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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/15874

DOI URL: <http://dx.doi.org/10.21474/IJAR01/15874>



RESEARCH ARTICLE

KNOWLEDGE, ATTITUDE, AND PRACTICES OF SAUDI ASTHMATIC PATIENTS ABOUT ASTHMA: A CROSS-SECTIONAL STUDY IN PHC FACILITIES, QASSIM, SAUDI ARABIA

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Manuscript Info

Manuscript History

Received: 15 October 2022

Final Accepted: 18 November 2022

Published: December 2022

Abstract

Background: According to the evidence, accurate asthma knowledge and perceptions have a good link with medication adherence and frequent medical follow-up. Community knowledge, attitude, and perception (KAP) assessments are necessary for developing public health interventions. There is a dearth of community-based KAP research on asthma in KSA, since the majority of available information comes from hospital-based studies conducted in an urban context.

Methods: A descriptive, cross-sectional study. to evaluate knowledge, attitude and practice about asthma at a single point of measurement, this is the most suitable design. This design enables the researcher to collect reliable data within short period. This study was conducted at primary health care centers in Qassim region, Saudi Arabia from 23-10-2022 until 31-12-2022.

Results: The median age of asthmatic patients was 29 years, with a range between 12 and 65 years. Almost more than half of them (n= 80, 55.6%) had completed university degrees. Some of the study participants reported having a comorbid disease besides asthma. Diabetes mellitus was the most frequent (n= 26, 18.1%) and hypertension comes in the second place among (n= 10, 6.9%). The duration of asthma diagnosis ranged from 3 months to 40 years with a median duration of diagnosis of 7 years. Participants knowledge, attitude and practice assessment was good among most of them (75%). Having observed "asthma patients" was associated with KAP on symptoms and triggers, whereas a younger age and having an asthmatic relative were independently associated with KAP on treatment.

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Participants with asthmatic relatives were three times more likely to have good KAP than their counterparts [(OR 3.04; 95% (1.5–6.1)].

Conclusion: In Saudi Arabia, asthma knowledge and perceptions are limited. Appropriate investments in public awareness are urgently required.

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Introduction:-

Multiple types of cells and cell components contribute to asthma's chronic inflammatory airway disease. Repeated attacks of wheezing, shortness of breath, chest tightness, and coughing are common symptoms of chronic inflammation, and they tend to occur at night or first thing in the morning. Breathing difficulties during these episodes are often caused by a temporary, localized restriction of airflow inside the lung that may be treated or resolves on its own. To this day, scientists still don't know what triggers asthma attacks. Both genetic and environmental factors may be at play [1]. Asthma has been deemed a global health emergency by the World Health Organization [2]. Everyone is at risk for developing asthma, but kids and young people are at a higher risk. While there have been reports of modest disparities in frequency between men and females, the disease affects both sexes similarly. Although there is currently no cure for asthma, it may be managed to significantly reduce the frequency and severity of asthma attacks.

Under-treatment and improper illness management include both the doctor and the patient. In the realm of asthma treatment, this raises serious concerns. Little is known about how the general population reacts to an asthma diagnosis or how the disease affects people, families, and communities [3,4], despite the severity of the issue. Basic facts regarding asthma treatment options, including inhaled medications, inhaler types, and inhalation technique, should be a part of any health education program. Patients should be counseled on preventative actions, such as avoiding allergens and polluted environments. Patient education sessions should take into account the patient's age, level of education, and socioeconomic situation when deciding whether or not to introduce the notion of peak expiratory flow (PEF) monitoring. It is recommended that patients with moderate to severe illness be taught how to measure and log PEF [1]. The PEF should be recorded and analyzed by the patient. This is useful for checking how well the treatment is working and for providing early notice of asthma worsening, allowing for quicker implementation of the self-management strategy.

The Cochrane Airways group recently conducted a systematic review comparing self-management plans with standard treatment, and they found considerable improvements in the intervention groups, including lower rates of morbidity and fewer visits to the doctor. Where written self-management action plans were issued as part of the intervention, results were most striking [5]. Modifying one's way of life to incorporate a balanced diet and weight maintenance is a great start. Limiting your ability to work out is not something you should do. Instead, those with asthma should be encouraged to exercise. The symptoms of exercise-induced asthma may be reduced with the use of short-acting beta-2 agonists, which should be taken before the patient begins exercising. A key component of asthma care is raising awareness of the condition. General practitioners at the peripheral care levels, in addition to the patient and their family, need to maintain a state of constant education on asthma [6].

The current study aimed to assess knowledge, attitude and practices about asthma among primary health care (PHC) asthmatic patients attendees in Qassim.

Literature Review:-

Asthma and other chronic respiratory disorders (CRD) are a major global health concern due to their high incidence and fatality rates [7-8]. Asthma is rising in incidence at a rate of over 50% each decade, and it is responsible for an estimated 15 million DALYs lost and 180,000 deaths yearly throughout the world [9]. The frequency among adults in India is estimated to be between 2.38 and 2.82%, with comparable percentages seen in both rural and urban areas [10-11]. Younger children had even higher percentages (2.3–5.14%) and teenagers (3.3–13.1%) [12-15]. When compared to global statistics, they held true across all age groups [16-17]. The third phase of the ISAAC research, as well as more recent investigations, found that the incidence of childhood asthma in the West has leveled off, in contrast to the upward trend shown in Africa and Asia [18-19]. One possible explanation for the plateau is the rise in industrialized countries' level of consciousness and knowledge relative to that of less developed nations.

Consistency with asthma treatment, frequent medical follow-up, and favorable results have all been shown to connect favorably with accurate information and accurate beliefs regarding asthma [20]. People with asthma who are well-informed and realistic have a higher chance of successfully managing their condition on their own [21]. Research has shown that when parents have more information and a higher level of health literacy, it translates to better asthma control for their children. This, in turn, leads to more mobility and fewer trips to the emergency department [22-23]. A metropolitan hospital-based survey found that 39% of parents accepted an asthma diagnosis, but only 3% knew what it meant, and 26% of parents believed asthma to be infectious [24].

Breathlessness, chest tightness, coughing, and wheezing are hallmarks of the long-term condition known as asthma [25]. Asthma sufferers also face the risk of abrupt, severe symptom worsening, known as asthma attacks or exacerbations. It is estimated that 235 million individuals throughout the world are now living with asthma, making it a public health problem and a condition that would be classified as a long-term condition (LTC) by the American Lung Association [26]. There are an estimated 5.4 million persons in the UK with asthma, making it the eleventh most common chronic illness there [27]. Asthma was shown to have the greatest economic impact of all LTCs in a 2009 comprehensive evaluation [28-29]. In Europe, the average cost of treating asthma was estimated to be \$1900, but in the United States, it was \$3100 [30]. Although there are numerous published recommendations and techniques for the diagnosis and therapy of asthma, poor control among asthma patients remains a serious problem worldwide [31, 32].

Regular documentation of the worldwide strategy of asthma management, diagnosis, and prevention are published on the website of the Global Initiative for Asthma (GINA), and are updated yearly [33]. The National Institute for Health and Care Excellence (NICE) has issued both advice and quality standards for asthma management in the United Kingdom; these may be found at [34] (British Thoracic Society/Scottish Intercollegiate Guideline Network) and [35] (NICE Quality Standards for Asthma). Primary and secondary healthcare facilities are both involved in asthma treatment [29]. Asthma patients are managed by a wide range of HCPs in diverse clinical settings [36]. Long-term treatment of asthma is often handled in primary care by the patient's family doctor, a practice nurse or nurse practitioner, and increasingly, a practice pharmacist [36]. The development of a Personalized Asthma Action Plan (AAP) [34, 37-38] is one such method, along with an Annual Asthma Review (AAR) that includes monitoring and assessment of asthma control using a validated tool, such as The Royal College Of Physicians' (RCP) 3 questions, 13 lung function, asthma attacks, inhaler technique, adherence, and bronchodilator reliance. The GINA, BTS/SIGN, and NICE guidelines for asthma [33-35] all recommend the development and provision of an AAP that contains advice on how to recognize any change in asthma control (by symptoms or FEV₁) and actions (seeking for emergency, increasing Inhaled Corticosteroids (ICS) use, or using an oral Corticosteroids (CS) to be taken by patient in response to this change).

Both internationally and in the United Kingdom, community pharmacies have been shown to play an important role in helping people with asthma [32, 39]. Asthma sufferers may have their medicines filled, learn about their condition, and get help quitting smoking from these professionals [36]. Community pharmacies also help those with asthma by doing medication evaluations via programs like Medicine Use Reviews (MURs) and the New Medicine Service (NMS) [40]. Proactive organized reviews have been shown to enhance clinical outcomes in asthma [34], including fewer missed days of school or work, fewer asthma attacks, better symptom management, and fewer visits to the emergency room due to asthma-related emergencies. Despite the need of reviewing asthma periodically, patients may miss their visits for a variety of reasons [41]. These include forgetting about their appointments, being sick, having trouble getting to their appointments, and believing that their asthma does not need to be reviewed. Development and enhancement of an effective delivery procedure is essential [42] to guarantee the provision of efficient treatment to patients (including those with asthma). Asthma patients' access to care may be enhanced and emergency room visits reduced if services centered on prevention, early treatment, and greater use of healthcare professionals, including community pharmacists, are made available to them [29, 30, 43]. Costs associated with asthma treatment might be reduced and the quality of life for individuals with asthma improved with the help of these services [30, 43]. Appointment compliance among asthma patients may be enhanced by community pharmacies' extended hours of operation, simplified location, and adaptable scheduling system [44].

Research on the best ways to help adults with asthma has been the subject of a great deal of attention in recent years, both in the United Kingdom and elsewhere. These studies' results might be used to guide the creation of a community pharmacy asthma service that caters to certain subsets of adult asthma patients. 8 More than that, several

scholars have conducted literature and systematic reviews to talk about, describe, and analyze treatments provided by pharmacists in a variety of healthcare settings, including community pharmacies [45].

Methods:-

Study design

This is a descriptive, cross-sectional study. Since this study aims to evaluate knowledge, attitude and practice about asthma at a single point of measurement, this is the most suitable design. This design enables the researcher to collect reliable data within short period.

Study Setting and Period

This study was conducted at primary health care centers in Qassim region, Saudi Arabia from 23-10-2022 until 31-12-2022.

Study population and sampling

We conducted a cross-sectional survey at four conveniently selected PHC in Qassim region. (1) al'eskan primary health care center in Burydah which is one of largest primary health care center in alqassim region with more than 3500 monthly visit located at Othman Ibn Affan road, al'eskan. (2) Khusabah health care center in al-assyah with approximately 1200 monthly visitors. (3) zahrah primary health care center at ar Rayan district Unyzah with approximately 1400 visits monthly. (4) Khaldiayah primary health care center at king abdulaziz road, almithnab.

Study Participants

Inclusion criteria

All asthmatic adult men and women more than 18 years of age.

Exclusion criteria

Exclude those known to have a psychiatric illness, COPD, Pregnant women and dementia from the sampling frame.

Study tool

The study was carried out by using modified Chicago community asthma survey-32 (CCAS-32) questionnaire.

Sample size

Sample size was calculated using OpenEpi for sample size calculation for cross-sectional.

Statistical analysis

Statics was performed and categorical data was displayed as frequency and percentage while measures of central tendencies and measures and dispersion was used to summarize continuous variables. Univariate and multivariate analysis was performed to investigate regression analysis to ascertain the exposure factors independently associated with KAP in different domains (symptoms, triggers, and treatment) of asthma. Statistical significance is set at a P value of 0.05 or less.

Ethical consideration

Administrative approval was sought from of biomedical ethics research committee ethical approval was sought from ethical committee of the faculty of medicine, ministry of health an informed consent was sought from the participants.

Results:-

The study included 144 participants from both genders and all ages. The mean age among study participants was 32.36 ± 12.6 years with A median age of 29 years. Age ranged from 12 to 65 years. age group distribution among study participants is presented in figure 1. There were 90 males (62.5%) and 54 female participants (37.5%).

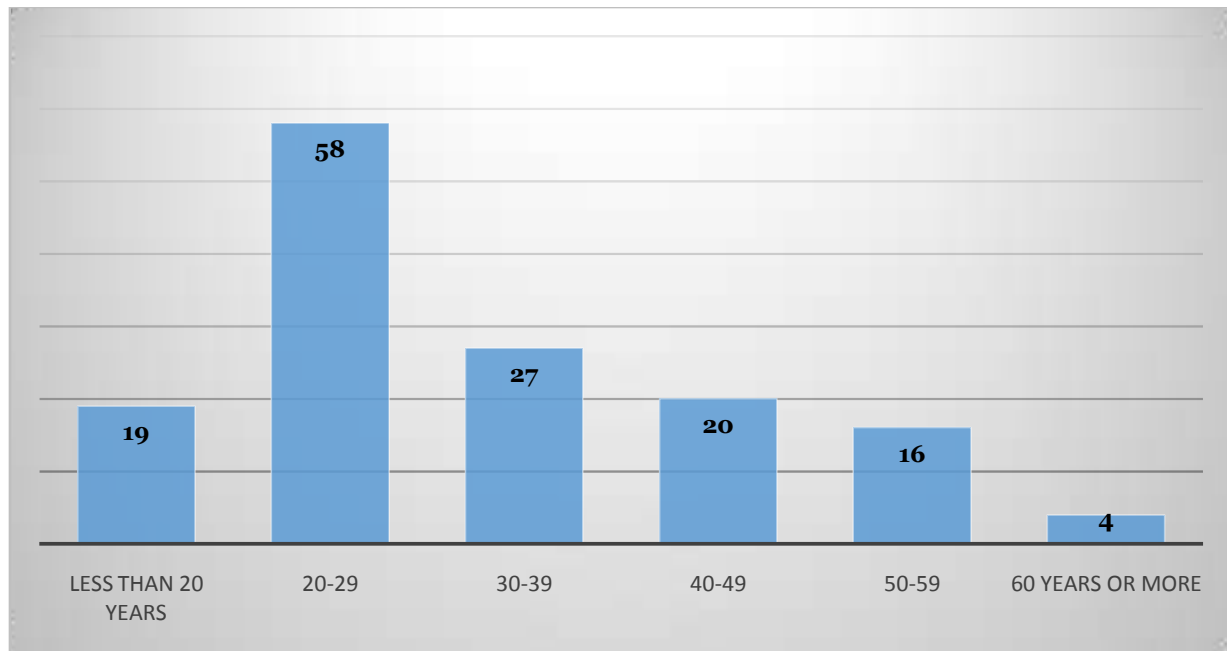


Figure 1:- Age groups distribution among study participants.

The educational level varied among study participants with most of them having a university degree (n= 80, 55.6%). Figure 2 shows the educational level distribution among study participants.

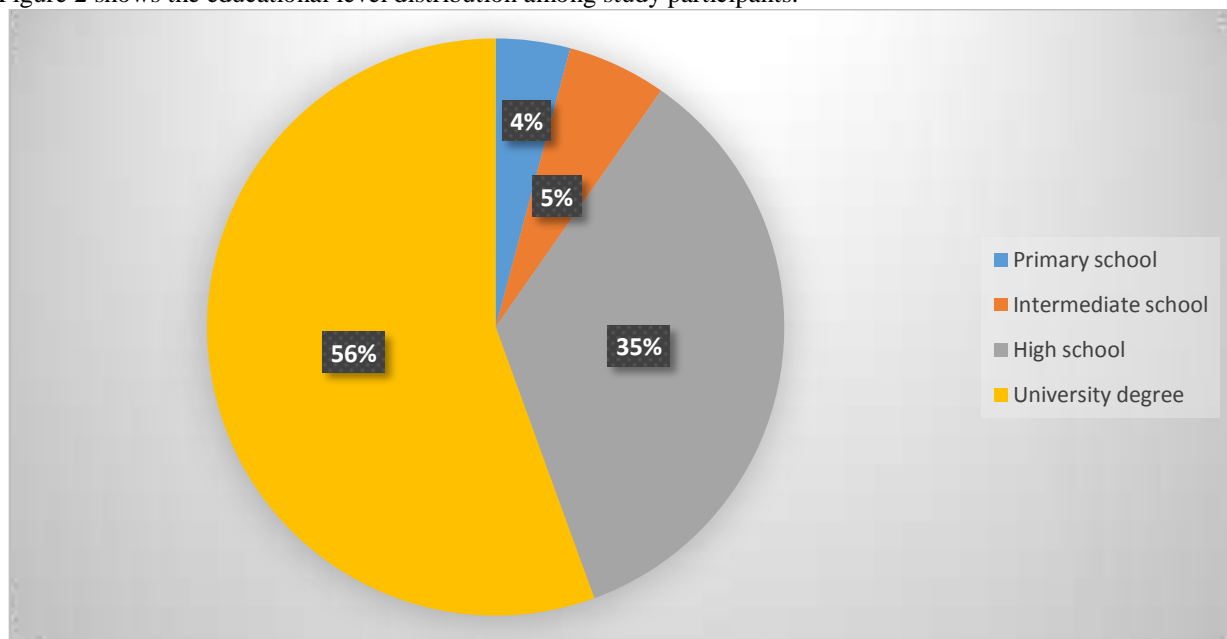


Figure 2:- Educational level distribution among study participants.

More than half of the study participants were single (n= 77, 53.5%) while 56 participants were married (38.9%). The rest of study participants were either divorced (n= 9, 6.3%) or widowed (n= 2, 1.4%). Participants' occupation varied and the most common occupation was being student (n= 34, 23.6%). Other occupations were teacher, policeman, information technology employee and accountant. More than half of study participants had an income level less than 5000 (n= 78, 54.2%). The distribution of study participants according to income is presented in figure 3. One third of study participants are smokers (n= 50, 34.7%) while the rest of them are non-smokers (n= 94, 65.3%).

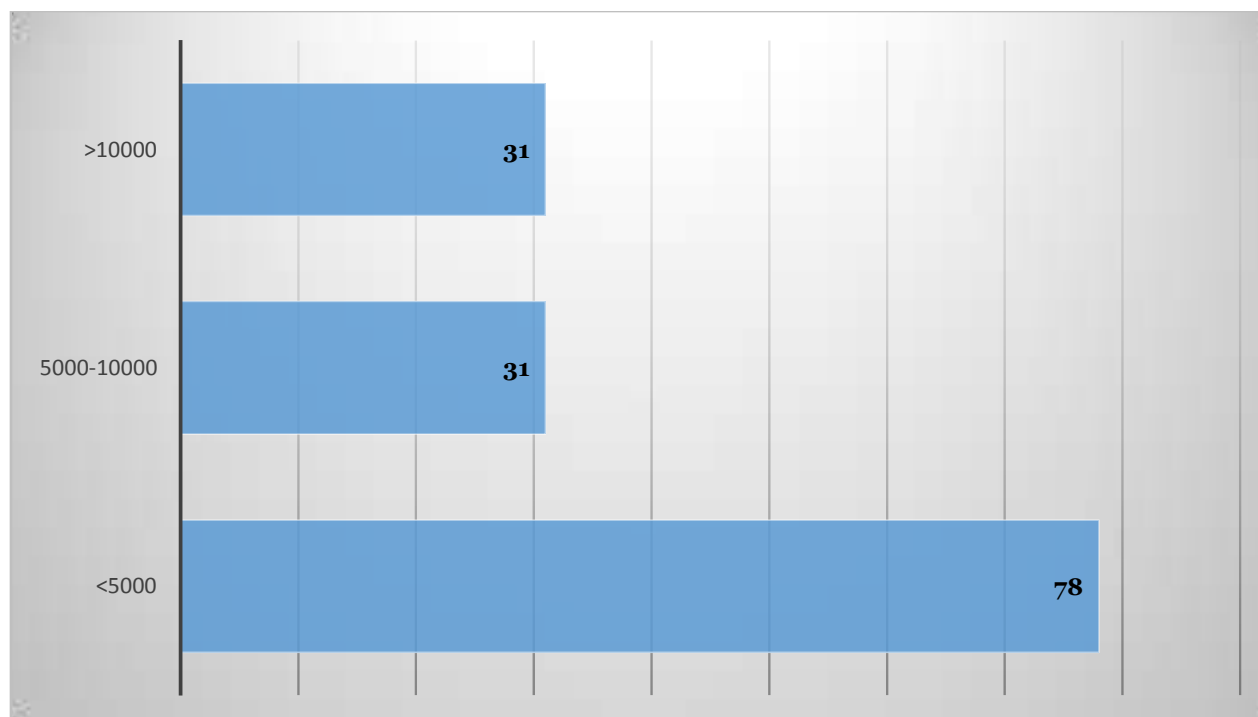


Figure 3:- Income distribution among study participants.

Some of study participants reported having comorbid disease besides asthma. Diabetes mellitus was the most frequent ($n=26$, 18.1%) and hypertension comes in the second place among ($n=10$, 6.9%).

The duration of asthma diagnosis ranged from 3 months to 40 years with median duration of diagnosis of 7 years. Patients had frequent episodic attacks of asthma per month as reported by them. Dust and cold weather were the most frequent aggravating factors of asthma attacks. Two participants reported post-COVID complications with regard to asthma. All participants demonstrated good use of inhalers. The use of inhaler varied among study participants from once per month to three times a day. Some participants reported use of oral medications such as diabetes medications and steroid for allergy. Family history of asthma was prevalent among 35 participants (24.3%).

Participants' knowledge, attitude and practice were assessed using Chicago Community Asthma Survey (CCAS-32). Participants' responses are provided in table 1 and 2.

Table 1:- Participants' responses to the first part of CCAS-32 items.

Question	YES	NO	Don't know
1. Asthma cannot be cured	69 47.9%	49 34%	26 18.1%
2. Vaporizer is good treatment	113 78.5%	21 14.6%	10 6.9%
3. Asthma limits exercise	116 80.6%	25 17.4%	3 2.1%
4. Need for asymptomatic asthma visits	64 44.4%	66 45.8%	14 9.7%
5. Common reason for school absences	90 62.5%	36 25%	18 12.5%
6. Asthma runs in families	68 47.2%	38 26.4%	38 26.4%
7. Asthma is mainly an emotional illness	44 30.6%	64 44.4%	36 25%
8. Asthma resolves if attacks stop	73	55	16.11.1%

	50.7%	38.2%	
9. Where to go for treatment	131 91%	10 6.9%	3 2.1%
10. Asthma onset always in childhood	57 39.6%	47 32.6%	40 27.8%
11. Signs: shortness of breath	140 94.2%	1 0.7%	3 2.1%
12. Signs: chest tightness	137 95.1%	6 4.2%	1 0.7%
13. Signs: severe headaches	58 40.3%	59 41%	27 18.8%
14. Signs: nocturnal cough	122 84.7%	13 9%	9 6.3%
15. Signs: wheezing with exercise	123 85.4%	9 6.3%	2 8.3%
16. Triggers: furry pets	94 65.3%	28 19.4%	22 15.3%
17. Triggers: mosquito bites	23 16%	83 57.6%	38 26.4%
18. Triggers: dampness	74 51.4%	42 29.2%	28 19.4%
19. Triggers: cockroaches	16 11.1%	84 58.3%	44 30.6%
20. Triggers: poor diet	46 31.9%	58 40.35	40 27.8%
21. Triggers: pollen	129 89.6%	11 7.6%	4 2.8%

Table 2:- Participants' responses to the second part of CCAS-32 items.

Questions	1	2	3	4	5
22. Asthma is a serious disease	0	18 12.5%	35 24.3%	50 34.7%	41 28.5%
23. Hospitalizations are preventable	1 0.7%	8 5.6%	27 18.8%	54 37.5%	54 37.5%
24. Symptoms are preventable	1 0.7%	21 14.6%	31 21.5%	43 29.9%	48 33.3%
25. Adequacy of OTC medications	31 21.5%	58 40.3%	20 13.9%	16 11.1%	19 13.2%
27. Asthma care is expensive	8 5.6%	29 20.1%	45 31.3%	22 15.3%	40 27.8%
28. See doctor immediately for attack	1 0.7%	7 4.9%	14 9.7%	32 22.2%	90 62.5%
29. Appropriateness of ED for treatment	2 1.4%	11 7.6%	34 23.6%	32 22.2%	65 45.1%
30. Addiction to asthma medicines	22 15.3%	42 29.2%	37 25.7%	14 9.7%	29 20.1%
31. Adequacy of medications	9 6.3%	35 24.3%	29 20.1%	30 20.8%	41 28.5%
32. Insurance and asthma care	2 1.4%	5 3.5%	21 14.6%	9 6.3%	107 74.3%
33. Stress makes asthma worse	5 3.5%	20 13.9%	40 27.8%	35 24.3%	44 30.6%
1: Strongly disagree; 2: disagree; 3: Neutral; 4: Often agree; 5: Agree					

Observing asthmatic patients was independently associated with KAP on symptoms and triggers in multivariate analysis. Both younger age and having an asthmatic relative were independently associated with KAP on asthma treatment as presented in table 3.

Table 3:- Multivariate regression analysis on factors associated with knowledge, attitude and practice on symptoms, triggers and treatment.

Variable	KAP on symptoms			KAP on triggers			KAP on treatment		
	Parameter estimate	95% CI	P	Parameter estimate	95% CI	P	Parameter estimate	95% CI	P
Intercept	1.92			1.18			2.90		
Age							-0.68	-1.22, -0.13	0.01*
Gender							0.31	-0.20, 0.84	0.2
Education	0.22	-0.06, 0.51	0.12						
Occupation	-0.10	-0.39, 0.19	0.5	-0.21	-0.63, 0.2	0.31			
Socio-economic status	0.32	-0.02, 0.66	0.06	0.53	0.08, 0.99	0.02*			
Marital status	-0.11	-0.37, 0.15	0.4				0.45	-0.70, 0.98	0.09
Family history of asthma	0.12	-0.23, 0.48	0.4	0.46	-0.44, 0.97	0.07	1.36	0.65, 2.07	<0.001*
Model R ²	0.097			0.09			0.07		

Discussion:-

All of the existing literature on asthma and its epidemiology is based on research conducted in a single tertiary care hospital and mostly included individuals with asthma or their family members [46-49]. To the best of our knowledge, no community-based KAP research have been conducted in KSA as of yet. As can be seen from the results of the aforementioned hospital-based KAP investigations, there has historically been a significant lack of accurate information concerning asthma [47, 49]. The fact that one-third of the people in our research group had inaccurate ideas about asthma, low levels of knowledge, and poor attitudes is shocking. This result is consistent with data from a Zambian population research [50].

Many of respondents in [46] research also held a number of incorrect beliefs. It was shown that one in ten people could not recognize the signs of asthma, including wheezing, chest tightness, and difficulty breathing. Two people out of the whole research group were clueless about what asthma was, therefore it seems likely that most of our patients are familiar with the word [46]. These results don't seem very worrisome, but there weren't a lot of other ones, either [46]. In [46] study, over half of the participants falsely believed that asthma was communicable, and nearly as many (58.1%) thought that asthma was an emotional disorder. This conclusion was in line with a 2005 study of asthmatic children and their parents in Chennai, which found that just 35% of parents believed asthma was genetic [51]. Despite this, unlike the majority of people in our sample, just 25% of these participants believed that asthma was communicable. It's conceivable that the fact that the research was conducted in a hospital in a large metropolis and had parents with asthmatic children accounted for the lower number of participants who misunderstood the condition. The participants' educational background was not reported, however it can be safely assumed to be high given the study's focus on an urban population [51]. In 1995, researchers in Chandigarh found that just 34.1% of the parents of asthmatic children there believed that asthma was communicable, a percentage that is still lower than the prevalence here [52]. Even though the former was an urban population exposed to asthma sufferers, the knowledge gap has persisted for almost 25 years. Suboptimal illness treatment and a pessimistic outlook might negatively impair quality of life [53-54].

According to a survey of the general population in Punjab, 84% of respondents believe that using an inhaler is socially unacceptable, and 93% prefer oral drugs [55]. Similarly, over 48% of asthma patients in a research

conducted in Kerala did not favor inhalers due to the social stigma and addictive nature of the medication. People with asthma often turn to natural medicines they may make at home [56-57]. More than 41% of our respondents agreed that asthma medications were addictive, which is consistent with previous results from Kerala.

Almost 75% of the people [46], compared to 30% in Chandigarh, believed that asthma could be treated. The fact that asthma symptoms are only temporary likely contributed to this large range. Among the urban, rural, and hospital populations represented in the existing research, there is a significant information gap [47, 49, 54]. Many people in [46] country wrongly believed that asthma drugs were very addictive. In a similar survey conducted in Zambia, 37% of respondents held the belief that MDIs were addictive [50]. A survey conducted in Patiala, India, found that 38% of respondents believed inhalers to be addictive [58].

While 46% of patients in the Zambia research and 74% of patients in [46] study believed that inhalers constitute the principal therapy for asthma, 31% of patients in [46] study did not share this belief. The research in Zambia, on the other hand, used hospital onlookers. Their time spent in the hospital may have increased their health consciousness. We had a population with a literacy rate that was similar to Zambia [50].

In our research, we found that asthma KAP on triggers was significantly linked to economic status. This research shows that higher socioeconomic position is associated with more opportunities for learning and, ultimately, a more stable family unit.

The results of a research conducted in the United States found that patients with higher levels of education and younger ages tended to have more asthma knowledge. More knowledge also meant a higher quality of life compared to those with less [59]. Identical outcomes in KAP therapy were seen in both studies. This correlation is encouraging, suggesting that the KAP may increase as the present generation's children grow more influential in society.

Our interesting results showed that a higher KAP score in regards to asthma symptoms and triggers was independently linked to a history of asthma. Having a close family member with asthma also greatly elevated both the baseline KAP and the KAP while on medication. One possible explanation for this development is the increased understanding that comes from careful observation. The prevalence of asthma means that those with the condition are likely to come into contact with those who suffer from it. Our results are generally consistent with those of other studies conducted across the world, however we did discover that people with asthmatic relatives were more likely to have high KAP than their peers.

Conclusion:-

Despite increased access to healthcare, our research demonstrates that misconceptions and inaccurate information persist around asthma in KSA. The widespread belief that inhalers are addictive persists, especially among low socioeconomic participants. Poor treatment adherence and an unhealthy propensity for oral or parenteral steroids might result from such erroneous beliefs. To better prepare future generations in terms of knowledge, attitude, and perception, more resources must be invested in health education through school curricula and public awareness initiatives.

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