

In-Depth Assessment of The Factors Affecting the Non-
Compliance During the Treatment of Asthma and Chronic
Obstructive Pulmonary Disorder (COPD)

By

Anurag Wadhwa

*Dissertation submitted for the partial fulfillment of the
MBA Pharmaceutical Management*

Academic year, 2016-2018



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that Anurag Wadhwa student of MBA Pharmaceutical Management from The IIHMR University, Jaipur has undergone dissertation training at Strategic Analysis India Pvt. Ltd., Mumbai from 19th Feb, 2018 to 14th May, 2018.

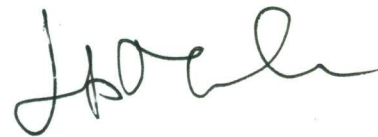
The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.



(Dr. Ashok Kaushik)
Dean, Academics and Student Affairs
The IIHMR University, Jaipur



(Dr. Sandeep Narula)
Associate Professor
The IIHMR University, Jaipur



STRATEGIC ANALYSIS (INDIA) PVT. LTD.

The certificate is awarded to

Anurag Wadhwa

In recognition of having successfully completed her
Dissertation in the department of

Pharmaceutical Market Research'

And has successfully completed his Project on

**IN-DEPTH ASSESSMENT OF THE FACTORS AFFECTING THE NON-
COMPLIANCE DURING THE TREATMENT OF ASTHMA & CHRONIC
OBSTRUCTIVE PULMONARY DISORDER (COPD)**

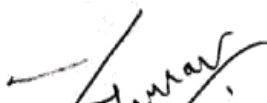
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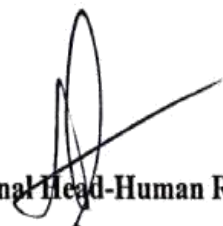
Organization: Strategic Analysis India Pvt. Ltd., Mumbai



He comes across as a committed, sincere & diligent person who has a strong
drive and zeal for learning

We wish him/her all the best for future endeavors


Training & Development


Zonal Head-Human Resources

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled In-depth assessment of the factors affecting the non-compliance during the treatment of asthma & chronic obstructive pulmonary disorder (COPD) and submitted by Anurag Wadhwa, Enrollment No IIHMR-U/02/2016-18/0064 under the supervision of Dr. Sandeep Narula for award of MBA in Pharmaceutical Management in Strategic Analysis India Pvt. Ltd., Mumbai is carried out during the period from 19th Feb, 2018 to 14th May, 2018 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.



(Signature)

ABOUT THE ORGANIZATION

SAI has a track record of 19 years in India in developing deep and accurate information in the healthcare sector and the knowledge and experience within areas that are relevant to the current study through completing a large number of studies for the world's majors.

Strategic Analysis India Pvt. Ltd. (SAIPL) was established almost two decades ago as a subsidiary of Strategic Analysis Inc. (SAI)—a knowledge-led international consulting firm founded in 1977 providing high-quality decision support to help clients.

SAIPL pursues SAI's focused vision—empowering clients with a new standard of decision support grounded in an intensive field-oriented business research methodology and executed by seasoned industry professionals. SAIPL has a global presence through its parent and sister companies, and a well-entrenched local presence in India, its South Asian neighbors, the Middle East and Africa through its own offices and its long-term strategic partners

SAI are committed to delivering accurate, timely, “from the ground up” market data, insights, analysis and recommendations to produce tangible and timely actionable outcomes. At SAI, the aim is to empower clients to strategically differentiate themselves to gain competitive insights and advantages and market leadership.

Over 75% of SAI's and SAIPL's business is generated through existing clients, demonstrating extremely high satisfaction levels and our ability to continuously deliver superior decision support.

With 375 full-time employees across our 13 international operations and long-term strategic partners across other key emerging markets, SAI have the capabilities to satisfy the needs and interests of our clients across all major regions and markets across the globe including South Asia and the MEA regions.

SAI support clients through:

- Customized research and real-time and in-depth information on markets and geographies.
- Executable strategies to gain market leadership, competitive advantages and growth.
- Recommendations to grow their businesses through inorganic and organic strategies.
- Approaches to drive efficiency and productivity through techno-commercial benchmarking analysis and understanding best practices.
- In-depth insights on complex and fragmented markets, identifying opportunities and competitive threats to assist clients to design winning strategies.
- To understand and evaluate competitors' current and future positions and strategies, to effectively devise a strategically differentiated strategy, and the necessary tactics to counter competitive threats.

ABSTRACT

Non-compliance with prescribed Asthma and COPD is a major limitation incurring these days. To state a few, the reasons for non-compliance of treatment are improper understanding and need of inhalation therapy, not following the treatment regimen, deficient follow up on patient's medicine adherence by the physician/clinician. The primary objective of the study is to understand the epidemiology of Asthma and COPD in the area in which the study will take place. And, to determine the reasons for non-compliance among the health care practitioners and patients with these conditions. The study will describe the inter-relationship between the doctor's attitude and patient's response basis, various demographic natures of patients such as affordability, adaptation and accessibility which could be linked to reasons for non-compliance of therapy.

The study was conducted in two metro cities, Delhi and Mumbai basis convenient sampling technique, where the targeted population was General Physicians, Pulmonologists, Dispensing pharmacist. Data was collected through a semi-structured questionnaire done through telephonic interview and face-to-face interview. The study's data collection and analysis was done in a span of three months providing a detailed conclusion. The results of the study suggested that the cost and adaptability towards inhaled medications are become a driving reasons for non-compliance of therapy. This study indicates the level of awareness among different ages of patients as well awareness level of doctors and physicians are also analysed.

INTRODUCTION

Asthma

Asthma is a chronic inflammatory disorder of the airways. The chronic inflammation is associated with airway hyperresponsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in early morning. These episodes are usually associated with widespread, but variable, airflow obstruction within lung that is often reversible either spontaneously or with the treatment.

Asthma is a serious global health problem with an estimated 300 million affected individuals. People of all ages are affected by this illness that, when uncontrolled, can place severe limits on daily life and is sometimes fatal. The prevalence of asthma is increasing in most countries. Clinical manifestations of asthma can be controlled with appropriate treatment. When asthma is controlled severe exacerbations should be rare. The clinical spectrum of asthma is highly variable, but the airway inflammation remains a consistent feature.

Factors that influence the risk of asthma can be divided into those that cause the development of asthma and those that trigger asthma symptoms; some do both. The first include host factors (which are primarily genetic) and second are usually environmental factors.

Host Factors:

1. Genetic, e.g.,
 - Genes pre-disposing to atopy
 - Genes pre-disposing to airway hyperresponsiveness
2. Obesity,
3. Sex

Environmental factors:

1. Allergens
2. Indoor: domestic mites, furred animals (dogs, cats, mice), cockroach allergen, fungi, moulds, yeasts

3. Outdoor: Pollens, fungi, moulds, yeasts
4. Infections (predominantly viral)
5. Occupational sensitizes
6. Tobacco smoke (active smoking, passive smoking)
7. Outdoor/Indoor Air Pollution
8. Diet

Cause: The inflammation affects all airways including in most patients the upper respiratory tract and nose but its physiological effects are most pronounced in medium sized bronchi. The pattern of inflammation in the airways appears to be similar in all clinical form of asthma, whether allergic, non-allergic, or aspirin-induced and at all ages.

Chronic Obstructive Pulmonary Disorder (COPD)

COPD is one of the major causes of chronic morbidity and mortality worldwide. Many people suffer from this disease for years and die prematurely from its complications. COPD is the fourth leading cause of death in the world, and further increases in its prevalence and mortality can be predicted in the coming decades.

COPD is a pulmonary disease with some significant extrapulmonary effects that may contribute to the severity in individual patient. Its pulmonary component is characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles or gases.

COPD has variable natural history and not all individuals follow the same course. However, COPD is generally a progressive disease, especially if a patient's exposure to noxious agents continues. The impact of COPD on an individual patient depends on the severity of symptoms (especially breathlessness and decreased exercise capacity, cough, mucous production), systemic effects, and any co-morbidity the patient may have -not just on the degree of airflow limitation. COPD is characterized by chronic airflow limitation and a range of pathological changes in the lung, some significant extra-pulmonary effects and important co-morbidities which may contribute to the severity of the disease in individual patient. Systemic manifestations and co-

morbidities in COPD are body weight loss, skeletal muscle wasting, cachexia, osteoporosis, pulmonary heart-core pulmonale, heart failure, cardiac ischemia, cardiac arrhythmias, anaemia, hypoalbuminemia, diabetes, cognitive deficits, depression. Co-morbidities are common for people with COPD because organ systems work differently when they do not receive enough oxygen. Thus, COPD should be regarded as a pulmonary disease, but these significant co-morbidities must be taken into account in a diagnostic assessment of severity and in determining appropriate treatment. Cigarette smoking is the most commonly encountered risk factor for COPD, although in many countries, air pollution resulting from the burning of wood and other biomasses fuels has also been identified as a COPD risk factor.

Asthma & COPD- Differences and Similarities

COPD can coexist with asthma; both are characterized by an underlying airway inflammation. The underlying chronic airway inflammation is very different in these two diseases. However, individuals with asthma who are exposed to noxious agents, particularly cigarette smoke may develop fixed airflow limitation and a mixture of “asthma -like” and “COPD-like” inflammation. Furthermore, there is epidemiologic evidence that longstanding asthma on its own can lead to fixed airflow limitation. Other patients with COPD may have features of asthma such as a mixed inflammatory pattern with increased eosinophils. Thus, while asthma can usually be distinguished from COPD, in some individuals with chronic respiratory symptoms and fixed airflow limitation it remains difficult to differentiate the two diseases.

Difference between Asthma & COPD

Asthma and COPD are usually similar:

- “Reversible COPD” (asthma coexists)
- Severe asthma
- Asthma in smokers
- Neutrophil asthma (asthma in smokers, non-allergic asthma)
- allergic asthma
- acute exacerbation

There are differences between cause, airway inflammation and airflow limitation between asthma and COPD.

The primary differences in pulmonary inflammation between asthma and COPD are shown below:

ASTHMA and COPD		
	ASTHMA	COPD
Cause:	sensitive agent	noxious agent (mainly cigarette smoking)
	Asthmatic airway inflammation (CD4+T-lymphocytes and Eosinophils)	COPD airway inflammation (CD8+T-lymphocytes, Macrophages and Neutrophils)
	Reversible	Not fully reversible
	AIRFLOW LIMITATION	

Non-Compliance

The term noncompliance is commonly used in regard to a patient who does not take a prescribed medication or follow a prescribed course of treatment. A person who demonstrates noncompliance is said to be noncompliant.

In the Oxford dictionary, compliance is defined as the practice of obeying rules or requests made by people in authority (Oxford Advanced Learner's Dictionary of Current English).

In healthcare, the most commonly used definition of compliance is “patient's behaviours (in terms of taking medication, following diets, or executing life style changes) coincide with healthcare providers' recommendations for health and medical advice” Thus, therapeutic non-compliance occurs when an individual's health-seeking or maintenance behaviour lacks congruence with the recommendations as prescribed by a healthcare provider.

Other similar terms have been used instead of compliance, and the meaning is more or less identical. For example, the term adherence is often used interchangeably with compliance.

Adherence is defined as the ability and willingness to abide by a prescribed therapeutic regimen.

Therefore, the more commonly used term of compliance will be used throughout this report.

Types of Non-compliance:

1. Receiving a prescription but not filling it
2. Taking an incorrect dose
3. Taking medication at the wrong times
4. Increasing or decreasing the frequency of doses
5. Stopping the treatment too soon
6. Failure to follow doctor's instructions
7. "Drug holidays", which means the patient stops the therapy for a while and then restarts the therapy
8. Poor attitude of healthcare professional.

BACKGROUND

Disease such as Asthma and chronic obstructive pulmonary disease (COPD) are two leading causes of morbidity and mortality and economic burden worldwide. It has been stated in the study “Adherence to inhaled therapies, health outcomes and costs in patients with asthma and COPD - Respiratory Medicine by Mika J. Makela. According to WHO estimates, only 50% of patients receiving long-term pharmacotherapy for chronic diseases are adherent to treatment (no precise definition of good versus poor adherence was provided) adherence rates in asthma and COPD have been shown to vary widely from 22% to 78%.

As stated in the report ““The Cost of Non-compliance: Asthma & COPD, by DRG) the Compliance with medication is an ongoing concern for physicians across all specialty types and is beginning to attract attention from policy makers and payers. Non-compliance is a concern in chronic conditions like asthma and COPD, where patients often continue to decline unless their disease is brought under control using a daily medication. When asked, patients offer a variety of reasons for not adhering to their prescribed medication, including a perception that daily medication is not required because they currently do not feel sick (COPD: Current Treatment: EU5, brochure available upon request). Additionally, for asthma and COPD, which are often managed using inhaled medication, difficulty in taking the dose correctly can discourage patients and lead to non-compliance.”

Disease Management includes long term control as well as short term control in which beta agonists, antibiotics, anticholinergics are considered as the first choice of medication.

“Delivery methods includes Medications are typically provided as metered-dose inhalers (MDIs) in combination with an asthma spacer or as a dry powder inhaler. The spacer is a plastic cylinder that mixes the medication with air, making it easier to receive a full dose of the drug. A nebulizer may also be used. Nebulizers and spacers are equally effective in those with mild to moderate symptoms. However, insufficient evidence is available to determine whether a difference exists in those with severe disease. There is no strong evidence for the use of intravenous LABA for adults or children who have acute asthma.”

The factors for non-compliance as stated in the report (“Compliance in asthma, by G C Cochrane) are “low rates of compliance with medication pose a major challenge to the effective management of most chronic illnesses including asthma. The causes of non-compliance are complex. Characteristics of the regimen such as dosing frequency and route of administration may be important contributors to non-compliance but are not the only factors.”

REVIEW OF LITERATURE:

Fugate, et al.: Medication adherence in COPD and asthma patients

This research paper was published in the Indian Journal of Pharmacy Practice (2015). Indian Journal of Pharmacy Practice is an official peer-reviewed journal, published quarterly by APTI which will be useful to all the pharmacy professionals working in the pharmacy practice. The study shows there was statistically significant increase in medication ($P<0.001$) and inhaler adherence score ($P<0.001$) and inhaler technique score ($P<0.001$) from baseline after pharmacist counseling regarding disease and medication. Comparison between various demographic factors like age, gender, diagnosis, duration of disease, and education status showed equal impact of pharmacist counseling on improvement of overall medication adherence score. Overall medication adherence and inhaler technique improvement was found to be statistically significant in asthma and COPD patients after counseling by pharmacist.

Jing Jin, Grant Edward Sklar, Vernon Min Sen Oh, and Shu Chuen Li, “Factors affecting therapeutic compliance: A review from the patient’s perspective”. (2008)

This article is published in Journal of Clinical and Therapeutic Risk Management. This study identified relevant factors relating to therapeutic compliance and concluded that healthcare expenditure is a very important factor for patients with chronic diseases because the treatment could be life-long so the cost of therapy would constitute a large portion of their disposable income. If the patient feels that the cost of therapy is a financial burden, the compliance with therapy will definitely be threatened. Healthcare personnel should be aware of patient’s economic situation during the planning of a treatment regimen, and a healthcare finance system that provides at least some financial assistance to low income patients would be helpful to boost compliance.

Przemyslaw Kardas et al., “Adherence to treatment in asthma and COPD patients in their doctors’ assessment.”

This article is published as original research in The Department of Medicine, Medical University of Lodz, GlaxoSmithkline, Poland. This research concluded that non-adherence to prescribed therapy in asthma results in worse disease control and more frequent exacerbations. In addition, it leads to poor patients’ quality of life, a greater demand for medical services, including more frequent hospitalizations, and increased mortality. It also constitutes a vital source of costs incurred by health care systems. Non-adherence to therapy in case of COPD brings about similar effects, being one of the main reasons for ineffective treatment of the disease and related costs.

It has been identified during the study (Adherence to inhaled therapies, health outcomes and costs in patients with asthma and COPD - Respiratory Medicine by) that “Regardless of illness type, poor adherence (often defined as $\leq 80\%$ adherence) is one of the main factors responsible for failure to achieve treatment goals, and may also carry a large economic burden as a result of increased healthcare costs and unused medications. A variety of effective treatment options exist for patients with asthma and COPD, but long-term adherence to medication is required for treatment success.”

Also, “Suruki R et al. BMC Pulmonary Medicine. 2017;17(74):1-1, Zein J et al., PLOS One. 2016;11(6): e0157301., Altawalbeh S et al., Value in Health. 2016;19(5):537-543, states that Previous research has estimated a total cost of \$2.2 billion to the healthcare system for treated acute asthma episodes.”

And as per DRG’s report on “The Cost of Non-compliance: Asthma & COPD”, launching once-daily therapies and fixed-dose combinations that are intended to improve compliance, thereby delivering cost offsets. Additionally, inhalers are becoming increasingly sophisticated, and many of the emerging technologies will emphasize an ability to increase compliance by adding smart features to the device.

AIM AND OBJECTIVE OF THE STUDY

Aim of the study:

The overall aim is to determine the factors affecting the non-compliance for Asthma & COPD.

Primary Objective:

To get an insight of the epidemiological pattern of the area in which study is conducted.

Secondary Objective:

To quantify the inter-relation of factors of non-compliance with Healthcare professionals and patients of Asthma & COPD.

RATIONALE OF THE STUDY

The study is concentrated towards developing the information about the doctor's behaviour and attitude towards factors affecting non-compliance during the disease management of Asthma & COPD.

Through this study we get to know the inter-relationship between the doctor's attitude and patient response based on various demographic natures of patients such as affordability, adaptability, accessibility.

Since the study is carried out in two metro cities of India, so via this we get to know the variations in perceptions of doctors and patient of the respected cities

Through this study we can get to know the patient pool of Asthma & COPD.

RESEARCH METHODOLOGY

This study is a combination of primary as well as secondary research and all the information is collected from the high-end pulmonologist, Pharmacies in different hospitals of eastern, western, northern, southern regions of two cities, i.e., Delhi and Mumbai. The information is developed from reliable sources.

Study type: Descriptive Study

Time/Duration of study: 3 Months

Type of Data: Primary (80%) and Secondary (20%)

Collection of Data: Face to Face interview and Telephone assisted personal interview (TAPI).

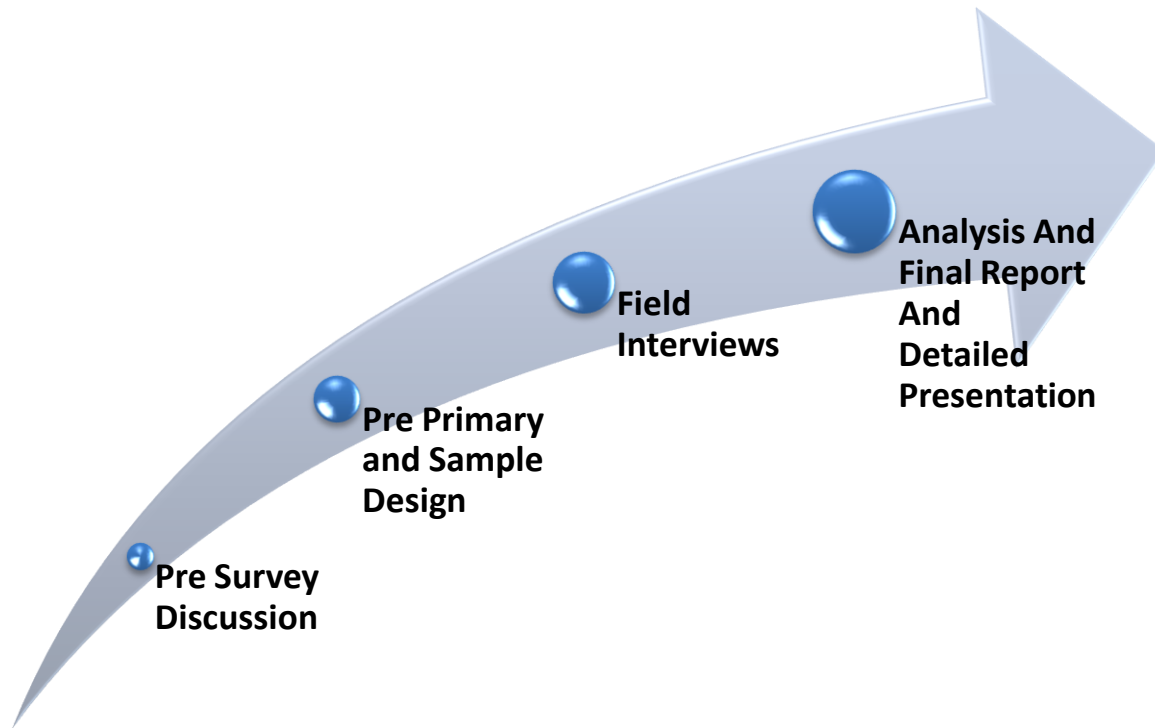
Data collection tool: Semi structure questionnaire/Discussion guidelines for Pulmonologist/Patients/Pharmacy.

Target population: General Physicians, Pulmonologists, Dispensing pharmacist.

Sampling method: Convenient sampling technique

Sample size:	Doctors	(Delhi:	16,	Mumbai:	24)
	Patients	(Delhi:	20,	Mumbai:	24)
	Pharmacy	(Delhi:	8,	Mumbai:	8)

METHODOLOGY AND APPROACH



1. Pre-survey Discussion:

A pre-survey meeting to review SAI methodology and approach and obtain their perspective on issues material to the objectives of the project. Review SAI methodology and sampling program including the various centers where Asthma & COPD conditions are managed that the team will cover over the study. Team introduction and Time lines are discussed. Categories of clinicians to be interviewed in this study are determined.

2. Pre-Primary and Sample Design

Based on information developed during the pre-survey and secondary search, the team will design the semi-structured questionnaire to be administered among various categories of clinicians and patients and dispensing pharmacists. The semi structured questionnaire draws out quantitative information based on the structured questions and perceptions and opinions based on unstructured questions and is extremely useful in studies where a significant degree of qualitative data on the perception and experience of clinicians and patients and other respondents, is required to be gathered.

3. Field Interviews

The team will then move to its primary field research program. Team will conduct interviews as below:

	Delhi	Mumbai
Clinicians	16	24
Pulmonologists	8	12
General Physicians	4	8
Consulting Physicians	2	6
Patients	20	24
Dispensing Pharmacists	8	8

4. Analysis and Final Report and Detailed Presentation

After all field research has been completed, SAI's project team will:

- Cross-check all information
- Analyze the information
- Draw appropriate conclusions
- Make recommendations to client about actions to be taken
- SAI will develop a detailed written report and present all information and analysis to the client including a detailed data sheet with input from the interviews
- The final document will include an executive summary highlighting all critical facts and analysis developed

PARAMETERS FOR SELECTING INSTITUTIONS



SAI PROVIDED LIST OF 16 INSTITUTIONS BASED ON ABOVE SEGMENTATION



FINAL DATABASE AND
QUESTIONNAIRE(DISCUSSION GUIDELINES) IS
PREPARED

FIELD INTERVIEWS (ON-SITE & TAPI)



COMPILATION OF RESPONSES/INFORMATION
DEVELOPED

DRAFTING FINAL REPORT AND DETAILED
PRESENTATION

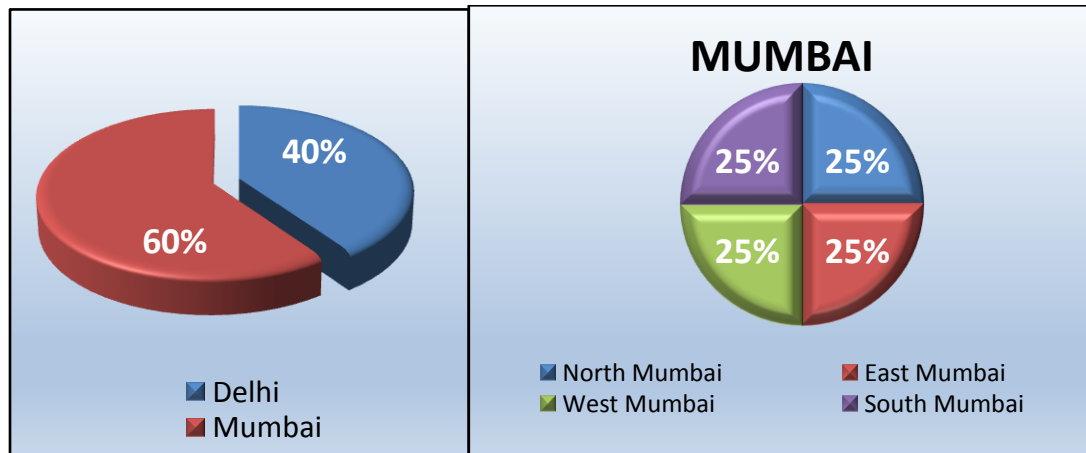
Details of Institutions targeted for the study:

Name	Region
Max Super speciality Hospital	East-Delhi
Vinayak Hospital, Noida	East-Delhi
Dr. Baba Saheb Ambedkar Hospital.	West-Delhi
R.M.L Hospital	West-Delhi
Batra Hospital, Saket	South-Delhi
Max Hospital, Saket	South-Delhi
Fortis Hospital, Shalimar bagh	North-Delhi
Sant Parmanand Hospital	North-Delhi
Sarvodaya Hospital, Ghatkopar	East-Mumbai
Medicare Hospital	East-Mumbai
Lilawati Hospital	West-Mumbai
Kokilaben Hospital	West-Mumbai
Bombay Hospital	South-Mumbai
Jaslok Hospital	South-Mumbai
Sterling Wockhardt Hospital	North-Mumbai
Fortis Hospital	North-Mumbai

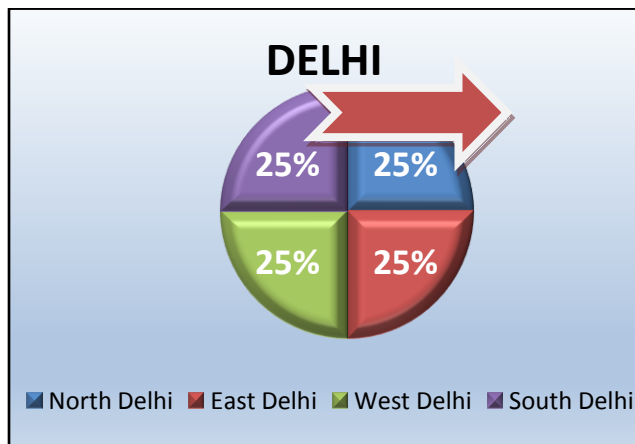
DATA ANALYSIS

% Split of Sample data based on various parameters

1. Breakup of sample databased on Institutions targeted:



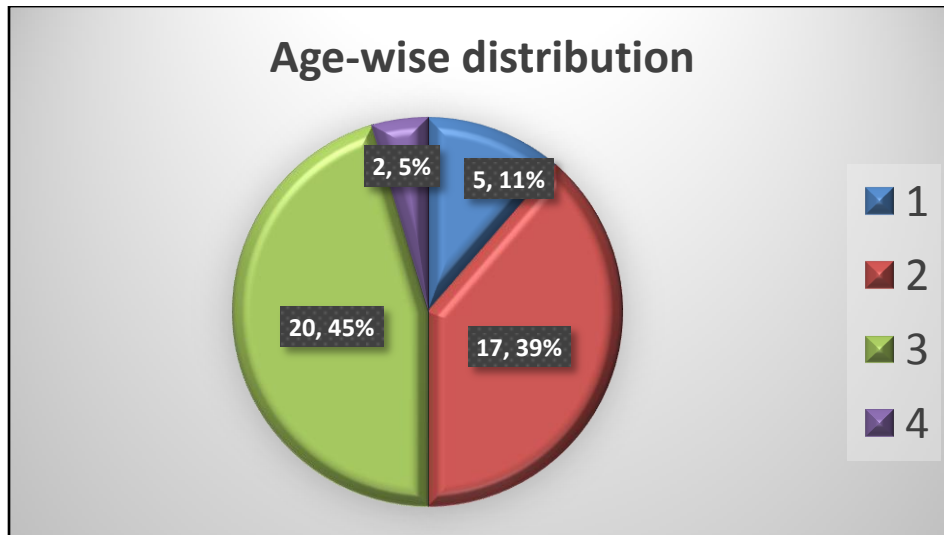
8 Institutions



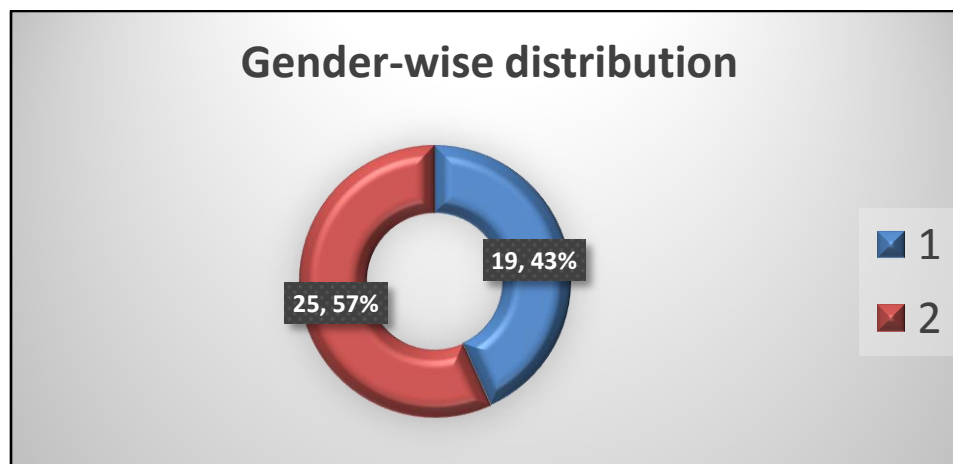
8 Institutions

Targeted Pulmonologists, GPs, and Consulting physicians.

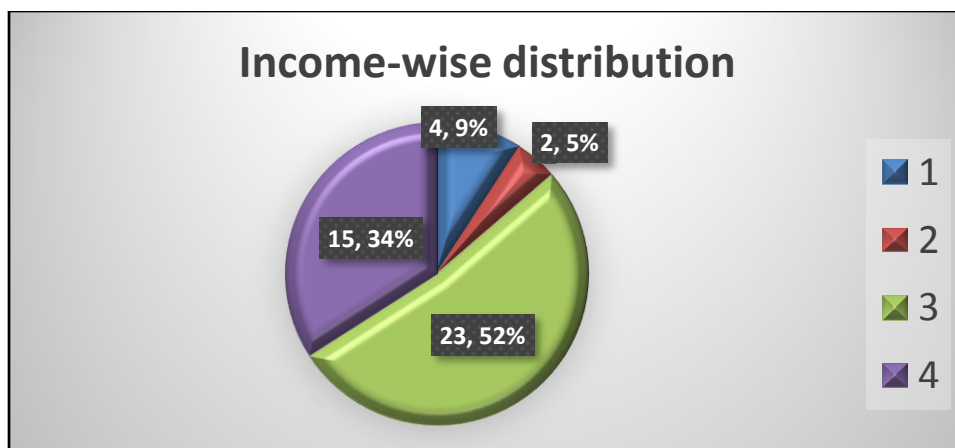
RESPONDENT INFOGRAPHICS: PATIENTS



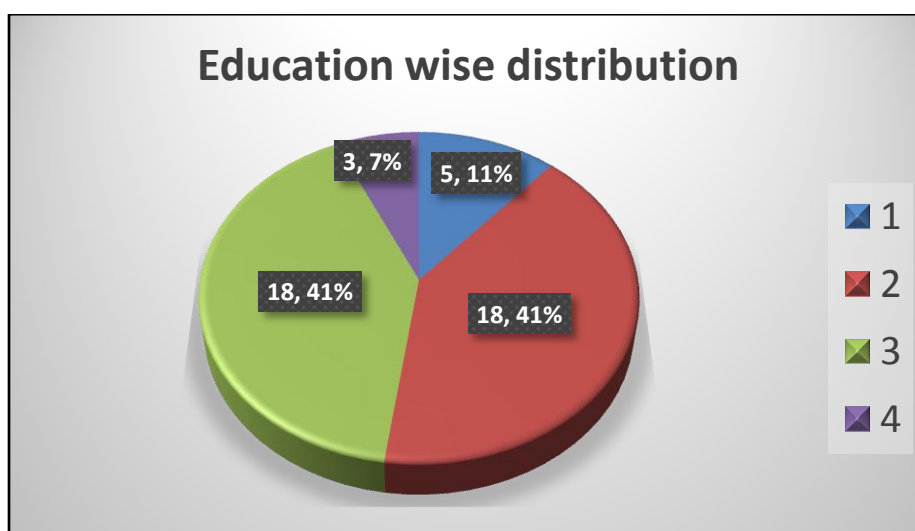
Age	Count of Respondent
1 15 YR TO 25 YR	5
2 25 YR TO 45 YR	17
3 45 YR TO 65 YR	20
4 ABOVE 65 YR	2
Grand Total	44



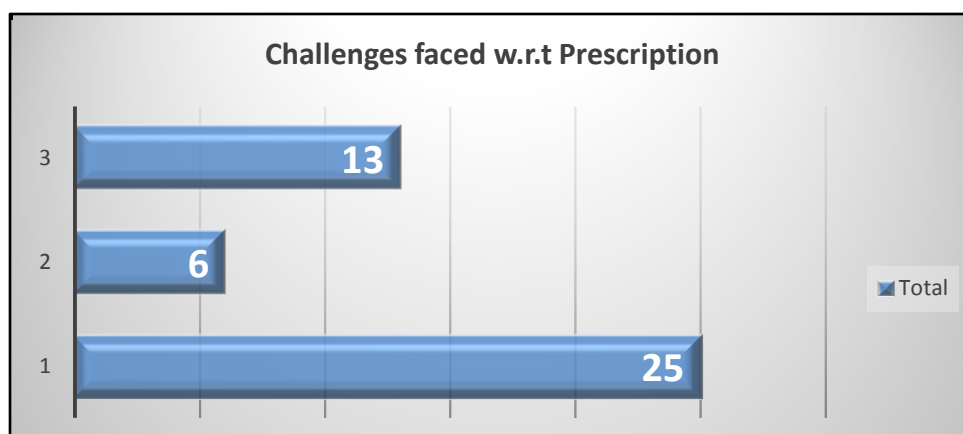
Gender	Count of Respondent
1 MALE	19
2 FEMALE	25
Grand Total	44



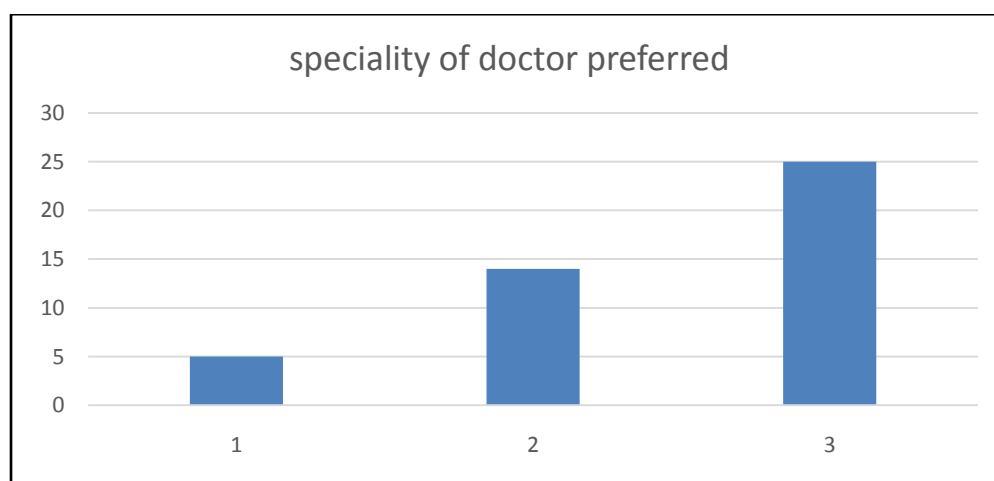
Average Income		Count of Respondent
1	<2.50 LAKH	4
2	2.50 LAKH TO 5 LAKH	2
3	5 LAKH TO 10 LAKH	23
4	ABOVE 10 LAKH	15
Grand Total		44



Education	Count of Respondent
1 MATRICULATE	5
2 GRADUATE	18
3 POST GRADUATE	18
4 NOT QUALIFIED	3
Grand Total	44

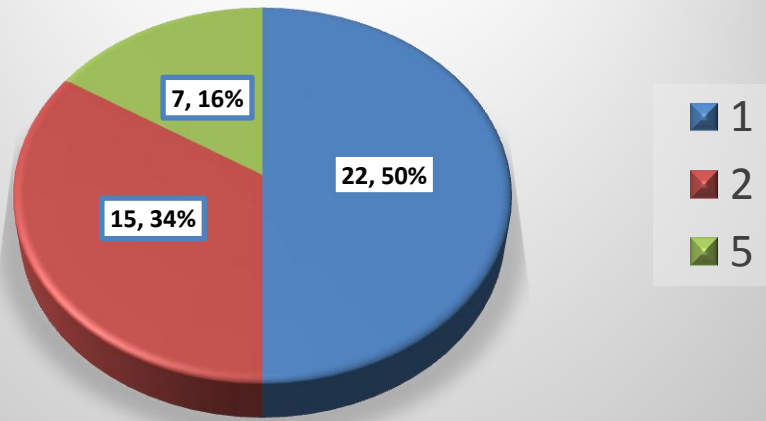


challenges faced w.r.t. Prescription(rate 1-3)	Count of Respondent
1	25
2	6
3	13
Grand Total	44



Row Labels	Count of Respondent
1 Pulmonologists	5
2 GP's	14
3 Consulting Physician	25
Grand Total	44

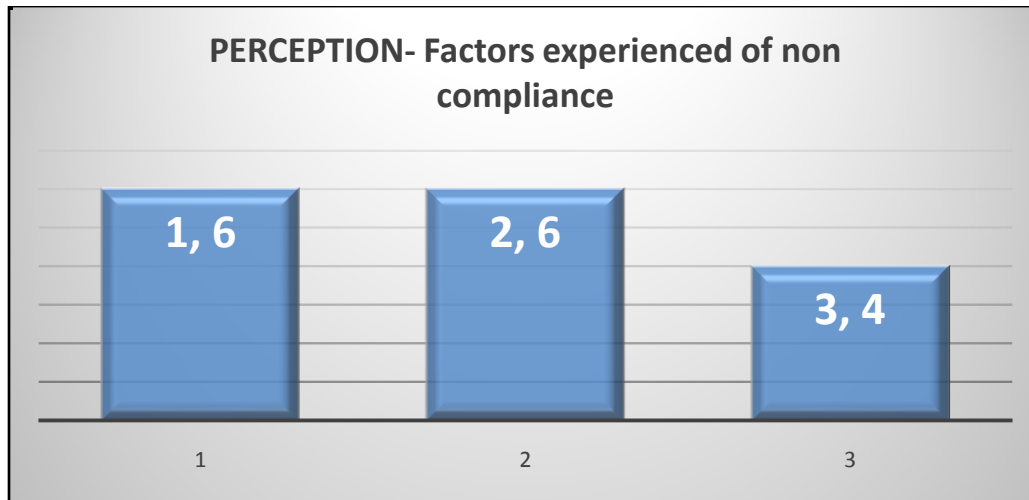
Overall level of satisfaction



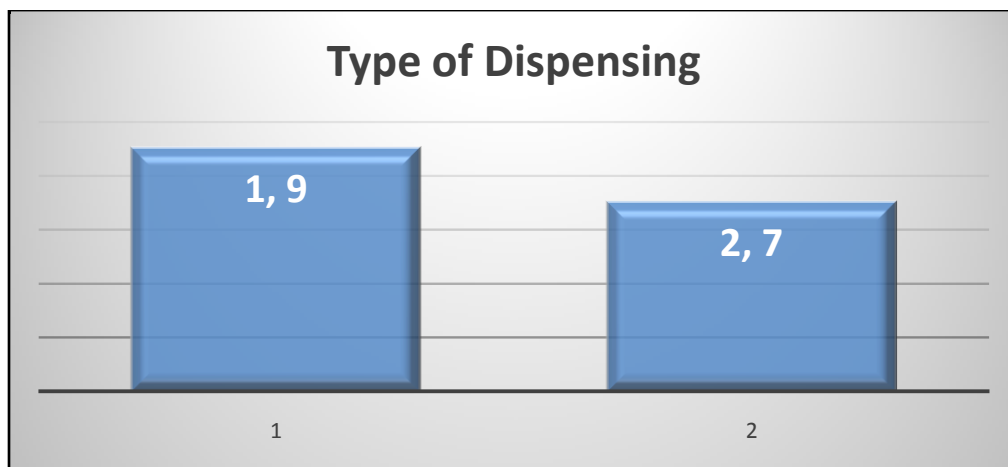
Level of Satisfaction	Count of Respondent
1 Satisfied	22
2 Not Satisfied	15
5 Can't Say	7
Grand Total	44

- Out of 44 respondents, 20 belongs to age group of 45yrs-60yrs
- In this patient pool, females are more as compared to male patients
- Awareness of non-compliance is more amongst Graduate and Post graduate respondents as compare to Matriculate and Non-qualified
- Out of 16 target institutions, on the basis of non-compliance issues, around 50% response is satisfactory
- During treatment of Asthma & COPD, respondent visits twice in a month

RESPONDENT INFOGRAPHICS: DISPENSING PHARMACIST

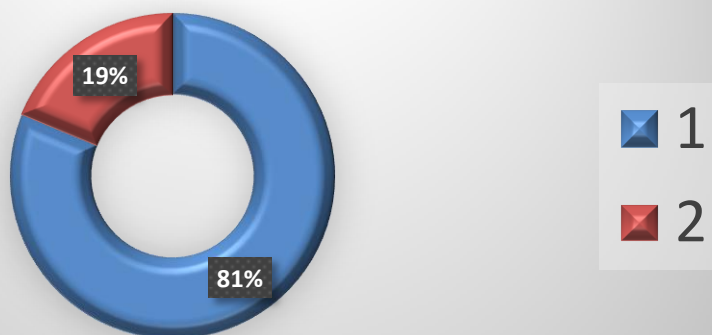


Factors experienced of non-compliance		Count of S. No.
1	COST	6
2	ADAPTABILITY	6
3	USAGE ISSUE (COMPATIBILITY)	4
Grand Total		16



Dispensing Prescription		Count of S. No.
1	FULL PRESCRIPTION	9
2	LOOSE PRESCRIPTION	7
Grand Total		16

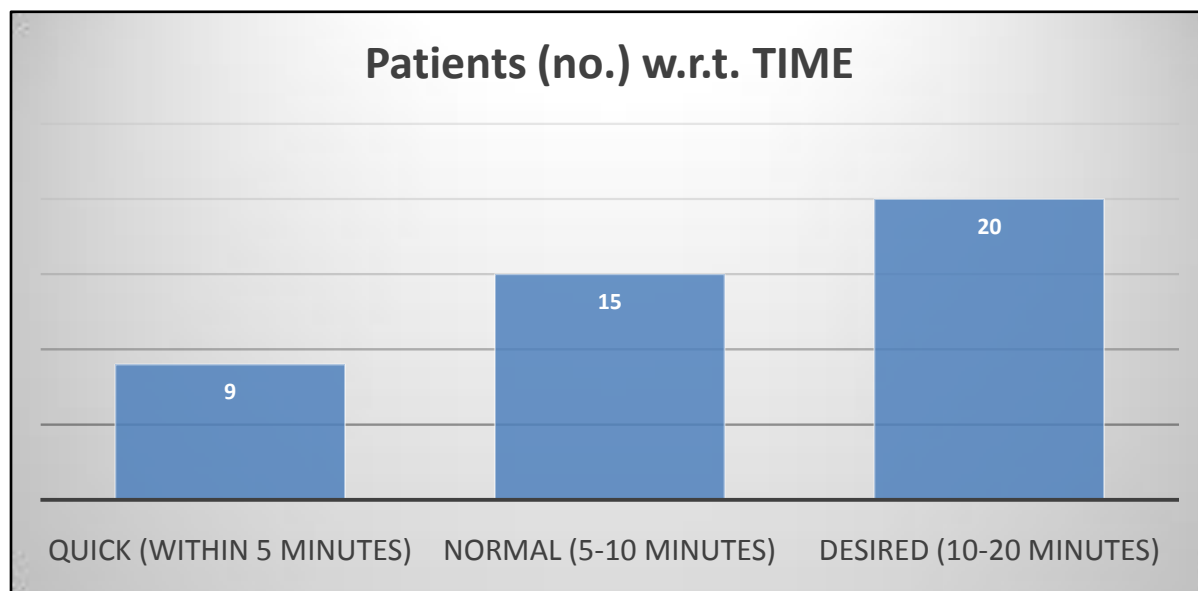
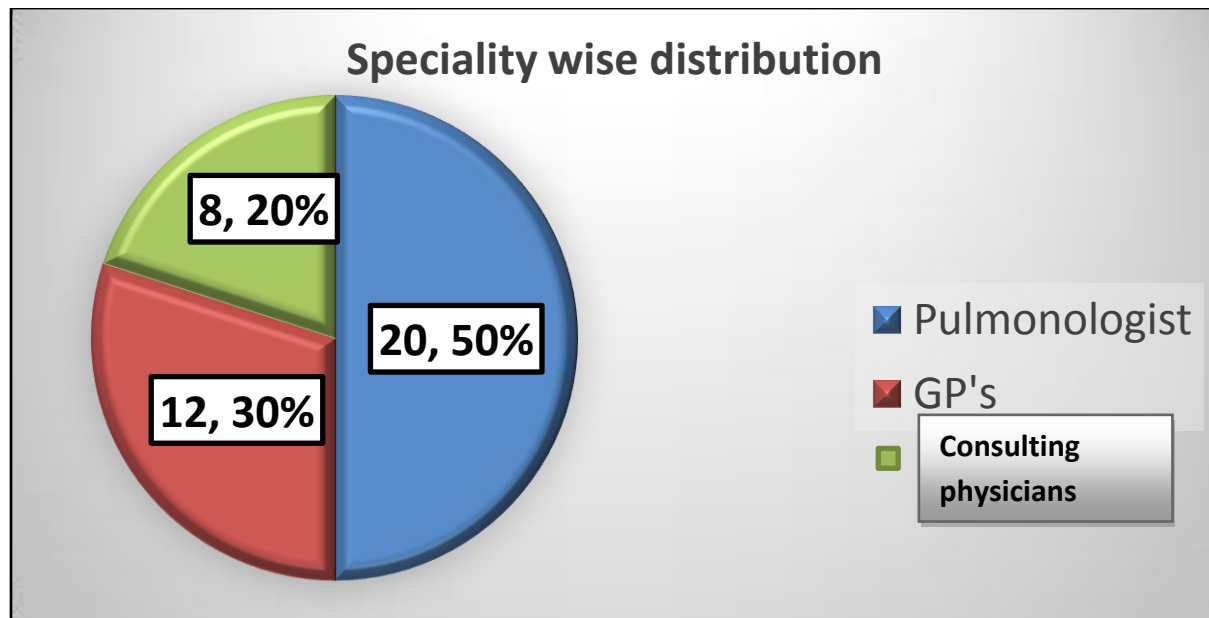
% Patient ask for loose medication



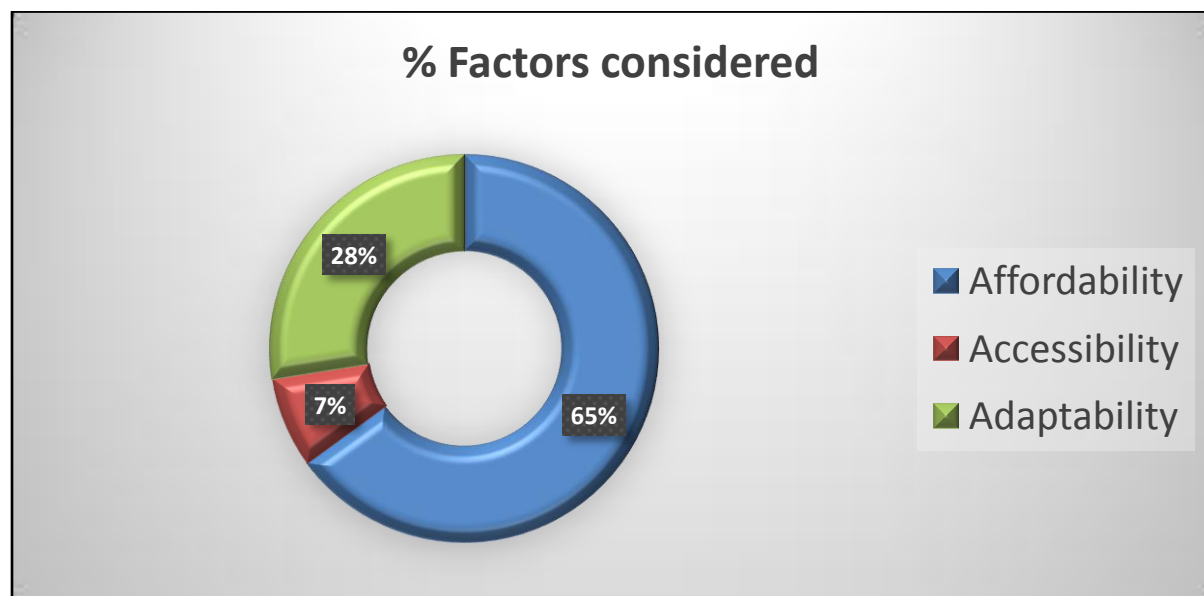
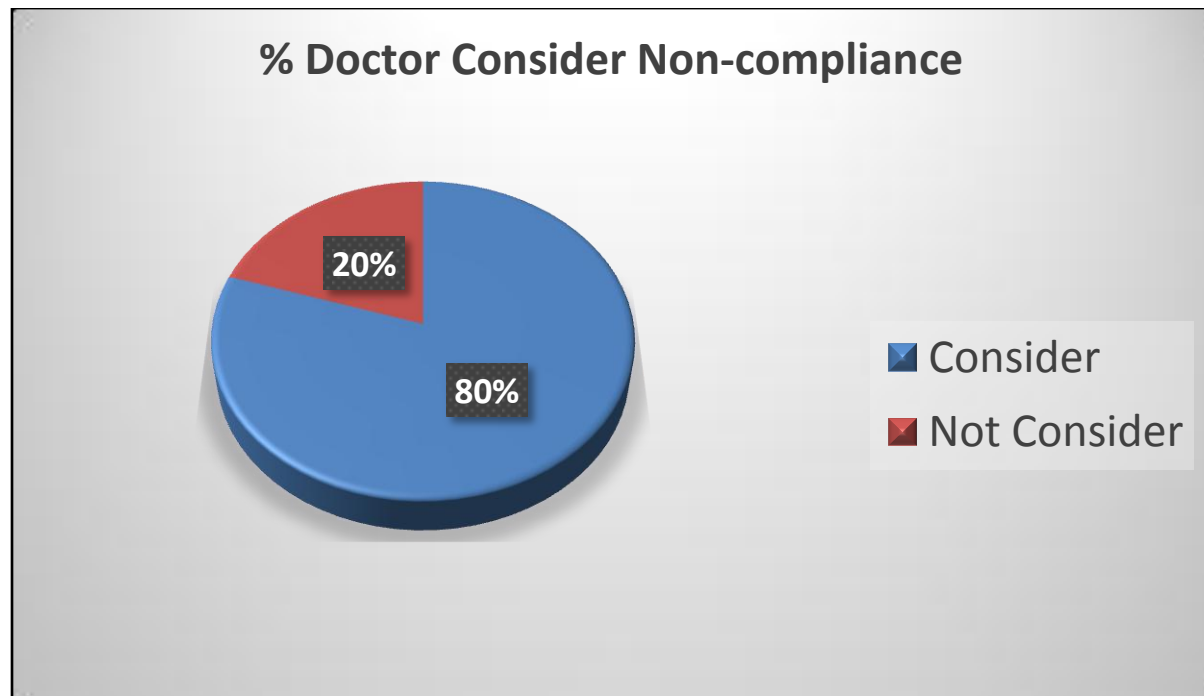
Patient ask for loose medication		Count of S.No.
1	YES	13
2	NO	3
Grand Total		16

- Cost and adaptability to inhaled medication are the driving factor of non-compliance.
- Mostly 90% of the patients visiting the pharmacy ask to dispense loose medication because of the improper awareness, cost issue etc.
- There is no significant difference have seen in type of dispensing. But from this study, it has been cleared that the hospital pharmacies are not dispensing the loose medication, hence follows as written in the prescription.

RESPONDENT INFOGRAPHICS: DOCTOR'S



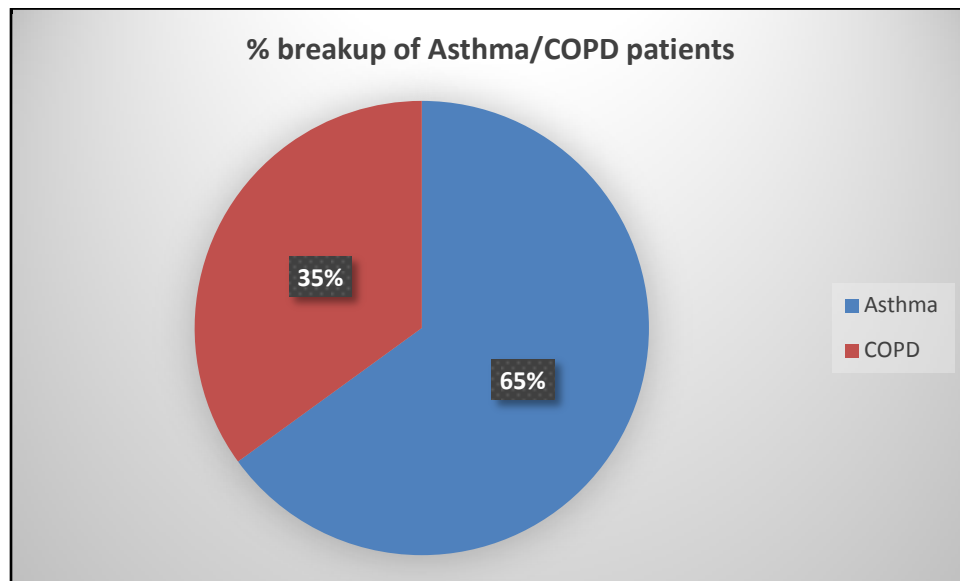
INTERRELATIONSHIP BETWEEN PATIENT—FACTORS—DOCTORS



Factors	
Affordability	26
Accessibility	3
Adaptability	11

No. of patients visiting the doctors vis Speciality

1	Pulmonologist	20
2	GP's	12
3	Consulting physicians	8



- Out of 32 physicians targeted, 80% took the factors of non-compliance into consideration while writing down the prescription.
- The factors that took into consideration are Affordability, Accessibility, Awareness, and Adaptability.
- Pulmonologist and GPs experiences increase in patient pool of Asthma & COPD patients.
- On an average >14 patients of Asthma/COPD examine in a day by Pulmonologists, whereas the patient pool towards other specialties are comparatively less.
- The prescription-wise analysis gives the clear idea about the medications favored for Asthma & COPD respectively with comparison to the standard.

CONCLUSION

- ✓ The demographics factors such age, gender, region, income, education is therefore analysed during the study.
- ✓ The prevalent pool of Asthma & COPD patients in the region of Delhi & Mumbai includes the maximum patients are females of age 45-65 years with income ranging in between 5-10 lakh p.a.
- ✓ The awareness among patients regarding non-compliance is identified through their response.
- ✓ The overall satisfaction level among patients is positive.
- ✓ Inter-relationship between patients and doctors gives the insight regarding the non-compliance factors such as affordability, adaptability toward inhaled medication and accessibility of cheaper derivatives.
- ✓ The prescription-wise analysis gives the clear idea about the medications favored for Asthma & COPD respectively with comparison to the standard.

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