

**Knowledge attitudes and practices of asthma; Does it associate with demographic factors of adult patients?****Madhushani H.P.D\* and Subasinghe H.W.A.S***B Pharmacy Degree Programme, Faculty of Medicine, University of Ruhuna, P.O. box 70, Galle, Sri Lanka***ABSTRACT**

This study aimed to assess knowledge, attitude and practices of asthma and its associations with demographic factors in patients in a tertiary care-setting, Sri Lanka. A sample of 118 patients with asthma were enrolled for the study. Investigator administered, 44 item validated questionnaire was used to assess the cognitive variables of participants. Ethical approval was obtained from Ethics Review committee, Faculty of Medicine, University of Ruhuna. Data analysis performed using SPSS version 20. Overall knowledge about asthma was significantly higher ( $p=0.009$ ) in females ( $11.75\pm 2.39$ ). The knowledge level was associated with patient's age. Elderly patients above 51 years of age had low level knowledge ( $p<0.05$ ) than patients between 31-50 years age. Patients who educated above grade 10 ( $12.07\pm 2.43$ ) had higher level of knowledge ( $p=0.001$ ) about asthma compared to patients educated up to grade 5 ( $10.44\pm 2.06$ ). 64.4% of the sample had positive attitudes towards management of asthma. However, only 12.7% of the sample inhabit with good practices. Patient's knowledge about asthma and its medication are associated with demographic factors of patients predominantly education level and age.

**Keywords:** asthma, cognitive variables, asthma management, risk factor**Introduction**

Asthma is a chronic respiratory disease which significantly associates with global morbidity and mortality since decades [1]. Although there are dramatic advances in all fields of medicine, the prevalence of asthma has increased drastically in many countries [2]. Among various causes identified for this discrepancy, pertinent cognitive variables including poor comprehension about the disease, improper medication use and non-cooperation with medication regimes are revealed to be the major determinants [3]. The goal of asthma management is to achieve long-term disease control and to prevent asthma exacerbations through routine monitoring [4]. In order to achieve the expected treatment outcomes, patients with asthma need to have adequate understanding about the disease, various triggering factors, the role of reliever maintenance medications, management strategies of asthma

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exacerbations and correct inhaler handling techniques [5]. Further positive attitudes towards relieving asthma and to adhering with good practices are important in successful asthma management [6]. Though a large number of researches have been conducted about asthma education in the world, minute is known on the current knowledge of adult asthma patients in Sri Lankan setting. Therefore this study was designed to evaluate knowledge, attitude and practices (KAP) of asthma, among patients chronically suffering from the disease in Sri Lanka and to identify associated demographic characteristics.

**Methodology**

This was a descriptive cross sectional study. Ethical approval was obtained from Ethics Review committee, Faculty of Medicine, University of Ruhuna.

**Participants**

The survey was conducted at the Respiratory Clinic of Teaching Hospital Karapitiya, Sri Lanka from August to September 2015. 118 asthma patients who were  $\geq 16$  years of age and having asthma symptoms at least for 6 months were enrolled after obtaining informed consent.

**Procedure**

Data were collected using an investigator administered, validated KAP questionnaire which was developed based on review of currently available questionnaires in

literature. 44-itemed questionnaire was in four sections; participant's demographic data, knowledge, attitude and practices of asthma respectively. The knowledge on asthma were evaluated using 17 close ended questions including the pathophysiology, symptoms, triggering factors, precipitating factors, medication and management of asthma. Three responses were considered for each statement as "agree", "disagree" and "no opinion". Knowledge of the patients was assessed using a scoring system. One mark was given for each correct response and zero mark given for each incorrect answer. ("no opinion" was considered as an incorrect answer). Then, patients were categorized in to 3 groups according to their knowledge level; participants who achieved knowledge score  $\leq 8$  as "poor knowledge", 9-12 as "average knowledge" and  $\geq 13$  as "good knowledge". Five-point Likert scale ranging from, "strongly disagree" to "strongly agree" was used in evaluating attitudes. Total score of attitude domain ranged from 5 to 25. Patient's attitudes were categorized into two groups as "positive attitude" if the score was  $\geq 15$  and "negative attitudes" if the score  $< 15$ . The questionnaire contained 10 statements to assess practices related to asthma and each statement was enclosed with two responses: "yes" and "no". One mark was awarded for each correct answer and 0 for incorrect answer. Patients were grouped in to 3 categories

according to the level of practices. Marks  $\geq 8$  as "good practices", 6-7 as "average practices" and  $\leq 5$  as "poor practices"

### Data analysis

Descriptive statistics analysis was performed for socio-demographic variables and main outcome variables. One-way ANOVA test and independent-sample t-test were performed to find the relationship between demographic characteristics and outcome variables. Data obtained were analyzed using SPSS version 20. Statistical significance was considered at  $p < 0.05$  level.

### Results

Among 118 patients, 65.3% were females. More than half of the sample were within 51-70 years age while, only 9.3% of them were representing the 16-30 age group. 61% of patients had been suffering from asthma for more than 3 years. Among the sample, 53.4% had family history of asthma. Nearly 50% of the subjects had at least one hospital admission or emergency department visits within the 10 months prior to data collection. Statistics of overall knowledge, attitudes and practices of the study sample are given in table 1.

**Table 1: Overall assessment of knowledge, attitude and practices**

Domain	Total number of items	Maximum score	Mean Score	SD	Median score	Percentage mean score
Knowledge	17	17	11.34	2.34	11	66.71
Attitude	5	25	16.39	2.24	16	65.56
Practices	10	10	5.73	1.54	06	57.30

Table 1 elucidate total number of items in each component of KAP questionnaire and maximum score, mean score, median score, percentage mean score and standard deviation(SD).

Only 34% of the patients had good knowledge about asthma and its medications while 11% had poor knowledge level. It was found that approximately 64% of the individuals had positive attitudes towards asthma. The average score on practices related to asthma was 5.73 with standard deviation 1.54. Only 12.7% of the sample practiced healthy behaviors which are important in managing their disease

Further, patients with a good level of practices had a significantly higher knowledge level ( $p=0.002$ ) about asthma and its medications.

**Table 2: Association of asthma knowledge with demographic data**

Variable	Variable Level	Percentage (%)	Overall knowledge on asthma	
			Mean (SD)	P-Value
Gender	Male (n=41)	34.7	10.56 (2.17)	0.009*
	Female (n=77)	65.3	11.75 (2.39)	

<b>Family history of asthma</b>	Yes(n=63)	53.4	11.65 (2.47)	0.179
	No(n=55)	46.6	11.06 (2.27)	
<b>Age</b>	16-30(n=11)	9.3	10.36 (2.46)	0.004 <sup>a</sup>
	31-50(n=27)	22.9	12.74 (2.21)	
	51-70(n=66)	55.9	11.03 (2.30)	
	>70(n=14)	11.9	10.86 (2.07)	
<b>Level of education</b>	Up to grade 5(n=36)	30.5	10.44 (2.06)	0.001 <sup>b</sup>
	Grade 6-9(n=27)	22.9	11.04 (2.26)	
	Above grade 10(n=55)	46.6	12.07 (2.43)	
<b>Smoking pattern</b>	Never(n=83)	70.3	11.65 (2.34)	0.058
	Given up(n=28)	23.7	10.79 (2.33)	
	Current smoker(n=7)	5.9	9.86 (2.27)	
<b>Duration of asthma</b>	6-12 months(n=12)	10.2	12.08 (2.02)	0.365
	1-2 years(n=23)	19.5	10.83 (2.74)	
	2-3 years(n=11)	9.3	10.73 (1.27)	
	>3 years(n=72)	61	11.47 (2.42)	

Table 2 shows the mean (SD) score of the knowledge related to asthma among respondents according to different demographic variables. 1 and 2 variables were analyzed by independent T-test. 3-6 variables were analyzed by One way ANOVA followed LSD post-hoc test.  $p < 0.05$  was considered as statistically significant. <sup>a</sup> denotes significance compared to 31-50 age group. <sup>b</sup> denotes significance compared to education level of "up to grade 5". The table 2 shows that, patient's knowledge significantly vary with demographic factors specially, gender, age and education level. Female patients had significantly higher knowledge about asthma compared to males ( $p=0.009$ ). Further, middle aged patients between 31-50 years had the best level of knowledge compared to other ages ( $p=0.004$ ). Moreover, the patients with lower education level had low knowledge about asthma and vice versa. The patients who completed their education above grade 10 had significantly higher knowledge than others ( $p=0.004$ ).

**Table 3: Association of attitudes related to asthma with demographic data**

Variable	Attitude on disease Mean (SD)	P-Value
<b>Gender</b>		
Male	16.37(2.13)	0.933
Female	16.40(2.31)	
<b>Family history of asthma</b>		
Yes	16.07(2.37)	0.151
No	16.67(2.09)	
<b>Age</b>		
16-30	15.27(1.85)	0.324
31-50	16.29(2.33)	
51-70	16.62(2.19)	
More than 70	16.36(2.50)	
<b>Level of education</b>		
Up to grade 5	16.50(2.35)	0.062
Grade 6-9	16.33(1.86)	
Above grade 10	16.35(2.37)	
<b>Smoking pattern</b>		
Never	16.52(2.24)	0.364
Given up	16.29(2.27)	
Current smoker	15.29(1.98)	
<b>Duration of asthma</b>		
6-12 months	17.58(2.68)	0.134
1-2 years	16.52(2.29)	
2-3 years	16.91(2.47)	
> 3 years	16.07(2.06)	

Table 3 illustrates the mean (SD) score of the attitudes related to asthma in the study sample according to different demographic variables. First two variables were analyzed by independent T-test. 3-6 variables were analyzed by One way ANOVA.  $p < 0.05$  was considered as statistically significant.

**Table 4: Association of practices with demographic data**

Variable	Practices related to asthma Mean(SD)	P-Value
<b>Gender</b>		
Male	5.73(1.69)	0.977
Female	5.74(1.47)	
<b>Family history of asthma</b>		
Yes	5.45(1.26)	0.063
No	5.98(1.73)	
<b>Age</b>		
16-30	5.91(2.02)	0.937
31-50	5.85(1.26)	
51-70	5.68(1.58)	
> 70	5.64(1.59)	
<b>Level of education</b>		
Up to grade 5	5.58(1.52)	0.260
Grade 6-9	5.44(1.60)	
Above grade 10	5.98(1.52)	
<b>Smoking pattern</b>		
Never	5.81(1.47)	0.540
Given up	5.68(1.76)	
Current smoker	5.14(1.57)	
<b>Duration of asthma</b>		
6-12 months	5.92(0.10)	0.577
1-2 years	6.09(1.83)	
2-3 years	5.45(1.92)	
> 3 years	5.69(1.47)	

Table 4 illustrates the mean (SD) score of practices related to asthma among respondents according to different demographic variables. 1 and 2 variables were analyzed by independent T-test. 3-6 variables were analyzed by One way ANOVA test.  $P < 0.05$  was considered as statistically significant.

However, no significant associations were observed between demographic characteristics and attitudes towards asthma (table 3) or practices related to asthma (table 4).

## Discussion

Numerous studies have revealed that cognitive variables such as knowledge, attitude and practices of patients regarding their illness are potent contributing factors of disease management [4,7–11]. Asthma is a chronic disease which a patient's good behaviors and practices are more significant in controlling the disease. This study was conducted to assess the level of knowledge, attitudes and practices of adult patients with asthma in a tertiary care setting in Sri Lanka. The questionnaire was based on knowledge about basic pathophysiology of the disease, symptoms, triggering factors, precipitating factors, medication and

management of asthma which is essential to know by patients with chronic asthma. Apart from that, it also assessed the behaviors that patients must adhere, to minimize future asthma exacerbations. Moreover, the attitudes and beliefs towards asthma that motivate good health behaviors and influence medication compliance for optimum disease management were also considered.

The knowledge level with respect to asthma and its medication is not in a satisfactory level in majority of asthma patients. Further patient education level could have made direct impact on their knowledge. It is

suggested because, more than half of the participants of this study had not completed their secondary education. On the other hand, patients who had educated above grade 10 had significantly higher knowledge about their disease and medication. Our results confirm the findings of parallel studies that higher asthma knowledge significantly correlate with higher level of education [5,10,12,13].

The paucity in education may result poor asthma awareness as it could reduce the motivation to reach information sources such as books, posters, patient information leaflets and other education material. Similar to this survey, previous studies had reported very low level of asthma knowledge among study samples. Sharifi et al [10] observed that only 7.5% of Iranian asthma patients were knowledgeable about their disease while it was 10% among Indians [9]. In a multi centered study in China; evaluating KAP of parents of children with asthma exhibited a low level of disease-related awareness with poor understanding of asthma clinical manifestations and indicators of acute attack [4]. In the same way insufficient knowledge levels were concluded by Merghani et al [6] and Cassia et al [14]. In Sri Lanka, the main source that patients receive knowledge about their disease and medication is via doctors and the involvement of other health care professionals is minimal. The statistics of this study shows that, majority of the patients (78.2%) were educated only from the physician during their clinic visits which is similar to the findings of Sodhi et al [15]. However, due to lack of facilities and excess work load, doctors may not be able to allocate sufficient time on patient education. This arise the need of other health care professionals such as pharmacists and nurses in improving patient knowledge. Further, continuous communication and partnership with health care providers are mandatory to achieve optimum disease management by increasing medication compliance, motivating patients and refining patient's day today behaviors.

Knowledge alone does not make sense to practice them. Other psychological factors for instance, favorable attitudes including patient's willingness to follow physician's recommendations are important in managing asthma and to become a proactive self-manager. The present study reveals that the majority of asthmatic patients have positive attitudes toward their disease which is comparable to the findings of Kumar et al [2], Sharifi et al [10], and Mancuso et al [5]. This highlights the feasibility of improving asthma knowledge and the benefit of shifting the behavior of asthma patients for enhanced asthma care. In contrast, some studies describe negative attitudes toward asthma among adolescents [16]. As discussed by Rhee et al

[17] negative attitudes drive patients to be more susceptible to barriers such as forgetfulness or ignorance of treatment recommendations, resulting reduced adherence subsequently leading to failure of management plans.

Sufficient knowledge together with behavioral therapy are essential to improve asthma. Only very few patients of the study sample (12.7%) had good asthma practices. It further reflects the huge number of hospital admissions and emergency department visits due to asthma exacerbations. This suggest the necessity of more tailored health education interventions which would ultimately result better disease control. Comparable findings were reported by Malarvizhi et al [9]. Several patient characteristics were associated with knowledge about asthma (table 2). Patient's knowledge was significantly different with age even though some studies did not find it [10, 13]. We assume that the low level asthma knowledge among 16-30 age group is due to less life experience with asthma and same situation in elderly (more than 70 years) patients is due to forgetfulness and memory impairment with their age. In contrast, Mancuso et al [5] noted high asthma knowledge with younger age. Further, Sharifi et al [10] revealed higher level asthma knowledge in patients suffers with the disease for a longer period, but such relationship was not observed in this study.

Our findings did not prove an association between patient attitude and demographics which is also similar to a previous study by Sharifi et al [10] in 2011. Further it was particularly interesting to note that, there were no significant association with practices and any of the demographic characters. However, the knowledge level of asthma patients and the disease related practices level are significantly associated. More importantly asthma patients with good or fair level of practices have a higher knowledge regarding asthma and its medications. In conclusion, a good level of knowledge about asthma and better practices are rigorously important to prevent asthma exacerbations. More comprehensive, regular and patient centered counselling programs will be beneficial in improving awareness of asthma. Further, special attention should be paid on patient characteristics mainly age, gender and education level in planning such programs in future.

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