



A study on impact of pharmacist mediated patient counselling on quality of life in asthma patients at a tertiary care hospital

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ARTICLE HISTORY

Received: 25.05.2013

Accepted: 19.06.2013

Available online: 10.08.2013

Keywords:

Asthma Patients; Quality of life; Patient Counselling; Pulmonary Function Test; Pharmacist.

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ABSTRACT

The better management of asthma depends upon patient understanding regarding lifestyle modification and treatment, the treatment of which may cause side effects that impair quality of life (QOL) and hence leads to problems in patient's daily life. Hence the present study was carried out to assess the impact of pharmacist mediated counselling on QOL in asthma patients using Professor Juniper's Asthma Quality of Life Questionnaire (AQLQ). A total of 180 asthma patients were enrolled into the study, out of which 160 have completed the study. Remaining 20 patients did not turn up for the follow up. Out of 160 patients 90 were males and 70 were females. 81 patients were in intervention and 79 in control group. Intervention group showed improvement in QOL score from the baseline to 1st and 2nd follow-ups. No improvement in total score of the control group was observed.

Intervention group showed improvement in pulmonary function on 1st and 2nd follow-ups; the control group did not shown improvement in PFT values. The study concludes that, Pharmacist provided patient counselling was shown better control over asthma patients of intervention group and improved the QOL. Pharmacist can play a vital role in improving the treatment outcomes and QOL of asthma patients.

INTRODUCTION

Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role, in particular, mast cells, eosinophils, T-lymphocytes, macrophages, neutrophils, and epithelial cells. In susceptible individuals, this inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment.[1]

The risk factors involved in asthma, are of two types:

- o Endogenous-factors like genetic-pre-disposition, atopy, airway hyper-responsiveness, gender and ethnicity.
- o Environmental-factors like indoor-allergens, out-door-allergens, occupational sensitizer, passive-smoking, respiratory-infections, obesity, early viral infections.[2]

The prevalence of asthma actually appears to be rising despite

advances in therapy.[3] Throughout the world approximately 300 million people are suffering from asthma. In each decade prevalence is increased by 50%. In India, it is estimated that more than 15 million populations are affected by asthma and the overall prevalence of diagnosis of asthma was at 2.38%. Asthma accounts for 0.5% of national burden of disease with 0.2% of death.⁴ Thus the key to prevention of death from asthma, as advocated by the National Asthma Education and Prevention Program (NAEPP), is education.[5]

Patient's education

The correct use of drugs and education of patients are the vital for asthma management. Increasing patient's knowledge about their asthma therapy is a necessary component of asthma management. Counselling should lead to increased patient confidence in the ability to self manage asthma, decreased hospital admission rates and emergency visits by primary care doctors, increase compliance and improve quality of life.[6]

Patient counselling

Patient counselling is defined as providing medication

information orally or in written form to the patient or their representative on direction of use, advice on side effects, precaution, storage, diet and life style modifications.[7]. Pharmacists are in an excellent position to provide such advice or patient counseling to patients.[8]

According to SHPA (2004), Pharmacists have responsibility to provide sufficient information and counselling to enable patients and /or their carriers to achieve informed and judicious use of their medicines.[9]

Pharmaceutical care

Pharmacists have the duty of providing pharmaceutical care to asthmatic patients and the quality of care will depend greatly on their attitudes to the knowledge base they possess on the pathophysiology and pharmacotherapy of the disease. [10]. Pharmacists can educate patients by providing information about asthma medications. They can help patients to understand their asthma management plan. [11]

Quality of life

Quality of life is defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.[12]

Asthma Quality of Life Questionnaire (AQLQ)

The Asthma Quality of Life Questionnaire (AQLQ) was developed to measure the functional problems (physical, emotional, social and occupational) that are most troublesome to adults (17-70 years) with asthma. The AQLQ is suitable for all adult patients with asthma and there are 32 questions in the AQLQ and they are in 4 domains (symptoms, activity limitation, emotional function and environmental stimuli).[13]

In the Indian scenario it has been seen that medicines bloom up in the market but the patients knowledge regarding its use and regular practice to be done are lagging. Therefore this present study was aimed to assess the impact of patient counselling on the drug use and how far it has got an impact on the quality of life in asthmatic patients.[14]

METHODOLOGY

Study design

A prospective-observational study was carried-out at the department of medicine in Basaveshwar Teaching and General Hospital (BTGH) for a period of 9 months from June 2012 to March 2013. Inpatients and out-patients visiting to department of medicine enrolled in the study by considering the following inclusion and exclusion criteria after taking consent from the patients.

Inclusion and exclusion criteria

Those above 18 years of age of either sex, patients suffering with asthma and are on medication, patients willing to participate in the study were included in the study.

Patients not willing to participate in the study, asthma with pregnant patients were excluded from the study.

Study material

The study was carried out as per approved protocol by the institutional ethical committee MRMC, Gulbarga (HKES/ MRMCG/23/11/27/2012-13). Patient diagnosed with asthma,

were enrolled in the study considering the inclusion and exclusion criteria. Details regarding demography, disease and treatment were collected from the medical records (case sheets of in-patients and OPD-cards of out-patients) in a data collection form.

Asthma patients were enrolled and randomized into intervention and control groups, patient in the intervention group was received patient counselling and patient information leaflets from the pharmacist, the asthma dependent, professor juniper's Asthma Quality of Life Questionnaire (AQLQ) was administered to measure the quality of life in both groups, patients at each followup, and at the end of the study quality of life score PFT values was compared in both intervention and control groups, for to assess the quality of life in asthma patients. The data was analyzed by using suitable statistical method.

Criteria for interpretation of data (Assessment of QOL):-

There are 32 questions in the AQLQ and they are in 4 domains (symptoms, activity limitation, emotional function and environmental stimuli). The activity domain contains 5 'patient-specific' questions. This allows patients to select 5 activities in which they are most limited and these activities will be assessed at each follow-up. Patients are asked to think about how they have been during the previous two weeks and to respond to each of the 32 questions on a 7-point scale (7 = not impaired at all - 1 = severely impaired). The overall AQLQ score is the mean of all 32 responses and the individual domain scores are the means of the items in those domains.

Follow up

The follow up of the patients were done over a period of nine months. At baseline, (3 months), first(6 months), second follow up (9 months) the quality of life were measured at base line, first, and second follow up.

Statistical analysis

The analysis of data was done using students't test to compare the data. A 'p' value < 0.05 was considered significant.

RESULT

A total of 160 patients were enrolled in the study, out of them 81 patients were in the intervention group and 79 patients were in the control group. 100 were in-patients, 60 were out-patients, out of them 90 patients were males and 70 patients were females. There were highest numbers of patients in the age group of 18 to 29 (Table 1). 20 patients were excluded from the study as they did not turn up for the follow up.

The patients were divided according to the educational status as illiterate, primary school, secondary school, PUC, diploma, graduates and post-graduates. The majority of the patients were belonged to primary level of education. The patients were divided according to their socioeconomic grades (grade-1 to grade-7), majority of the patients were belonged to grade-3 (Table 2). The social habits like smoking, alcohol consumption was observed in both groups (Table 3). Out of 160 patients, 10 patients have not been carried out spirometry test, 150 patients were have been done the spirometry test. The details of counselling languages used for patients enrolled, are shown in Table 4.

Quality of Life Assessment:

A difference of four units in the scores indicates a slight clinical effect, while a difference of 8 or 12 units indicates moderate or very good clinical effects, respectively.[15]

Table 1: Gender and Age of Patients

Gender	Total patients (160)
Male	90
Female	70
Age	No of patients(160)
18-29	54
30-49	42
40-49	30
50-59	26
60 >	8

Table 3: Socio-economical Status of the Patients

Socio-economical status	No. of patients
Grade-1 (Professionals)	22
Grade-2 (Semi-professionals)	18
Grade-3 (Clerical, Shop-owner, Farmer)	32
Grade-4 Skilled workers	28
Grade-5 Semi-skilled workers	16
Grade-6 Un-skilled workers	20
Grade-7 Unemployed	24

All the 160 participants of the study were evaluated for quality of life by using Professor Juniper's Asthma Quality of Life Questionnaire (AQLQ), at the time of enrollment and subsequent follow ups. Asthma knowledge score was evaluated at baseline, first and second follow ups. Higher scores mean the better quality of life (QOL) of patients. The intervention group has shown a clinical improvement (increase >12 units) and shows a statistical significance on 1st and 2nd follow-ups. The control group did not show any clinical improvement or statistical significance (Table 5 and Fig. 1).

Comparison of QOL Scores of Intervention and Control Group:

In our study the intervention group has shown a clinical

Table 3: Social Habits of the Patients

Smoking habits	No. of patients(160)
Smokers	24
Ex-smokers	22
No smokers	114
Alcohol habits	No. of patients (160)
Current-users	28
Ex-alcoholic	16
Non-alcoholic	116

Table 4: Counselling Languages Used for Patients Enrolled

Language	No. of patients
Hindi	82
Kannada	54
English	24

improvement (increase >12 units) which is statistically significant on 1st and 2nd follow-ups (P value <0.05). Table 5 and Fig. 1, further it represents control group did not show any clinical improvement.

Comparison of Domain-1 scores of intervention and control group:

Domain 1 scores of intervention group from baseline to second follow up (Table 6) revealed a mean increase in physical health from 14.35±2.14 to 32.08±2.36 which is statistically significant (P value <0.05).Where as in control group the score from baseline to second follow up (Table 6) was 13.98±1.79 to 15.03±2.23 which is statistically not significant (P value >0.05).

Comparison of Domain-2 scores between intervention and control group:

Domain 2 scores of intervention group from baseline to second follow up (Table 6) showed a mean increase from 15.90±2.43 to 34.13±1.80, which is statistically significant (P value <0.05).where as in control group the score from baseline to second follow up (Table 6) was from 14.94±2.73 to 16.1±1.96 which is statistically not significant (P value >0.05).

Comparison of Domain-3 scores between intervention and control group:

Domain 3 scores of intervention group from baseline to second follow up (Table 6) Showed a mean increase from 10.70±2.52 to 38.04±2.33 which is statistically significant (P value <0.05).where as in control group the score from baseline to second follow up (Table 6) was from 9.54±2.50 to 11.25±2.29 which is statistically not significant (P value >0.05).

Comparison of Domain-4 scores between intervention and control group:

Domain 4 scores of intervention group from baseline to

Table 5: Quality of Life Scores of Intervention and Control Group

Domains	Baseline		1 st Follow up		2 nd Follow up	
	Intervention Group	Control Group	Intervention Group	Control Group	Intervention Group	Control Group
Domain 1:	14	14	31	15	32	15
Domain 2:	16	15	30	16	34	16
Domain 3:	11	10	34	11	38	11
Domain 4:	12	11	35	12	39	12
TOTAL	53	50	130	54	143	54

Table 6: Quality of Life (t-Test) Scores of Intervention and Control Group

QOL	Intervention (Mean ± SD)	Control (Mean ± SD)	t-value	P Value	Significance Level
Domain 1 (Physical)					
Baseline	14.35±2.14	13.98±1.79	1.1848	0.2379	Not Significant
1st Follow Up	30.96±2.26	15.02±1.88	48.4387	0.0001	Highly Significant
2nd Follow Up	32.08±2.36	15.03±2.23	46.95	0.0001	Highly Significant
Domain 2 (Psychological)					
Baseline	15.90±2.43	14.94±2.73	2.35	0.021	Significant
1st Follow Up	29.96±2.58	15.82±2.03	38.46	0.0001	Highly Significant
2nd Follow Up	34.13±1.80	16.1±1.96	60.63	0.0001	Highly Significant
Domain 3 (Social)					
Baseline	10.70±2.52	9.54±2.50	2.92	0.004	Significant
1st Follow Up	33.98±1.58	11.01±1.89	83.48	0.0001	Highly Significant
2nd Follow Up	38.04±2.33	11.25±2.29	73.33	0.0001	Highly Significant
Domain 4 (Environment)					
Baseline	12±4.63	11.02±4.52	1.354	0.178	Not Significant
1st Follow Up	34.98±1.58	11.98±4.41	44.13	0.0001	Highly Significant
2nd Follow Up	39.04±2.58	12.24±4.71	44.78	0.0001	Highly Significant

second follow up (Table 6) revealed a mean increase from 12±4.63 to 39.04±2.58 which is statistically significant (P value <0.05). But in control group there was no statistical significance was observed (P value >0.05).

The Effect of Counseling on PFT Scores:

All the 160 participants of the study were evaluated by the disease specific questionnaires at the time of enrollment and

subsequent follow ups, pulmonary function values was evaluated at baseline, first and second follow up.

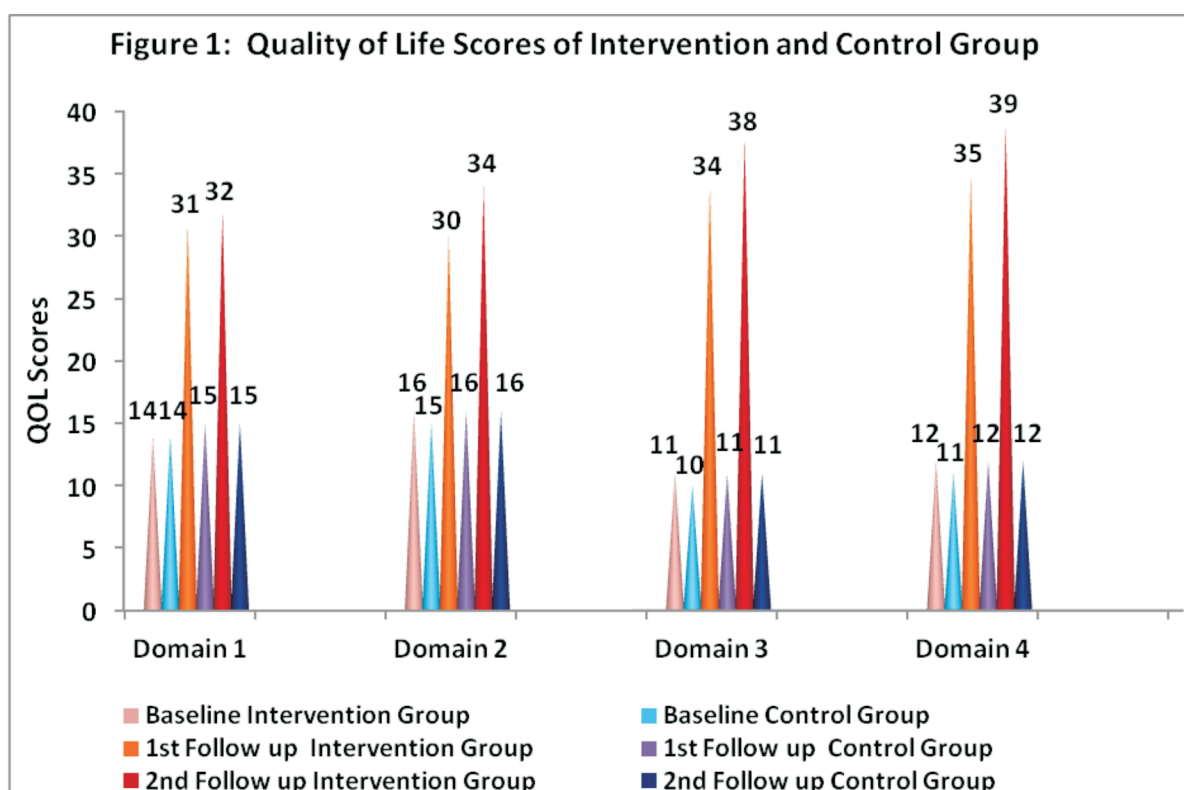
Comparison of PFT Values between Intervention and Control group:

Comparison of FEV1 values of intervention and control group:

Comparison of FEV1, values of baseline Vs second follow up

Table 7: Pulmonary Function Test Values of Control and Intervention Group

PFT	Control			Intervention		
	Baseline	1 st Follow up	2 nd Follow up	Baseline	1 st Follow up	2 nd Follow up
FEV1 (Liters)	1.72	1.77	1.81	1.78	3.38	4.39
FVC (Liters)	2.27	2.27	2.35	2.31	4.14	4.56
PEF (Liters/min)	284.34	284.34	290.04	290.04	390.14	440.34

**Figure 1:** Quality of Life (QOL) Scores of Intervention and Control Group

showed a statistical improvement in intervention group from 1.78 to 4.39 Units (Table 7 and Fig.3) The FEV1 got 12% increased during the 1st and 2nd follow-ups, which clearly shows the clinical improvement.

Comparison of FVC values of intervention and control group

The FVC values (Table 7) indicate there was no clinical

improvement in control group (2.27 to 2.35 units). But FVC values have shown a clinical improvement in intervention group (2.31 to 4.56) at 1st and 2nd follow-ups.

Comparison of PEF values of intervention and control group

The PEF values (Table 7) represents there was no clinical improvement in control group (284.34 to 290.04units). The PEF

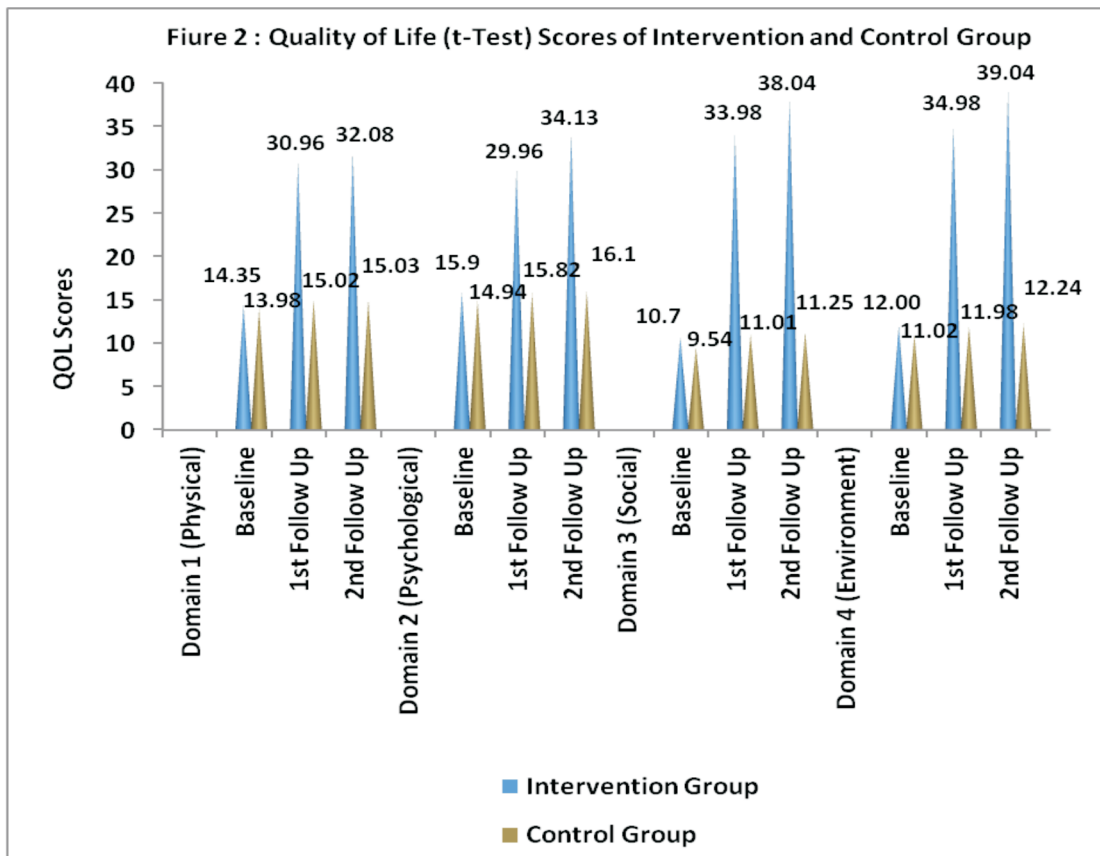


Figure 2: Quality of Life t-Test Scores of Intervention and Control Group

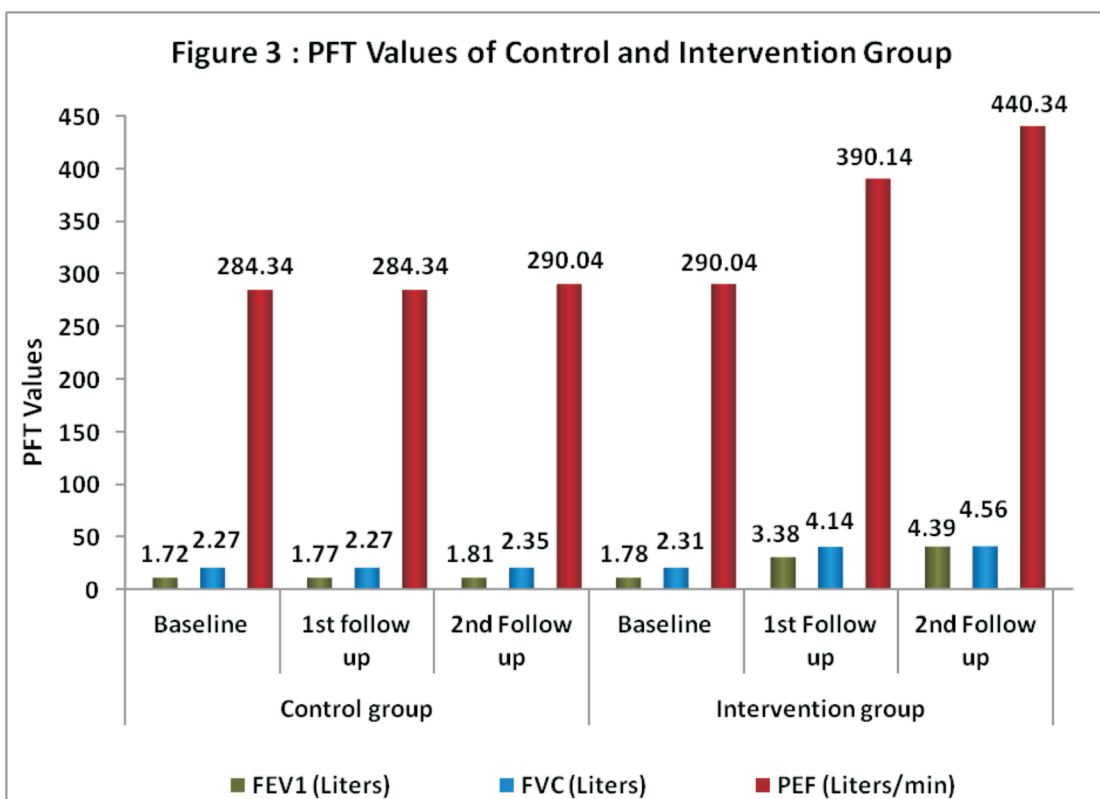


Figure 3: QPulmonary Function Test (PFT) Values of Control and Intervention Group

values have shown a clinical improvement in intervention group (290.04 to 440.34) at 1st and 2nd follow-ups.

DISCUSSION

Asthma has been chosen in this study because of its impact on quality of life. QOL is becoming an important outcome measure in chronic diseases like asthma; the major therapeutic goal is to improve the daily functioning ability of these patients so that they can enjoy life to its fullest possible extent. This study results illustrate how physical, emotional, social, occupational and general health were affected in asthma patients.

Professor Juniper's Asthma Quality of Life Questionnaire (AQLQ) they are in 4 domains (symptoms, activity limitation, emotional function and environmental stimuli). The activity domain contains 5 'patient-specific' questions. This allows patients to select 5 activities in which they are most limited and these activities will be assessed at each follow-up.

During the study period a total of 160 patients were enrolled, out of them 90 (56.25%) were males and 70 (43.75%) were females. The quality of life of the control and intervention group were compared for nine months and at the end of study period it was assessed that there was a clinical as well as statistical significance seen in case of intervention group at 1st and 2nd follow-up, whereas the control group didn't show any clinical as well as statistical significance.

The PFT comparison between the intervention and control group was done. The patients in the intervention group showed a highly significant improvement, than those in the control group at 2nd follow-up i.e. at the last day of study period. These finds that patient counselling increased the QOL scores and PFT values in the asthmatic patients due to a better practice followed in using the medications.

These findings were in accordance with the study carried out by Saji et al. 2012.[16] A similar study conducted by Marabini A et al. 2002[17]

CONCLUSION

This study concludes that pharmacist mediated patient counselling helped in better controlling of asthma and improved the quality of life in asthma patients. This study also emphasized the potential of pharmacist to play an important role as patient counsellor, in the management of asthma patients.

ACKNOWLEDGEMENT

The authors wish to thank all the faculty members of Department of Pharmacy Practice, BTGH, HKES, MTRIPS, Gulbarga, for their valuable guidance. We extend our heartfelt thankfulness to RGUHS University, Bangalore for their timely support to complete this work.

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