

**A PROSPECTIVE STUDY ON ROLE OF DOCTOR  
OF PHARMACY/ CLINICAL PHARMACIST IN  
IDENTIFICATION REPORTING OF DRUG  
RELATED PROBLEMS IN IN-PATIENT UNITS OF  
CARDIOLOGY AND PULMONARY MEDICINE  
DEPARTMENTS OF AN ESI HOSPITAL**

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**ABSTRACT**

The present study aims at implementation of Doctor of pharmacy services in identification reporting of drug related problems in in-patient units of cardiology and pulmonary medicine departments of an ESI hospital with an objectives of identification and reporting drug related problems. It is a prospective observational study& conducted for a period of six months from October 2018 to March 2019. The Patients admitted in hospital was 169 Patients. All the required data was collected from patients through personal interview and case sheets and treatment charts and data collection forms. All the patients satisfying the inclusion criteria above 18 who are willing to participate in this study were selected and exclusion criteria patients who are not willing to participate in this study like pregnancy lactation and cancer patients were excluded. A total of 169 patients were selected for the study, in which the total number of 180 drug related problem overcome by doctor of pharmacy during prescription analysis.16 number of drug-disease contraindication (8.88%),18 number of Generic substitution (10%), 12 numbers of incorrect drug dosage (6.66%),17 numbers of Inappropriate duration of drug treatment (9.44%),14 number of Drug-allergy interactions(7.77%),15 numbers of Clinical abuse/misuse(8.33%),10 numbers of Therapeutic inappropriateness(5.55%),17 numbers of Over and underutilization (9.44%) 12 numbers of In Appropriate generic use(6.66%) 14 numbers of Adverse drug reaction (7.77%).10 numbers of Therapeutic duplication( 5.55%),25 numbers of Drug-drug interactions 13.88% were identified and reported by Doctor of Pharmacy. Prism graph pad software is used for analysis of results the present study was found as highly significant as P-Value is 0.001.

## INTRODUCTION

Drug therapy can successfully enhance quality of life, treat and counteract or ease side effects in numerous conditions. Drugs are however powerful and should be dealt with properly.

### Drug-Related Problems:

A Drug-Related Problem has been defined as “an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes with this definition DRP incorporates.

### Types of Most Common and Major Drug-Related Problems:

- Adverse drug reactions.
- Drug-disease contraindications.
- Drug-drug interactions.
- Therapeutic duplication.
- Generic substitution.
- Incorrect drug dosage.
- Inappropriate duration of drug treatment.
- Drug-allergy interactions.
- Clinical abuse/misuse.
- Therapeutic inappropriateness.
- Over and underutilization.
- In Appropriate generic use.

### Role of pharmacist in Implementing Strategies to Reduce Drug Related Problems:

1. Educating health care providers and patients
  - Instruct usual sources of drug errors to primary care providers
  - assist primary care providers in safe prescription and use process of drugs by providing simple tools to them
  - Considering the ways of active involvement of patients in medicine management;
  - Addressing non-adherence by providing tools for patient involvement.
2. Implementing medication reviews and Reconciliation
  - Ensuring active reviewing of prescriptions by pharmacist ;
  - Encouraging and supporting clinicians to utilize medication reconciliation.
3. Using computerized systems
  - Fortify alert systems and e-prescribing. In following situations the Computerized provider order entry with decision support can be specially effective:
    - when its target is a limited number of potentially improper medications and
    - When designed for minimization of the alert burden through concentrating on clinically-relevant warnings.
4. Prioritizing areas for quick wins
  - Aim at injections use as a main source of errors;

- Aim at the care of children and the elderly relevant interventions
- Carry out multi-component interventions with a combination of education, medication reviews and community pharmacist's involvement;
- Take specialist outpatient clinics into account for prescription of particular drugs that need routine monitoring(example: Warfarin)
- Carry out additional research on drug errors to establish a better comprehension of the causes, provide affirmation for interventions affecting adverse outcomes, and to assist bridge knowledge gaps in countries with low- and middle-income on parenteral application and the pediatric population specificities.

### AIM

The study aims at implementation of Doctor of pharmacy services in identification reporting of drug related problems in in-patient units of cardiology and pulmonary medicine departments of an ESI hospital.

### OBJECTIVES

The key objectives of the present study include in Identification and reporting of drug related problems to physicians of

Cardiology and Pulmonary Departments like:

- Adverse drug reaction.
- Drug-drug interactions.
- Incorrect drug dosage.
- Inappropriate duration of drug treatment.
- Drug-allergy interactions.
- Clinical abuse/misuse.
- Therapeutic inappropriateness.
- Over and underutilization.
- In Appropriate generic use.
- Therapeutic duplication

### METHODOLOGY

Study Design: It is a Prospective observational study. Study Period: The Present study was conducted for a period of six months from October 2018 to March 2019. Study site: The Present study was conducted in Cardiology and Pulmonary department of an ESI hospital .Sample size: The Patients admitted in hospital during the study period of six months it was 169 Patients. Source of Data: All the required data was collected from patients through personal interview patient profile forms, treatment charts Inclusion criteria: Patients with aging above 18 years, Patients having previous history of medical, medication problems, The Patients who are willing to participate in the study. Exclusion criteria: Patients who are not willing to participate in

the study like Pregnancy, Lactation, and Cancer Patients. Method of collection of data: All the patients satisfying the inclusion criteria were selected Cardiology and Pulmonary department of ESI hospital. After thoroughly explaining the study methodology to the subjects, and included in the study. The necessary information was collected by interviewing the patients and parents using the following annexure.

ANNEXURE -1: Patient Profile Form.

ANNEXURE-2: Drug Related Problems identification and Reporting Form.

ANNEXURE-3: ADR Form (Adverse Drug Reaction Form)

ANNEXURE-4: DI Form (Drug Interaction Form).

### ETHICAL APPROVAL

The Present study is approved by Ethical Committee of Gautham College of Pharmacy, R.T Nagar, Bangalore, Karnataka, India affiliated to ESI Hospital, Indira nagar, Bangalore, Karnataka, India.

### RESULTS AND DISCUSSION

#### Cardiology Department

Table 1: Age wise distribution male patients. A total of 169 patients were participated in this study from from both cardiology and pulmonary departments .The males population is 44 from Cardiology Department. The age wise male Patients

population ranges as 2 Patients were in the age group of 20-30 years (4.545%).15 Patients were in the age group of 30-40 years (34.09%), 14 patients were in the age group of 40-50 years (31.81%), 8 Patients were in the age group of 50-60 years (18.18 %), 5 patients were in the age group of 60-70 years (11.36%).

Table 2: Age wise distribution of Female patients a total of 169 patients were participated in this study from both Cardiology and Pulmonary departments .The Females population is 21 from Cardiology Department. The age wise Female patients population Patients who were in the age group of 20-30 years (4.761%),2 Patients were in the age group of 30-40 years (9.523 %),15patients were in the age group of 40-50 years(71.42%),2 patients were in the age group of 50-60 years(9.523%),0 patients were in the age group of 60-70 years( 0 %),0 patients were in the age group of 70-80 years( 0 %).

Table 3: Gender Wise Distribution of Study Patients .A total of 169 patients were selected for the study, in which 44 patients were males 21 patients remaining were females in Cardiology Department.

Table 4: Personnel behavior wise distribution of Study Population a total of

169 patients were selected for the study, in which 21 patients were alcoholic and 18 patients were having behavior of smoking in Cardiology Department.

### **Pulmonary Department**

Table 5: Age wise distribution male patients in this study total of 169 patients were enrolled in the study from both cardiology and pulmonary department. The males population is 56 from Pulmonary Department .The age wise male Patients population ranges from the 5 Patients were in the age group of 10-20 years (8.928%) 8 Patients were in the age group of 20-30 years(14.28%),14 patients were in the age group of 30-40 years (25%),16patients were in the age group of 40-50 years (28.57%), 9 Patients were in the age group of 50-60 years(16.07 %),4 patients were in the age group of 60-70 years (7.142).

Table 6: Age wise distributions of Female patients in this study total of 169 patients were enrolled in the study from both cardiology and pulmonary department. The Females population is 48 from Pulmonary Department the age wise Female patients population ranges from the 3 Patients were in the age group of 10-20 years (6.25%),7patients were in the age group of 20-30 years(14.58%),14 Patients were in the

age group of 30-40 years(29.16 %),8 patients were in the age group of 40-50 years(16.66%),10patients were in the age group of 50-60 years(20.83%),6patients were in the age group of 60-70 years( 12.5 %).

Table 7: Gender Wise Distribution of Study Patients a total of 169 patients were selected for the study from both cardiology and pulmonary departments, in which 56 patients were males 48 patients remaining were females in Pulmonary Department.

Table 8: Personnel behavior wise distribution of Study Population a total of 169 patients were selected from both cardiology and pulmonary departments for the study, in which 24 patients were alcoholic and 38 patients were having behavior of smoking in pulmonary department.

Table 9: Showing distribution of Prescriptions with Multiple Diseases and with Poly-pharmacy Pharmacy in In-Patient Units of Cardiology and Pulmonary Departments of an ESI Hospital .A total of 169 patients were selected for the study, from both cardiology and pulmonary departments in which 65 patients were having multiple disease and 104 patients were having pulmonary disease.

Table 10: Distribution of Drug Related Problems that are identified and reported by Doctor of Pharmacy in In-Patient Units of Cardiology and Pulmonary Departments of an ESI Hospital. A total of 273 patients were selected for the study, in which the total number of 180 drug related problem overcome by doctor of pharmacy during prescription analysis. 16 number of drug-disease contraindication (8.88%), 18 number of Generic substitution (10%), 12 numbers of incorrect drug dosage (6.66%), 17 numbers of Inappropriate duration of drug treatment (9.44%), 14 number of Drug-allergy interactions (7.77%), 15 numbers of Clinical abuse/misuse (8.33%), 10 numbers of Therapeutic inappropriateness (5.55%), 17 numbers of Over and underutilization (9.44%) 12 numbers of In Appropriate generic use (6.66%) 14 numbers of Adverse drug reaction (7.77%), 10 numbers of Therapeutic duplication (5.55%), 25 numbers of Drug-drug interactions 13.88% were identified and reported by Doctor of Pharmacy.

**P-VALUE:** The P-VALUE is 0.001 which states the present study is highly significant.

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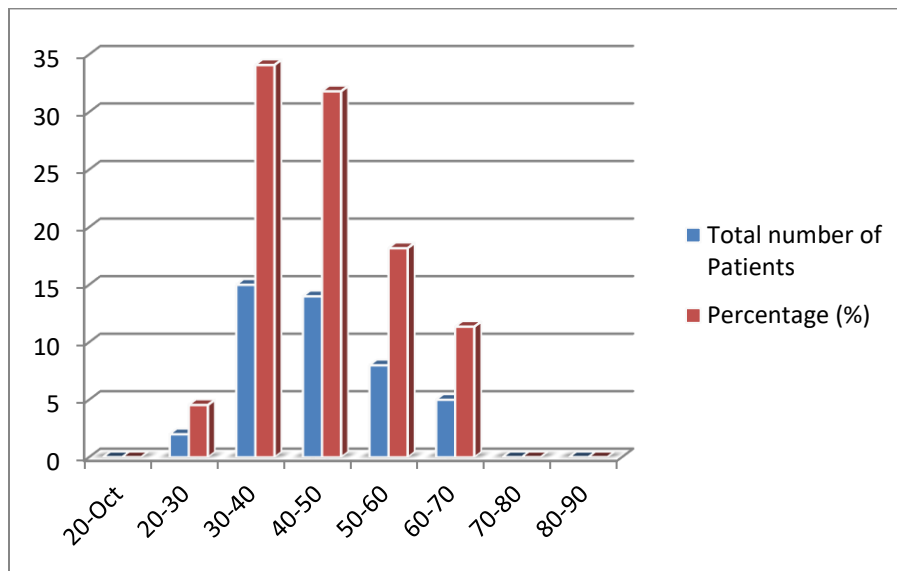
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**RESEARCH WORK TABLES AND FIGURES**

**CARDIOLOGY DEPARTMENT**

**Table1: Age wise distribution of male patients**

Age in years	Total number of Patients	Percentage (%)
10-20	0	0
20-30	2	4.545
30-40	15	34.09
40-50	14	31.81
50-60	8	18.18
60-70	5	11.36
70-80	0	0
80-90	0	0
<b>Total</b>	<b>44</b>	<b>100</b>

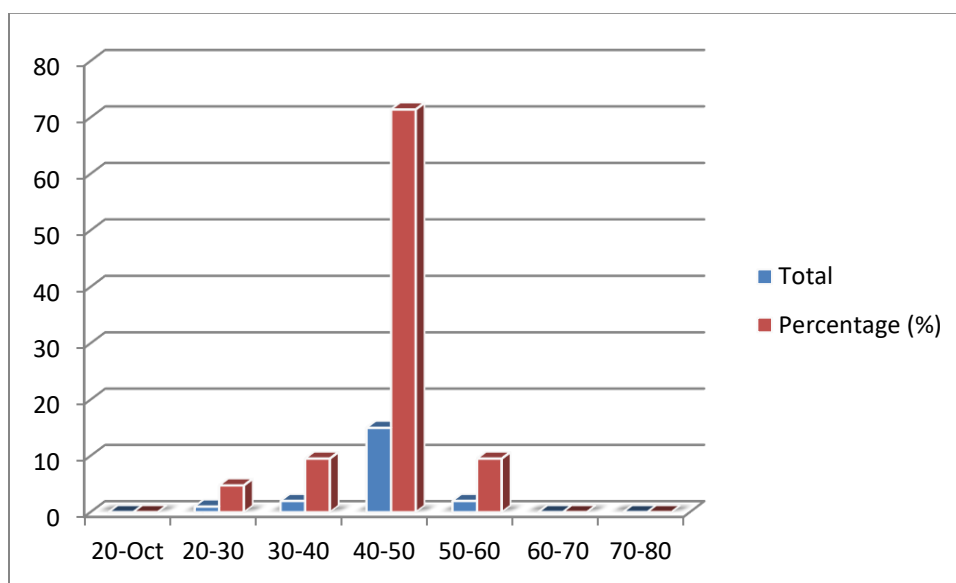


**Fig 1: Diagram showing Age wise distribution of male patients.**

**Table 2: Age wise distribution of Female patients**



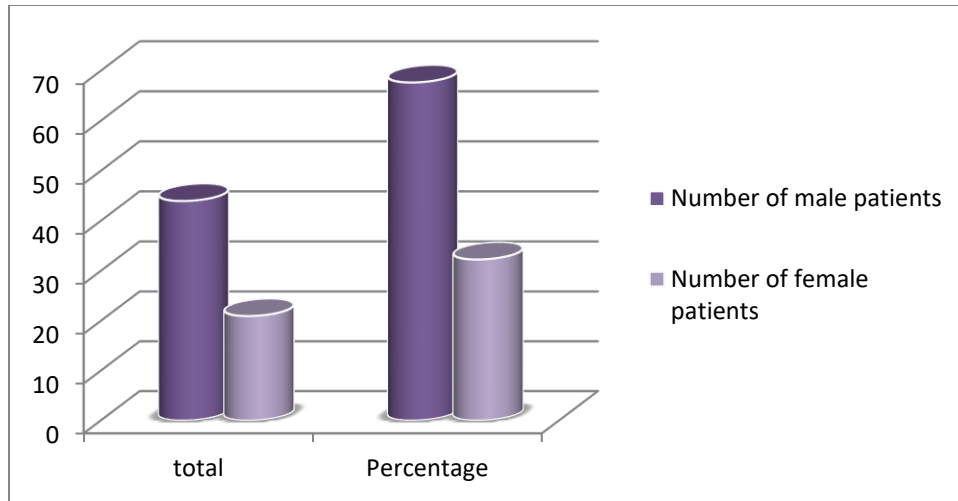
Age	Total	Percentage (%)
10-20	0	0
20-30	1	4.761
30-40	2	9.523
40-50	15	71.42
50-60	2	9.523
60-70	0	0
70-80	0	0
<b>Total</b>	<b>21</b>	<b>100</b>



**Fig 2: Diagram showing Age wise distribution of Female patients**

**Table3: Gender Wise Distribution of Study Patients**

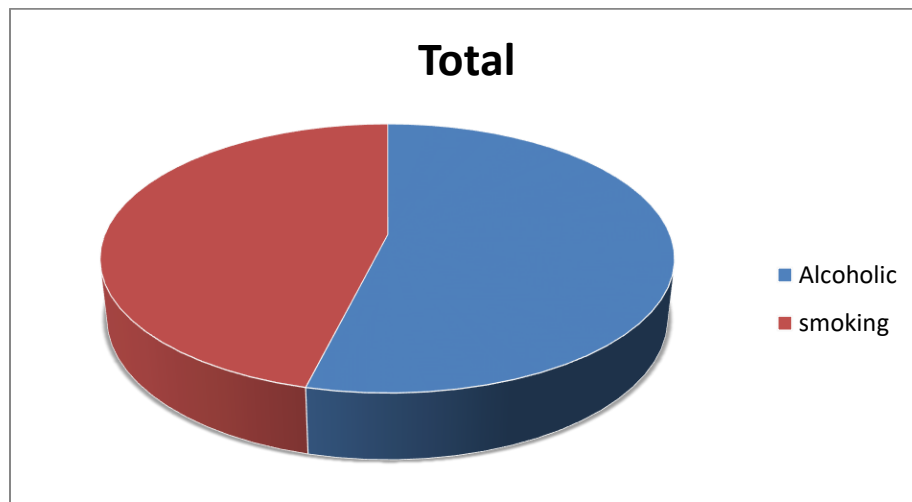
Status	total	Percentage
Number of male patients	44	67.692
Number of female patients	21	32.307
<b>Total number of patients</b>	<b>65</b>	<b>100</b>



**Fig 3: Diagram showing Gender Wise Distribution of Study Patients.**

**Table4: Personnel behavior wise distribution of study population.**

Status	Total
Alcoholic	21
smoking	18

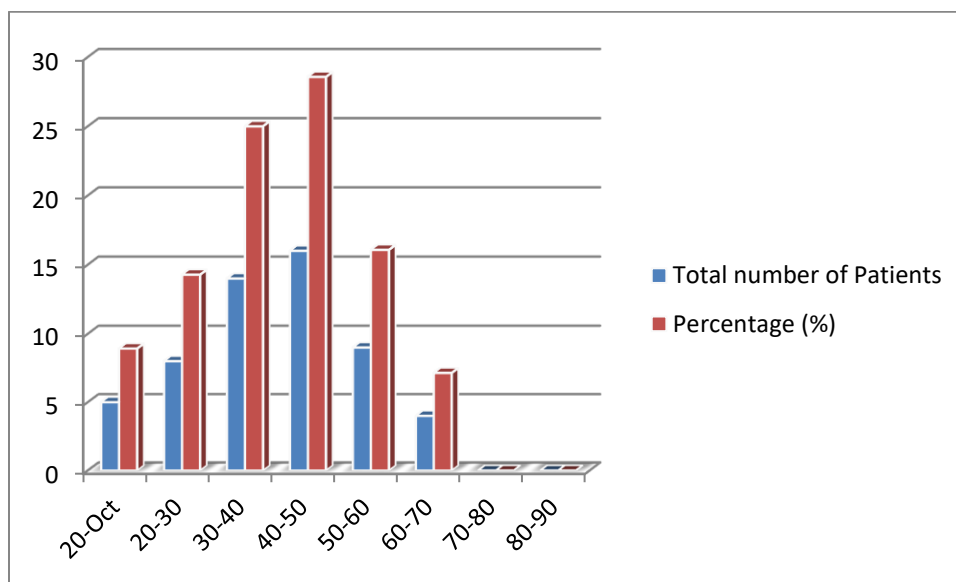


**Fig 4: Diagram showing Personnel behavior wise distribution of study population.**

**PULMONARY DEPARTMENT**

**Table 5: Age wise distribution of male patients**

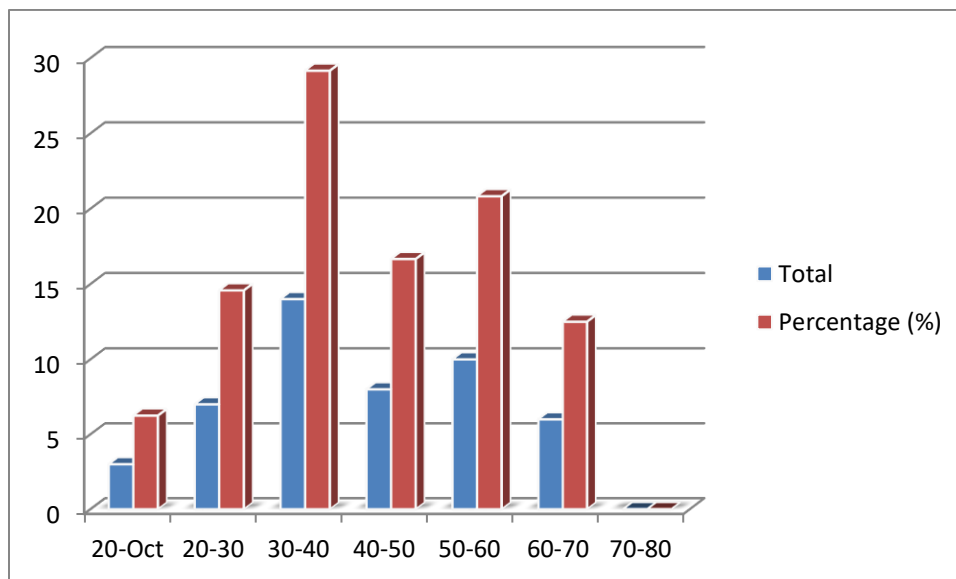
Age in years	Total number of Patients	Percentage (%)
10-20	5	8.928
20-30	8	14.28
30-40	14	25
40-50	16	28.57
50-60	9	16.07
60-70	4	7.142
70-80	0	0
80-90	0	0
<b>Total</b>	<b>56</b>	<b>100</b>



**Fig 5: Diagram showing Age wise distribution of male patients**

**Table 6: Age wise distribution of Female patients**

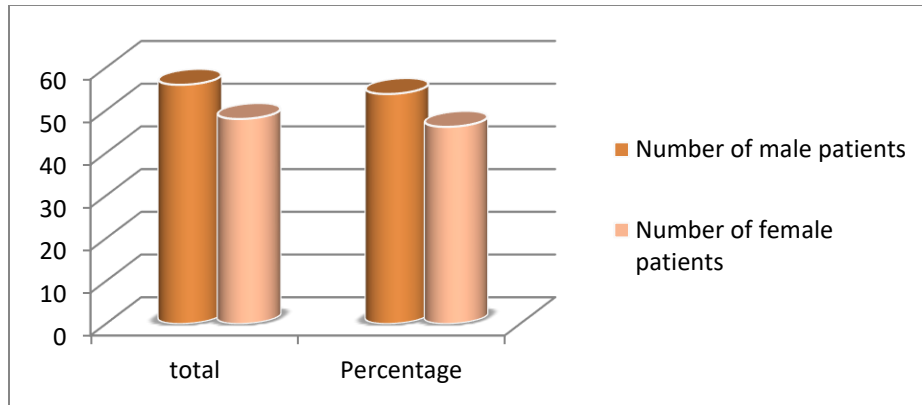
Age	Total	Percentage (%)
10-20	3	6.25
20-30	7	14.58
30-40	14	29.16
40-50	8	16.66
50-60	10	20.83
60-70	6	12.5
70-80	0	0
<b>Total</b>	<b>48</b>	<b>100</b>



**Fig 6: Diagram showing age wise distribution of female patients**

**Table 7: Gender Wise Distribution of Study Patients**

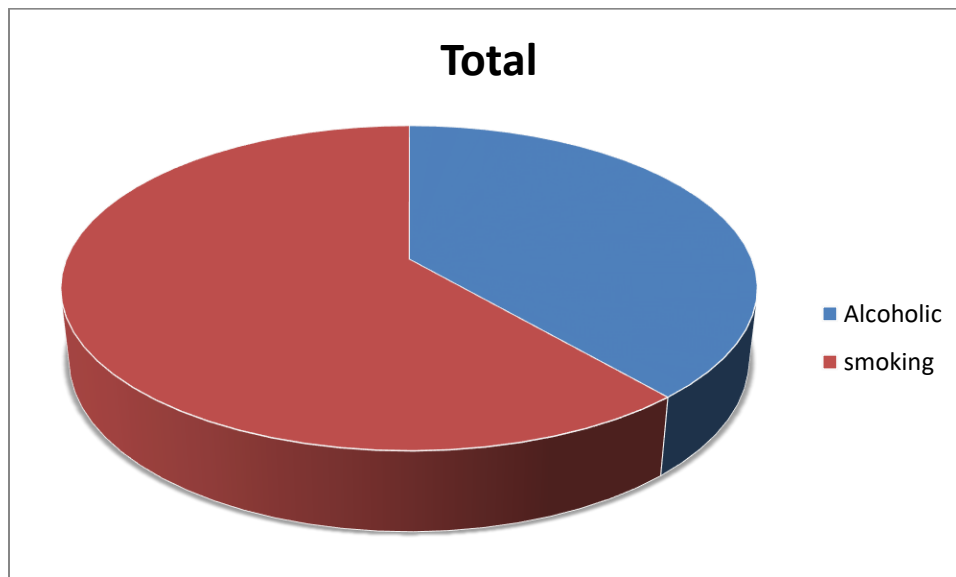
Status	total	Percentage
Number of male patients	56	53.846
Number of female patients	48	46.153
<b>Total number of patients</b>	<b>104</b>	<b>100</b>



**Fig 7: Diagram showing Gender Wise distribution of study patients**

**Table 8: Personnel behavior wise distribution of study population.**

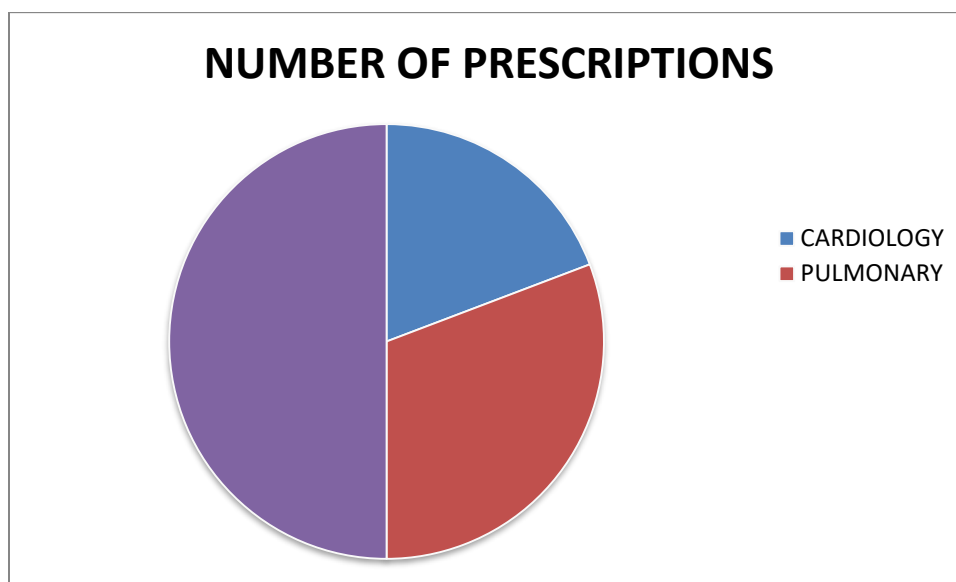
Status	Total
Alcoholic	24
smoking	38



**Fig 8: Diagram showing Personnel behavior wise distribution of study population.**

**Table9: Showing Distribution of Prescriptions with Multiple Diseases and with Poly-pharmacy Pharmacy in In-Patient Units of Cardiology and Pulmonary Departments of an ESI Hospital:**

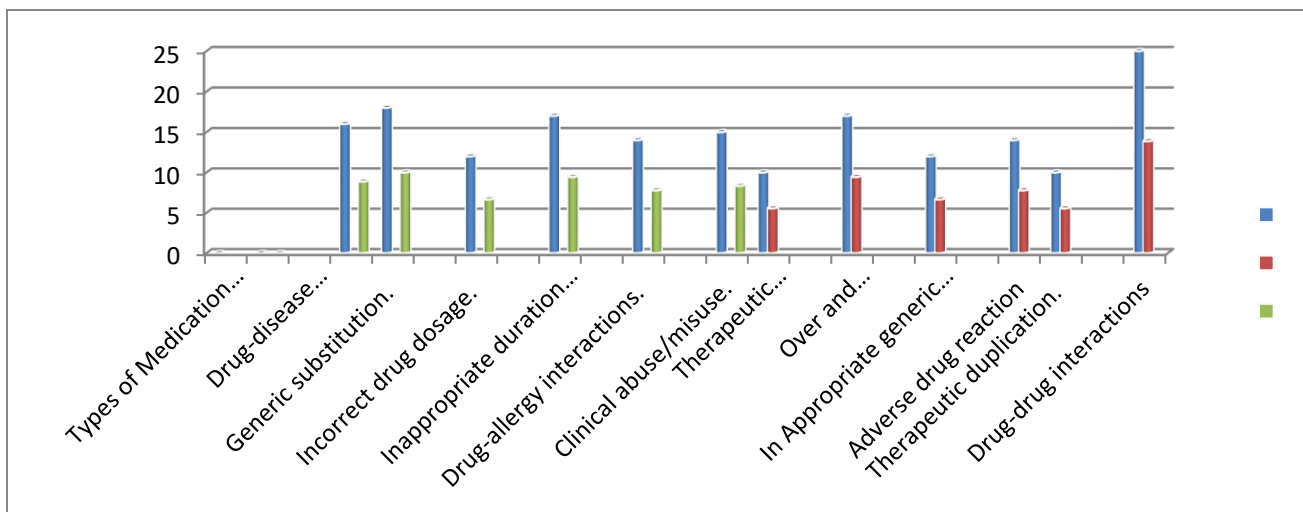
S.NO	NAME OF INPATIENT UNIT	NUMBER OF PRESCRIPTIONS
1.	Cardiology	65
2.	Pulmonary	104
3.	Total	169



**Fig 9: Diagram showing Distribution of Prescriptions with Multiple Diseases and with Poly-pharmacy Pharmacy in In-Patient Units of Cardiology and Pulmonary Departments of an ESI Hospital.**

**Table 10: Distribution of Drug Related Problems that are Identified and Reported by Doctor of Pharmacy in In-Patient Units of Cardiology and Pulmonary Departments of an ESI Hospital.**

Types of Drug Related Problems	Total number of Drug Related Problems that are identified and reported by Clinical Pharmacist.	
	NUMBER	PERCENTAGE
Drug-disease contraindications.	16	8.88
Generic substitution.	18	10
Incorrect drug dosage.	12	6.66
Inappropriate duration of drug treatment.	17	9.44
Drug-allergy interactions.	14	7.77
Clinical abuse/misuse.	15	8.33
Therapeutic inappropriateness.	10	5.55
Over and underutilization.	17	9.44
In Appropriate generic use.	12	6.66
Adverse drug reaction	14	7.77
Therapeutic duplication.	10	5.55
Drug-drug interactions	25	13.88
	<b>Total=180</b>	<b>Total %age=100</b>



**Fig 10: Diagram showing distribution of Drug Related Problems that are identified and reported by doctor of pharmacy in in-patient units of Cardiology and Pulmonary Departments of an ESI hospital.**

**P-VALUE is 0.001 which states the present study is highly significant.**