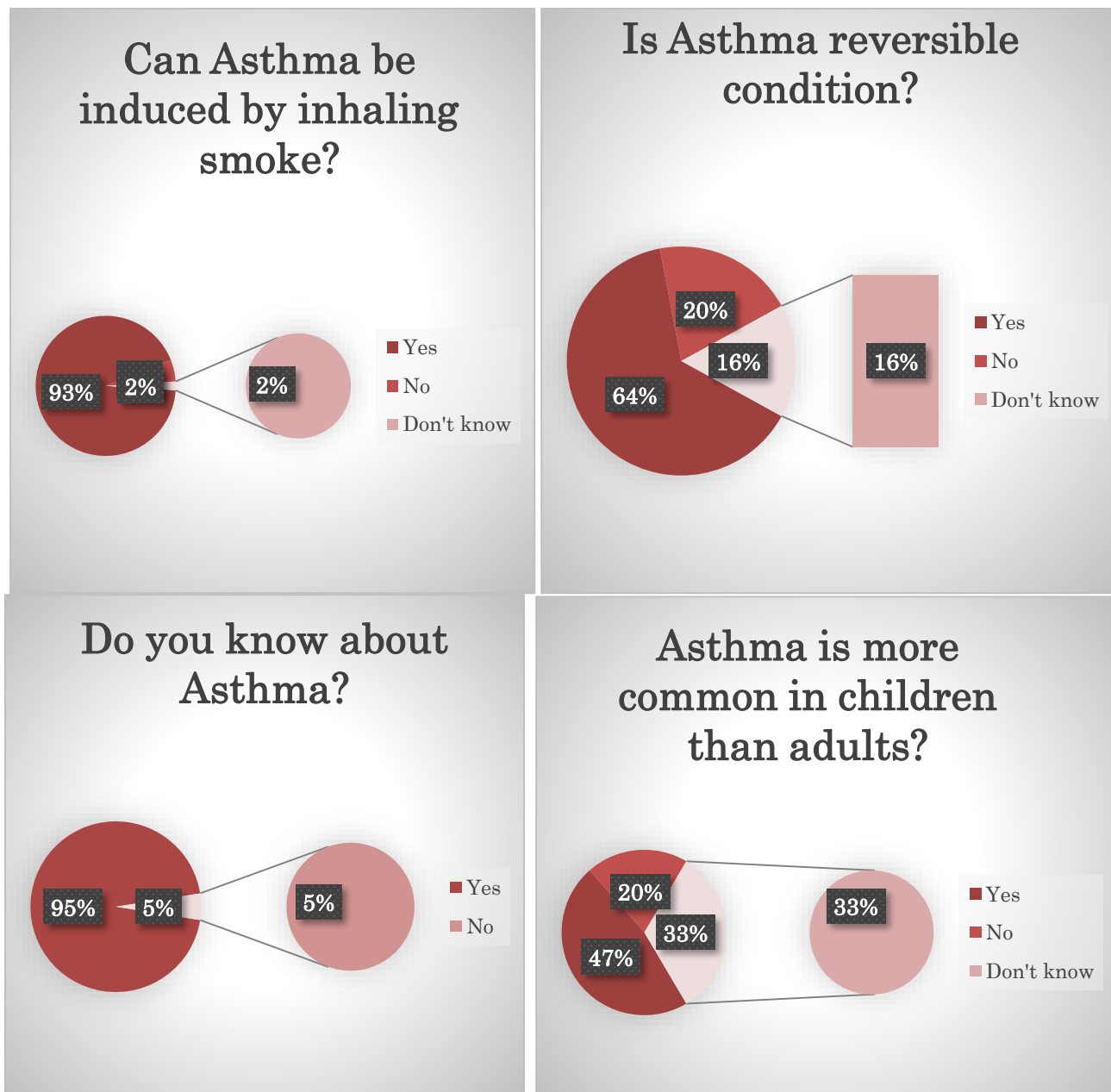
Result showed high proportion of awareness & knowledge of asthma among medical scholars. This Table 1 represented the socio-demographic characteristics in which both genders participated in the ratio of 14% (male) & 86% (female).

CHARACTERISTICS	PERCENTAGE
GENDER	
Male	14%
Female	86%
PROFESSIONAL EDUCATION	
Medical graduates	19%
Medical undergraduates	58%
Non-medical graduates	15%
intermediate	8%
AGE GROUP	
18-30	84.4%
30-45	8.9%
45-60	6.7%

Table 1: Socio demographic data of the participants

In this survey 19% of medical graduate's participated w/c is followed by higher participation from the students of different medical fields that constitute up to 58% followed by non-medical graduates up to 15%, intermediate students 8%. Most of the participants fall in age group of 18-30y i.e. 84.4% while the least participation was obtained from the age group 30-45y & 45-60y i.e. 8.9% & 6.7% respectively.

Figure 1: Showing percentages of the participants' awareness about ASTHMA



A significant number of participants from all discipline know about Asthma i.e. 95% while 5% of them do not know about this disease. Majority of the participants agreed that Asthma is a reversible condition i.e. 64% while 20% participants do not agree and 16% don't know about it. Majority of participants agreed that asthma can be induced by inhaling smoke i.e. 93% while 5% do not agree and 2% don't know about it. Majority of the participants agreed that asthma is more common in children than in adults i.e. 47% while 20% do not agree and 33% don't know about it. Participant's

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 attitude towards ASTHMA was carefully evaluated in terms of basic statement. Around 88% participants agreed by the statement “Asthma is characterized by bronchial constriction, chronic airway inflammation & airway obstruction” while 5% disagree and 7% have no knowledge about it. Majority of participants agreed that “Asthma is triggered by internal stimuli such as release of mediators” i.e. 88% while 7% disagree and 5% don’t know about it. Significant number of people agreed that “Asthma can be triggered by emotional changes” i.e. 71% while 11% disagree and 18% don’t know about it. Equal response of agrees and disagrees on the statement of “the level of surfactant of lungs decrease in asthma” i.e. 45% while 10% don’t have any idea about it. Majority of participants agreed that “Asthma can cause dyspnea” i.e. 88% while 3% disagree and 9% don’t know about it.

Table 2: Showing awareness of participants about ASTHMA by education.

AWARENESS					
Education	<i>Medical graduates</i>	<i>Medical undergraduates</i>	<i>Non-medical graduates</i>	<i>Intermediate</i>	<i>p-values</i>
Q1: Do you know about asthma?					0.001*
Yes	19	58	10	8	
No	0	0	5	0	
Q2: Asthma is a reversible condition?					0.000*
Yes	19	42	0	3	
No	0	6	12	2	
Don't know	0	10	3	3	
Q3: Asthma can be induced by inhaling smoke?					0.003*
Yes	19	58	8	6	
No	0	0	3	1	
Don't know	0	0	4	1	
Q4: Asthma is more common in children than in adults?					0.000*
Yes	15	28	1	3	
No	4	13	2	1	
Don't know	0	17	12	4	

P-value calculated through chi-squared test, significance *p<0.001 considered highly significant

Table3: Showing Knowledge of participants about asthma by education

KNOWLEDGE					
<i>Education</i>	<i>Medical graduates</i>	<i>Medical under graduates</i>	<i>Non-medical graduates</i>	<i>intermediate</i>	<i>p-values</i>
Q1: Is asthma characterized by bronchial constriction, chronic airway inflammation & airway obstruction?					
Yes	19	58	7	4	0.000*
No	0	0	3	2	
Don't know	0	0	5	2	
Q2: Asthma is triggered by internal stimuli such as release of mediators?					
Yes	19	57	7	5	0.001*
No	0	0	2	3	
Don't know	0	1	6	0	
Q3: Does level of surfactant of lungs decrease in asthma?					
Yes	19	23	1	2	0.000*
No	0	33	7	5	
Don't know	0	2	7	1	
Q4: Asthma can cause dyspnea (air hunger)?					
Yes	19	58	5	6	0.002*
No	0	0	2	1	
Don't know	0	0	8	1	
Q5: Can asthma be triggered by emotional changes?					
Yes	19	50	1	1	0.000*
No	0	2	4	5	
Don't know	0	6	10	2	

P-value calculated through chi-squared test, significance *p<0.001 considered highly significant

Table 4: showing asthma prevalence & treatment

PRACTICE				
Education	<i>Medical graduates</i>	<i>Medical-under graduates</i>	<i>Non-medical graduates</i>	<i>intermediate</i>
Q1: Are you asthmatic patient or do you have any history of asthma in your family?				
Yes	7	22	8	5
No	12	36	7	3
Q2: specification of medicines taken by asthmatic patient.				
Salbutamol	16	49	3	2
Monteleukast	2	8	7	3
others	1	1	5	3

DISCUSSION:

Asthma is a chronic & common disease of lungs. There is no country in the world which is free from this ailment. Approximately 334 million people in the world population have asthma [36]. Mortality rate is lesser i.e.1%only [37]. Rates of prevalence of asthma between various countries are 1-18% [38]. Basically there is no prevention of asthma disease however this frequent spreading of disease can be controlled by taking preventive measures such as; Asthma attacks can be prevented by identifying and avoiding the triggers, by properly following the treatment plan as prescribed by the doctor or pharmacist& by diagnosing its signs & symptoms earlier to prevent asthma from getting worse [39].This study was basically conducted in order to estimate the knowledge, awareness and practice among the people because there is very minor literature in Pakistan that evaluated the knowledge and awareness about asthma. This article is based on a most common disease faced by millions of people around the world i.e. ASTHMA. The rate of accurate knowledge about this disease in participants is sufficient, according to our results, i.e. 88% from this we concluded that most of the people are aware of this disease. About 64% participants know that this is a reversible disease although our survey showed that some participants have misconception about this that it is an irreversible condition. However, scientific studies prove that itis a reversible condition of airway obstruction. Variations in the outcomes obtained and then it is concluded that this is a reversible condition not irreversible. A high proportion of participants i.e. 93% believe that smoke can induce

asthma. Asthma patient have sensitive airways inside their lungs. Several triggers or allergens can cause the narrowing of airways. Thus, smoke can induce asthma especially in asthmatic patients, and his or her symptoms will become worse by inhaling smoke [40-41]. Approximately 88% of participants have awareness that the release of mediators can cause asthmatic attacks while 12% of participants are unaware about it. About 47% of participants believed that asthma is more common in children as compare to adults. According to a research the percentage of asthma in children is 8.6% while in adults it is 7.4% because the immune system of children is weak as compare to adults so children are more sensitive to allergens [42]. A significant number of participants i.e. 71% admit that asthma can be triggered by emotional changes. Asthma which is triggered by emotions is associated with parasympathetic. Changes in mood promotes bronchoconstriction majorly and sometimes bronchodilation also occur which can be ignored, due to bronchoconstriction, asthma is triggered [43]. An equal ratio of participants i.e. 45% agree and disagree to the statement that the level of surfactants decreases in lungs during asthma. Previous researches shows that the lung functions impair immediately by the exposure of ozone which results in increased morbidity in those patients who are suffering from asthma and COPD. Level of surfactant protein D increased due to induction of ozone and surfactant protein D level decreased because of other inflammatory response [44]. From our survey we concluded that the level of surfactant in the lungs alters in case of asthma when patient is exposed to allergen or other stimulants. A significant number of participants i.e. 88% admit that asthmatic patients suffer from dyspnea. Studies show that some patients experience cough and breathlessness during asthmatic attacks rather than wheezing. It is due to increased large airway resistance and contraction of bronchial smooth muscles [45]. In conclusion, our study shows that people have enough knowledge & awareness about this disease which is an encouraging sign towards the society. Our study showed that patients & medical practitioners responded satisfaction towards salbutamol, Monteleukast & other medications. Usually bronchodilators are prescribed for the treatment of asthma as they give long lasting effect & aid the pharmacokinetics to avoid the unwanted side effects. They are 3rd generation β 2 agonists, highly selective [46]. In short, Asthma is the most common wide spreading disease; & it can be lethal as well. Precautions should be immediately taken

if a person experienced any symptom or has a family history of asthma. Precautions should also be taken if individual experience any allergen induce asthma. Leading asthma treatment guidelines emphasize that asthma self-management education should be integrated into all aspects of asthma care and reinforced over time. Asthma self-management refers to the problem-solving behaviors that patients use to manage asthma over time and involves several tasks in multiple areas. Patients must learn to implement behaviors that enable them to understand their illness and take action to avoid known triggers, monitor their symptoms over time, detect declining physiological function, communicate accurately with healthcare providers, access appropriate treatments and take medications properly. In order to control extensive spread of disease government should also take steps by organizing awareness programs regarding to asthma & its precautions.

4. CONCLUSION

With our Systematic Review, we expected to find a great number of observational studies focusing the proportion of asthma spread, awareness, practice & control. Hence, we concluded that people have enough knowledge about this disease, & its quiet common in Pakistan. Still there is need of knowledge & safety measures against this disease.

CONFLICT OF INTERESTS

The author declares no conflict of interests.

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