

Assessment of Essential Drug List in Lahore Retail Pharmacies

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Abstract

The World Health Organization made an essential drug list for pharmacies which help in promoting the patient health by satisfying the needs of majority of population, and these medicines are available at affordable prices for patients. For the assessment of essential drug list in different areas of Lahore retail pharmacies. To check that these pharmacies follow essential drug list or not and other factors regarding essential drug list. The study was done by taking 60 pharmacies and it is survey based simple sampling in nature using both qualitative and quantitative data from retail pharmacies. After collecting data, data entry is done by using SPSS software. Data is analyzed, report is prepared based on data results from SPSS. Then discussion which include suggestions, improvements, recommendations, limitations and conclusion includes comparison. The study was based on the assessment of essential drugs prescribing indicators, patient affordability, and availability of essential drug list in pharmacies as stipulated by World Health Organization. A total of 60 retail Lahore pharmacies were sampled. The study established that a high percentage of Lahore retail pharmacies having essential drug list and most of the pharmacies follow both list which WHO EDL and NEDL. Mostly prescriptions received contain essential drugs on daily bases because most of the drugs prescribed from the essential drug list. The study also established that most of the essential drugs were properly stored and adequately labeled. In general, the prescribing and dispensing practices of essential drugs in the pharmacies are fairly good and are not far from the standard WHO requirements. The study showed that the pharmacies were doing well on essential drug list. It also assess that number of essential drugs prescribed, most commonly essential drugs in received prescription, essential drugs prescribed by generic names; drugs actually dispensed; correct patient knowledge of dosage, pharmacist and pharmacy technician awareness about essential drugs availability of essential drugs stock; drugs prescribed on EDL and availability of prescribers, drugs available at affordable prices, adequately essential drugs stored, dispensed and properly labeled.

Keywords: Essential Drug List, Lahore Retail Pharmacy, Prescribing indicators, Patient affordability, Availability of Essential Drugs

1. Introduction

Access to medicines is a universal right. Low availability and low affordability of medicines are issues that deny this right to a significant proportion of this city population. The objective of this study was to determine the availability, price and affordability of essential medicines prescribed to treat disease, to determine that these drugs are available in pharmacies or not, because the pharmacies are the source from which public gets medicines.

1.1 Pharmacy

Pharmacy is the science and technique of preparing and dispensing drugs. It is a health profession that links health sciences with chemical sciences and aims to ensure the safe and effective use of pharmaceutical drugs.

Pharmacy is the fastest growing, dynamic profession offering a wealth of opportunities. Many occupations offer to improve society's quality of life, the profession of pharmacy involves the preservation of life itself. While serving the society, a secure professional future is reasonably guaranteed with the satisfaction of personal accomplishment.

Scope of Pharmacy Practice:

The scope of pharmacy practice includes more traditional roles such as compounding and dispensing medications, and it also includes more modern services related to health care, including clinical services, reviewing medications for safety and efficacy, and providing drug information. Pharmacists, therefore, are the experts on drug therapy and are the primary health professionals who optimize use of medication for the benefit of the patients. ^[1]

History:

The history of pharmacy as an independent science dates back to the first third of the 19th century. Before then, pharmacy evolved from antiquity as part of medicine. ^[2]

Ancient Origins:

- Pharmacy comes from the Greek word pharmakon, meaning drug
- Scientific approach to medicine began with the ancient Greeks

Hippocrates

- Proposed that disease came from natural, not supernatural causes
- Established the theory of humors (blood, phlegm, black bile, yellow bile)

Galen

- Conducted animal experiments

- Produced a systematic classification of drugs for treatment of disease
- Galenical pharmacy described the process of creating extracts of active medicinals from plants

Dioscorides

- First century A.D.
- De Materia Medica (standard text on drugs for 1500 years)

Dr. John Morgan

- Eighteenth Century
- Supported the separation of the professions of pharmacy and medicine [3]

Pharmacy, with its heritage of 50 centuries of service to mankind, has come to be recognized as one of the great professions. Like Medicine, it has come through many revolutions, has learned many things, has had to discard many of its older ways. Pharmacists are among the community's finest educated people. When today's retail pharmacist fills a prescription written by a physician, he provides a professional service incorporating the benefits of the work of pharmacists in all branches of the profession - education, research, development, standards, production, and distribution. Pharmacy's professional stature will continue to grow in the future as this great heritage and tradition of service is passed on from preceptor to apprentice, from teacher to student, from father to son. [4]

Disciplines:

The field of pharmacy can generally be divided into three primary disciplines:

- Pharmaceutics
- Medicinal Chemistry
- Pharmacognosy
- Pharmacy Practice
- Pharmacology
- Pharmacoinformatics is considered another new discipline, for systematic drug discovery and development with efficiency and safety. [5]

Professionals/ Roles of Pharmacy Staff:

The World Health Organization estimates that there are at least 2.6 million pharmacists and other pharmaceutical personnel worldwide.

Patient safety:

Top priority for all pharmacists & pharmacy technicians

- right drug
- right route
- right dose
- right patient
- right time

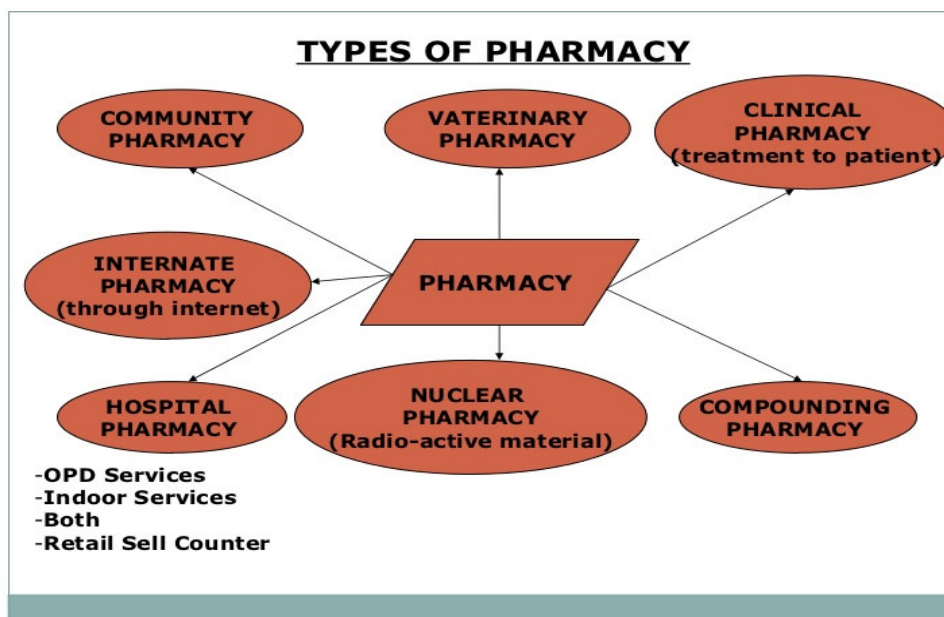


Figure 1.1 Types of Pharmacy

1.2 Pharmacists

The profession of pharmacy exists to safeguard the health of the public. The **pharmacist** is one who is licensed to prepare and dispense medications, counsel patients, and monitor outcomes pursuant to a prescription from a licensed health professional. The role of the modern pharmacist evolved from compounder and dispenser to providing medication information and preventing medication-related problems [6]

Evolution of the Pharmacist's Role

During the twentieth century, the pharmacy profession has evolved through four stages.

1- Traditional Era

- Early twentieth century
- Formulation and dispensing of drugs from natural sources
 - ❖ Pharmacognosy
 - ❖ Galenical pharmacy

2-Scientific Era

- Began after World War II
- Emergence of the pharmaceutical industry drugs made in factories, not apothecary shop
- Pharmacy education emphasized sciences
 - ❖ Pharmacology
 - ❖ Pharmaceutics

3- Clinical Era

- 1975: Millis Report, Pharmacists for the Future
- New educational emphasis on clinical (patient-oriented) pharmacy
 - ❖ Pharmacokinetics
 - ❖ Pathophysiology

4- Pharmaceutical-care Era

- 1975: Millis Report, Pharmacists for the Future
- New educational emphasis on clinical (patient-oriented) pharmacy
 - ❖ Pharmacokinetics
 - ❖ Pathophysiology [7]

Role of the Pharmacist

- Compounds and dispenses drugs
- Gathers information about patients
- Counsels on possible side effects and adverse reactions
- Monitors for drug interactions
- Screens, monitors, and advises for self-treatment with **over-the-counter (OTC)** products sold without a prescription
- Provides drug information to other healthcare professionals
- Advises on home healthcare supplies and medical equipment.

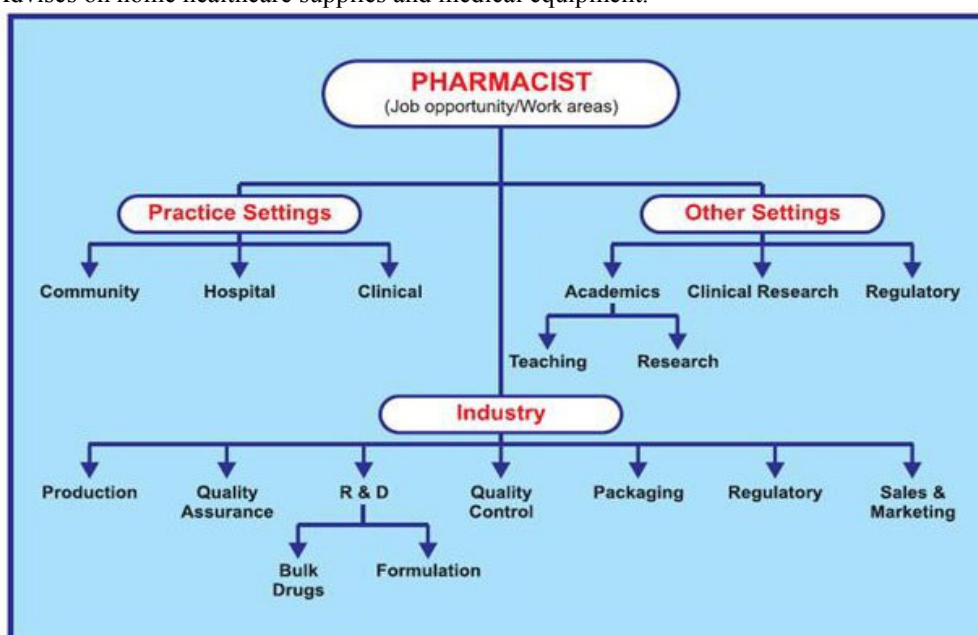


Figure: 1.2 Pharmacists

1.3 Pharmacy Technicians

A **pharmacy technician**, also called the **pharmacy tech**, is an individual working in a pharmacy that, under the supervision of a licensed pharmacist, assists in pharmacy activities that do not require the professional judgment of a pharmacist. Regardless of practice setting, the pharmacy tech can assist with workload. The pharmacist provides the final check on the original prescription with the medication bottle and label before counseling the patient.

Evolution of the Pharmacy Technician's Role.

Without pharmacy technicians, pharmacists would not have sufficient time for the duties involved in "pharmaceutical care."

- counseling patients
- reviewing medication profiles
- monitoring for side effects and adverse reactions
- screening patients for disease
- discussing cost-effective drug therapy options with the prescriber
- In community pharmacy the pharmacy tech evolved from clerk or cashier to a pharmacist's assistant. A pharmacy technician assists the pharmacist with routine functions. Leaves professional decision making and judgment calls to the pharmacist
- Technician activities may range from ordering, stocking, and inventorying drugs to assisting in the dispensing process.
 - the pharmacist must always check his or her work
 - the pharmacist is responsible for patient counseling
 - the technician functions in strict accordance with standard written procedures and guidelines

Work Environments and Conditions

- Pharmacy technicians are employed in most of the same settings as pharmacists
 - community pharmacies (i.e., drugstores)
 - hospital pharmacies
 - home healthcare and long-term care facilities
 - specialized area of practice (e.g., nuclear pharmacy) with additional training
- Pharmacy technicians usually work in clean, well-lighted, and well-ventilated environments.
- Pharmacy tech work requires standing, often for long hours.
- Pharmacists and pharmacy technicians may be on call or work days, nights, weekends, and holidays. ^[6A]

Characteristics

A successful pharmacy technician must possess a wide range of skills, knowledge, and aptitudes.

- broad knowledge of pharmacy practice
- dedication to providing a critical healthcare service to customers and patients
- high ethical standards
- willingness to follow instructions
- eagerness to learn
- an eye for detail
- manual dexterity
- facility in basic mathematics
- excellent communication skills
- good research skills
- ability to perform accurately and calmly in hectic or stressful situations
- Ability to multi-task or work on several projects at the same time . ^[8]

1.4 Retail Pharmacy:

A pharmacy in which drugs are sold to patients, as opposed to a hospital pharmacy, also known as a community pharmacy, the concept of pharmacy as a retailing activity. It is an independent or chain pharmacy that dispenses prescription medications to outpatients,

Most community pharmacies are divided into

- a back prescription area offering prescription merchandise and related items
- a front area offering over-the-counter (OTC) drugs, toiletries, cosmetics, and greeting cards

Community pharmacies may be

- independently owned small businesses
- part of large retail chains
- franchise operations

The recent trend is toward fewer independent pharmacies

Chain Pharmacy

A chain pharmacy is a community pharmacy that consists of several similar pharmacies in the region (or nation) that are corporately owned. May be national or regional;

- In department stores
- Grocery stores
- Typical corner drugstores

Located to allow for large-volume dispensing with heavy use of both pharmacy techs and automation. Administrative decisions are made at the corporate level.

Independent Pharmacy

An independent pharmacy is a community pharmacy that is privately owned by the pharmacist. May be owned and operated by a group of pharmacists (rather than a corporation). A pharmacist owner makes his or her own decisions regarding the practice of pharmacy more attention and time spent to keep customers. Most compounding of prescriptions is done in this type of pharmacy.

Franchise pharmacy

A franchise pharmacy is member of a small chain of professional community pharmacies that dispense and prepare medications but are independently owned; sometimes called an apothecary.

- Combines characteristics of independent business and large retail chain
- A large retail company, the franchiser grants exclusive use of the company name and rights to sell company products to a store owner/operator, the franchisee
- Most sell only medication and health-related products/services.

Mail-order pharmacy

A mail-order pharmacy is a large-volume centralized pharmacy operation that uses automation to fill and mail prescriptions to the patient. Somewhat related to retail pharmacy. Run by a centralized operation using both automation and pharmacy technicians:

- dispense and mail large volumes of prescriptions every day
- more and more prescriptions are being filled by mail-order pharmacies

Economies of scale allow lower acquisition costs savings to insurers and customers

Limitations:

- if the patient experiences a side effect or adverse reaction, or the physician changes the medication, then the drug savings could be offset by drug wastage
- impersonal counseling, which is limited to a drug printout or calling a toll-free number
- time delay
- safety of delivery of pain medications through the mail

1.5 Community/retail Pharmacist:

Dispenses drugs for existing disease

Involved in patient care initiatives to prevent or identify disease

- Administration of immunizations
- Screening for and educating about hypertension, diabetes, and other conditions
- Providing education about lifestyle choices and dietary supplements

Runs a business

- Hires and supervises employees
- Deals with insurance companies
- Maintains inventory

Retail Pharmacies – Efficiency

- Higher-volume outlets
 - Economies of scale
- Technology
 - Phone systems
 - Electronic links with prescribers
 - Robotics and automated dispensing
- Centralized dispensing (fill) and adjudication
- Web and phone-based refill services ^[9]

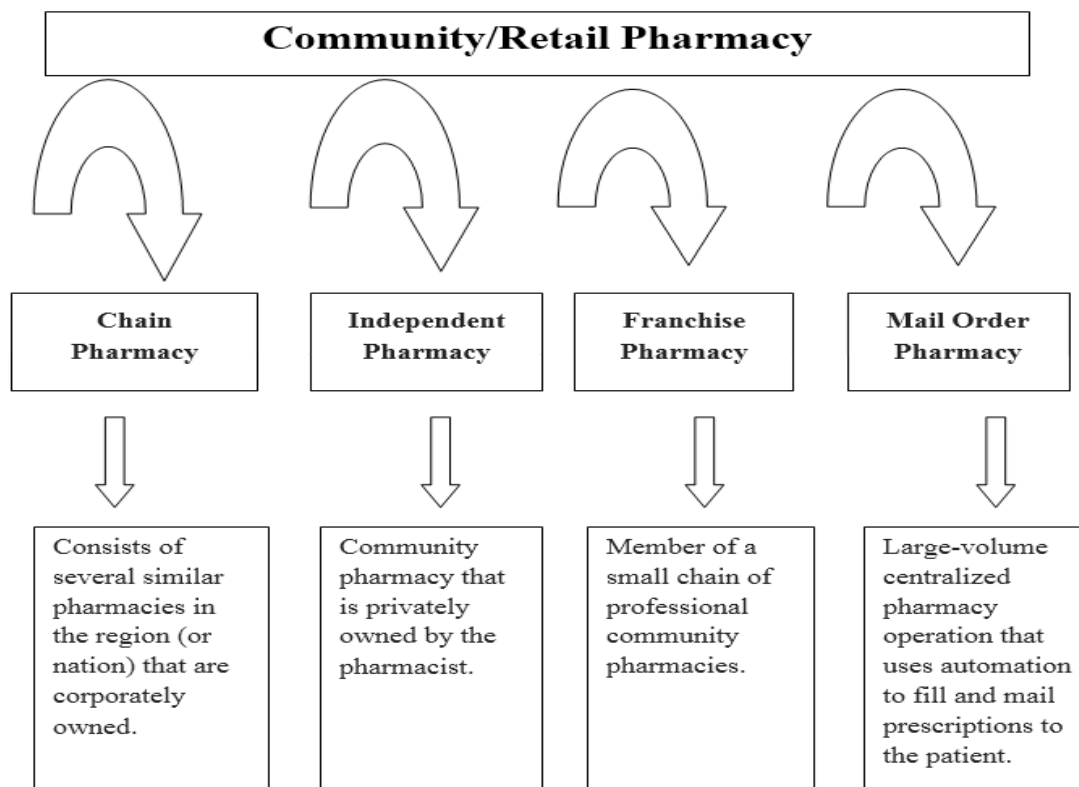


Figure: 1.3 Types of Community Pharmacy

Responsibilities

Community-based pharmacists' responsibilities include: checking and dispensing of prescription drugs, providing advice on drug selection and usage to doctors and other health professionals and counseling patients in health promotion, disease prevention and the proper use of medicines.

In most countries regulations govern how dispensaries may operate, with specific requirements for storage conditions, equipment and record keeping. ^[10]

Clinical roles

It is becoming more common for pharmacists to take on extended roles that provide more clinical care directly to patients as part of a primary care team. Many pharmacies are open for extended hours in the evenings and weekends and they are accessible without appointment. ^[11]

Duties

The International Pharmaceutical Federation has declared their vision of a community-based pharmacist:

- An expert in pharmaceutical care, pharmacotherapy and health promotion
- A professional communicator with patients, other healthcare providers and decision makers
- Deliver high quality products, services and communication
- Document their work and communicate the outcome to professional colleagues. ^[12]

1.6 Essential Medicines

Definition:

Essential medicines, as defined by the World Health Organization (WHO) are "those drugs that satisfy the health care needs of the majority of the population; they should therefore be available at all times in adequate amounts and in appropriate dosage forms, at a price the community can afford." ^[13]

Theoretically Defined as:

As the process to select a limited number of drugs carefully chosen based on agreed clinical guidelines and which leads to more rational prescribing, to a better supply of drugs, and to lower costs.

Operationally defined as:

The method used by the selected countries to include the drugs on their EDLs based on the public health relevance of the drugs. The methods are included in their policy documents. Variables For the purpose of this study, the national EDL. ^[14]

Selection criteria: Essential medicines are selected with due regard to disease prevalence, evidence on efficacy and safety, and comparative cost-effectiveness. ^[15]

Purpose: Essential medicines are intended to be available within the context of functioning health systems at all

times, in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford. [16]

Implementation: The implementation of the concept of essential medicines is intended to be flexible and adaptable to many different situations; exactly which medicines are regarded as essential remains a national responsibility.

Since the establishment of the concept of “essential medicines” by the World Health Organization (WHO), it has evolved and matured into a critically important element of national health system policies and practices. As the movement toward universal health coverage strengthens, so does the role of essential medicines as a key part of bringing to all people the health services they need without suffering financial hardship when paying for them. [17]

History

After the Second World War the development and emergence of miracle medicines like antibiotics brought a revolution in the medical care. The obvious effectiveness of these new pharmaceuticals and intensive marketing efforts combined to catalyze wide spread use of modern medicine. A rapidly growing and profitable industry, together with an enthusiastic but largely uninformed audience and an unregulated market, resulted in excess of promotion and consumption along with inflated level of expenditure. However, by 1970s it had become clear that least advantageous nations were not even meeting the basic needs of their people for essential life saving and health promoting medicines. As a result gradually a number of countries started concentrating on the development of a basic list of reliable medicines to meet the most vital basic needs of their people. The concept of essential medicines was pioneered by the World Health Organization (WHO) in 1977 with the introduction of the first essential medicines list (EML). The list has been revised every 2 years since then. The responsibility of determining exactly which medicines are regarded as essential is left to the discretion of the adopting nations based on their requirements. [18]

The Model list of the WHO serves as a guide for the development of national and institutional EML. The concept of essential medicines has been accepted worldwide as a powerful tool to promote health equity and its impact is remarkable, as essential medicines are considered to be one of the most cost-effective elements in healthcare. Usage of EML The Model list serves as a baseline for further modification (addition and deletion of new medicines), selection of correct dosage strength, and form depending upon the national priority and available evidence. It can assist national decision-makers in managing costs by helping them identify priority medicines to meet their country’s health needs. The WHO EML has gained widespread acceptance among nations with 4 out of 5 countries having adopted a national list based on the WHO EML. [19]

The list is now considered a cornerstone of national medicine policies. Some countries have provincial or state lists, in addition to the national list. The concept of essential medicines has also been adopted by many international organizations, such as United Nations Children’s Funds (UNICEF), Office of the United Nations High Commissioner for Refugees (UNHCR), Doctors without Borders , as well as by NGOs and international non-profit supply agencies. [20]

1.7 Evolution of WHO EML (1977-2013)

The WHO carries out regular updates of the EML to reflect evolving public health challenges, as seen, for example, from the addition of anti-retroviral medicines for HIV and formulations to treat non-communicable diseases. Evolution of WHO EML in Terms of Drugs Added The WHO EML has steadily grown in terms of the number of drugs included in the list with each update. Initially in 1977, the WHO EML had 204 molecules and the current list of 2013 includes 374 unique molecules. The 2013 WHO EML has 431 molecules with duplications across indications and includes both core and complimentary medicines. [21]

Table: 1.1 Core and Complementary List

Core List	Complementary List
Presents a list of minimum medicine needs for a basic health care system, listing the most efficacious, safe and cost-effective medicines for priority conditions. Priority conditions selected on the basis of current and estimated future public health relevance, and potential for safe and cost effective treatment.	Presents essential medicines for priority diseases , for which specialized diagnostic or monitoring facilities, and/or specialist medical care, and/or specialist training are needed.

Addition of new drugs is based on documented evidence of efficacy, relative efficacy, safety and comparative cost-effectiveness, while reasons for deletions include lack of proof of effectiveness, unacceptable side effects or availability of safer or more effective alternatives. [22]

Changes

Table : 1.2 Changes in EDL

Among the most significant changes in the WHO EML since 1977 are the following:

Year	Changes
1979	Significant net change was observed in the 1979 list, probably since the list was in the process of being developed and established.
1998	Addition of fixed dose combinations for tuberculosis to the list contributed to the significant change observed in 1998.
2003	Addition of agents in 2003 is mainly attributed to the inclusion of anti-retroviral drugs to the EML.
2007	Significant change observed attributed to the inclusion of various newly developed vaccines to the list, including hepatitis A vaccine, rotavirus vaccine, etc.

Use of WHO Model EML and Implementation by National Health Systems

A country's national EML is a government-approved selective list of medicines that guides the procurement and supply in the public sector, schemes for medicine costs, medicine donations, and local production. It is a cost-effective means of providing guidance toward safe, effective treatment for the majority of communicable and non-communicable diseases. [23] Nearly all developing countries (95%) have a published national EML, of which 86% have been updated in the past five years. 18 Some countries also adopt EMLs at a sub-national or state/province level depending on regional requirements and priority health needs. A few developed countries formally use the WHO Model EML as guidance in the development and implementation of their pharmaceutical policy. While the WHO Model EML serves as a guide for the development of .

- Patterns of prevalent diseases
- Availability of medicines
- Treatment facilities and personnel
- Affordability
- Genetic
- Demographic
- Environmental factors [24]

Standard Treatment Guidelines

Standard treatment guidelines, national expenditure on essential medicines, and procurement practices are some of the factors ensuring optimum utilization of the national EML. Relevant regional treatment practices also need to be considered. The WHO Model list contains only the names of medicines and recommended formulations and strengths, while the lists for some of the countries also include the recommended standard treatment guidelines for the specific indication in an attempt to align the EML with the country-specific standard treatment guidelines. [25]

1.8 Guidelines for Establishing a National Programme for Essential Drugs

Since the first report on the selection of essential drugs was published in 1977, the concept of essential drugs has been widely applied. It has provided a rational basis not only for drug procurement at national level but also for establishing drug requirements at various levels within the health care system. In fact many developing countries have already selected essential drugs according to their needs and the 34 related programmes are, in some cases, at an advanced stage of implementation. The Committee was informed that a WHO Expert Committee on National Drug Policies had been convened in 1995 to review and contribute to updating WHO's guidelines for developing national drug policies. [26] In order to ensure that an essential drugs programme is adequately instituted at national level, several steps are recommended:

1. A standing committee of health care professionals should be appointed to give technical advice to the national programme.

- The committee should include individuals competent in the fields of medicine, pharmacology and pharmacy, as well as peripheral health workers.
- The first task of the committee should be to recommend a list of essential drugs for the national programme.

2. The INN means international nonproprietary (generic) names for drugs or pharmaceutical substances should be used whenever available, and prescribers should be provided with a cross-index of nonproprietary and proprietary names.

3. Concise, accurate and comprehensive drug information should be prepared to accompany the list of essential drugs, in the form of a prescriber's formulary to serve as a pocket guide to rational drug use.

- More detailed information about drugs should be made available at drug and poison information centres, pharmacies and all educational institutes concerned with training health professionals.

4. Quality, including drug content, stability and bioavailability, should be assured through testing or regulation. Where national resources are not available for this type of control, the suppliers should provide documentation of

the product's compliance with the required specifications.

5. Competent health authorities should decide on the level of expertise required to prescribe individual drugs or a group of drugs in a therapeutic category. Consideration should be given, in particular, to the competence of the personnel to make a correct diagnosis.

6. The success of the entire essential drugs programme is dependent upon the efficient administration of supply, storage and distribution at every point from the manufacturer to the end-user. Government intervention may be necessary to ensure the availability of some drugs in the formulations listed, and special arrangements may need to be instituted for the storage and distribution of drugs that have a short shelf-life or require refrigeration.

7. Efficient management of stocks is necessary to eliminate waste and to ensure continuity of supplies. Procurement policy should be based upon detailed records of turnover. In some instances, drug utilization studies may contribute to a better understanding of true requirements.

8. Research, both clinical and pharmaceutical is sometimes required to settle the choice of a particular drug product under local conditions. Facilities and trained personnel for such research must be provided. Clinical trials of pharmaceutical products should follow the Guidelines for Good Clinical Practice (GCP) for Trials on Pharmaceutical Products presented of the Committee's previous report .

9. A national drug regulatory authority should be established along the lines recommended in the guiding principles for small national drug regulatory authorities presented in of the fifth report of the Expert Committee . The authority should interact with other interested bodies, including organizations responsible for drug procurement in the public and private sectors and the committee. [27]

Because of differing views on the definition of an essential drug in terms of what is meant by the "health care needs of the majority" of the population, the model list has been gradually expanded since its introduction. Some drugs are included that are essential only if a therapeutic programme is planned to address the diseases for which these drugs are used.

- ❖ Each selected drug must be available in a form in which adequate quality, including bioavailability, can be assured.
- ❖ Its stability under the anticipated conditions of storage and use must be established.
- ❖ Where two or more drugs appear to be similar in the above respects, the choice between them should be made on the basis of a careful evaluation of their relative efficacy, safety, quality, price and availability.
- ❖ In cost comparisons between drugs, the cost of the total treatment, and not only the unit cost of the drug, must be considered. The cost/ benefit ratio is a major consideration in the choice of some drugs for the list.
- ❖ In some cases the choice may also be influenced by other factors, such as comparative pharmacokinetic properties, or by local considerations such as the availability of facilities for manufacture or storage. Most essential drugs should be formulated as single compounds.

Fixed-ratio combination products are acceptable only when the dosage of each ingredient meets the requirements of a defined population group and when the combination has a proven advantage over single compounds administered separately in therapeutic effect, safety or compliance. [28]

1.9 Essential Drugs and Primary Health Care

The selection of drugs for primary health care must be determined nationally since the training and responsibilities of the personnel charged to administer this care vary considerably. Highly trained workers are able to use a wide range of drugs, while workers with limited training should use only those drugs appropriate to their diagnostic skills, knowledge and experience. For this reason, a shorter, adapted list of essential drugs is often adequate for primary health care. Decisions about which specific drugs should be made available in this shorter list can be made only when all relevant local factors have been taken into account. [29]

1.10 Pakistan Country Profile

Pakistan is situated in the North-Western part of South Asia, with about 185 million people and annual population growth rate is 1.9% . The GNP per capita is \$1200 and 1% is spent on health. Life expectancy in Pakistan is 63 for males and 65 for females. Maternal mortality ratio is 276, infant mortality rate is 74 and under five mortality rate is 98 .Total fertility rate in Pakistan is 4.1, 3.3 in urban and 4.5% in rural areas. [30] At the same time Non Communicable Disease burden in Pakistan is also high and accounts for 59% , while the remaining 41% disease burden is due to communicable diseases and maternal, child care and nutritional issues .

In recent years natural disasters have also had a detrimental effect on health status. 75,000 people died in the 2005 earthquake and 1,810 in the 2010 floods but besides from fatality these disasters resulted in widespread communicable diseases and destroyed the health care infrastructure and peoples' livelihoods in affected areas. Health care provision in Pakistan comprises private and public services. Although the public sector has a well developed infrastructure of primary, secondary and tertiary facilities as well as an outreach Lady Health Worker Program, public sector is under-utilized and serves 21% of the population. [31]

The private sector serving nearly 79% of the population is primarily a fee for service system and covers the range of health care provision from commercial private sector and traditional faith healers. Under Pakistan's constitution, health is primarily the responsibility of the provincial government, except in the federally administrated areas. Ministry of Health (MOH) at the Federal level has played the major role in developing national policies and strategies.^[32]

1.11 The National Essential Medicines List (NEML) of Pakistan

The National Essential medicines List (NEML) of Pakistan was first prepared in 1994 in consultation with relevant experts. The list was previously reviewed in 1995, 2000 and 2003. The present list is the fourth revision containing 335 medicines of different pharmacological classes. The health sector in general and public health sector in particular is expected to seriously consider adopting this list. The provincial health departments can play a pivotal role to encourage the retail pharmacies, hospitals/institutions for making bulk purchases from within this list. We hope that this list will find more acceptance among health care professionals.^[33]

Bulk purchases for Health Institutions

Future bulk purchases of drugs for all government and semi-government health institutions shall be made in accordance with this list. The NEDL has specified the health care levels at which each essential drug is to be used. Effective and well organized operating systems shall be developed for procurement and distribution of such drugs for the population.^[34]

1.12 Pakistan National Drug Policy

Pakistan is committed to the goal of Health for all by the year 2000 which was inspired by the principle of social equity. To achieve this, the Government is taking all possible measures in the field of health services at large and drugs in particular. Formulation of the national drug policy thus forms an integral component of its national health policy, purpose of which is to ensure regular availability of essential drugs of acceptable efficacy, safety and quality at affordable prices to all irrespective of their socio-economic status or place of living. Essential Drugs are those which meet the health care needs of the majority of the population. Hence they will help in combating disease and maintaining and improving the health of population.^[35] The goal in nutshell is to develop, within the resources of the country potential through the availability of drugs to control common diseases and to alleviate pain and suffering.

Towards achieving this goal, Pakistan has a drug legislation, a quality control system, and certain other elements of a drug policy in fragmented form, but to meet the challenges of the day, a more comprehensive drug policy is necessary^[36]

The document outlines the National Drug Policy encompassing all aspects of drugs which has been formulated for the first time in Pakistan to serve as a future guide.

Objectives:

- (a) To develop and promote the concept of essential drugs and to ensure regular, uninterrupted and adequate availability of such drugs of acceptable quality and at reasonable prices.
- (b) To inculcate in all related sectors and personnel the concept of rational use of drugs with a view to safeguarding public health from over-use, miss-use or inappropriate use of drugs.
- (c) To encourage the availability and accessibility of drugs in all parts of the country with emphasis on those which are included in the National Essential Drugs List.^[37]
- (d) To attain self sufficiency in formulation of finished drugs and to encourage production of pharmaceutical raw materials by way of basic manufacture of active ingredients.
- (e) To protect the public from hazards of substandard, counterfeit and unsafe drugs.
- (f) To develop adequately trained manpower in all fields related to drugs management.
- (g) To develop a research base particularly for operational and applied research with a view to achieving the above mentioned objectives.
- (h) to develop the pharmaceutical industry in Pakistan with a view to meeting the requirement of drugs within the country and with a view to promoting their exports to other countries.^[38]

1.13 Lahore Retail Pharmacy

Lahore is the capital city of the province of Punjab, the second-largest metropolitan area in Pakistan and the 18th-most-populous city in the world. It is an important historical centre in South Asia. With a rich history dating back over a millennium, Lahore is a main cultural centre of the Punjab region and Pakistan, and is the largest Punjabi city in the world. Lahore remains an economic, political, transportation, entertainment, and educational hub of Pakistan.^[39]

Lahore have many retail pharmacies including all types of pharmacies. In this way it promote health of patients by providing them medicines which they need. Very well known pharmacies are present in Lahore. Many multinational pharmaceutical industries supply many essential drugs to these pharmacies, it also include supply of

medicines to local pharmacies. This survey is done to check that pharmacies of Lahore follow essential drug list or not ,because it is very essential list and must be present in all pharmacies. ^[40]

1.14 Promotion Of Essential Drugs Concept In Lahore Retail Pharmacies

The Essential Drug Concept and the National Essential Drug List will be promoted in the public and private sector of Lahore. Policy will be geared to increase share of essential drugs in local production and to make such drugs available at affordable prices where-ever needed. Efforts will also be made to promote rationality in essential drug prescribing and use. To encourage this, Drug Information Sheets in line with those of WHO model providing concise, accurate and comprehensive information shall be prepared and widely circulated throughout the all pharmacies of Lahore. ^[41]

1.15 Drug Supply System of Community/ Retail Pharmacy

The drug supply system in both public and private sector is the legacy of the pre-independence era. Efforts shall be made to bring rationality in these systems both at the government level and in the private sector.

In the Private Sector, a system of scientific retail pharmacy service shall be introduced in a gradual manner and following specific steps shall be taken:-

- (a) As recommended by the WHO, pharmacists shall be made to play their recognized in all activities relating to drugs management supply and distribution. Their services shall be effectively utilized in management of prescription drugs. To implement this, to begin with. The drug sellers / distributors having certain turn-over.
- (b) Future policy for issuance of drug sales license shall be developed and in view of the size of the community to be served in the catchment area or on the basis of area instead of concentrating on one place. ^[42]
- (c) The sale of all potent drugs shall be restricted only on prescription of registered medical practitioner. To begin with all psychoactive drugs, hormonal and steroidal preparations and antibiotics shall be so restricted. In order to maintain uniformity throughout the country the Federal Government being so authorized shall notify such drugs or classes of drugs from time to time.
- (d) Training Courses for the existing qualified persons on licences for retail and whole-sale shall be conducted in collaboration with the Pharmacy Council, Pakistan Pharmaceutical Manufacturing Association, Pharmacists Association and Pakistan Chemists and Druggists Association at the district level for their orientation on the modern concepts of pharmacy services.
- (e) The market intelligence shall be strengthened and import may be resorted in case. ^[43]

1.16 Punjab Pharmacy Council

Is a Autonomous Statuary body functioning under Federal Legislation (Pharmacy Act, 1967).Punjab Pharmacy Council, established under Pharmacy Act 1967 as amended in 1973, with the crystal clear objective to regulate the practice of pharmacy. ^[44]The Secretary Health Government of the Punjab acts as President (Ex-officio) while the secretary, bears the office of Punjab Pharmacy Council to execute and exercise all the legislative functions (Section-23 of the Pharmacy Act, 1967) as;

- ❖ Registration and renewal of pharmacist(Register –A)
 - ❖ Enrollement of pharmacy apprentices (Register – C)[Discontinue]
 - ❖ Examination and registration of pharmacy assistant–(Register B)
 - ❖ Examination and registration of pharmacy assistant (Register – B)
 - ❖ Prepare and maintain registers of :
 - Graduate/post graduate pharmacist
 - Apprentices in pharmacy
 - Pharmacy assistant and pharmacy technician
 - ❖ Issuance of good standing certificate.
 - ❖ Verification of certificate
 - ❖ Publication of text books of pharmacy for pharmacy assistant and pharmacy technicians as per the approved curriculum.
 - ❖ On the job training of pharmacists/drug inspectors
 - ❖ Refresh course for qualified dispensers/ chemists.
 - ❖ Inspect institutions, imparting pharmacy education to ensure standardized education and training
- To do such other act and things as it may be empowered or required to do by the pharmacy act 1967. ^[45]

The research process

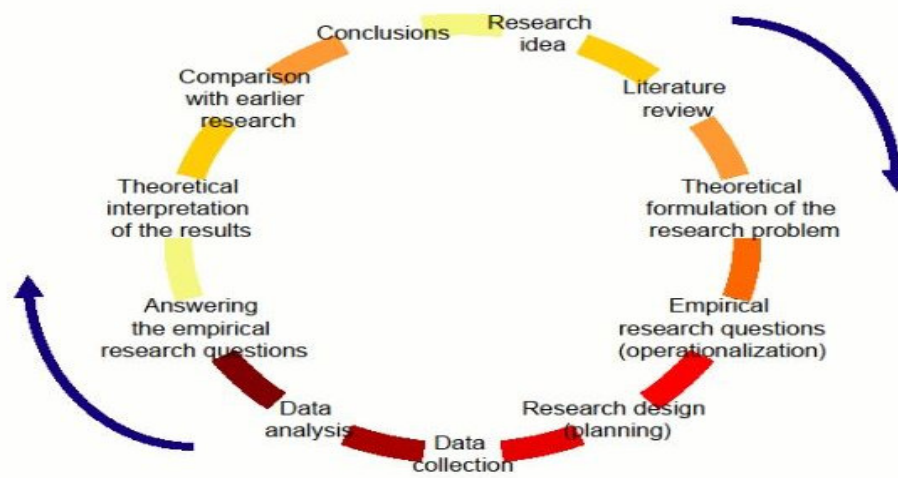


Figure: 1.4 The Research Process

OR



Figure: 1.5 Research Methodologies

Methodology

This chapter describes the methodology used for the study. The purpose of the study was to check the assess of essential drug list in retail pharmacies of lahore. The chapter will focus on:

- Study design
- Sample selection
- Study variables
- Survey instrument
- Data collection
- Data analysis

Since the study involves participation of pharmacists and pharmacy technicians .



Figure 3.1 Methodology Steps

3.1 Study Design

This is a survey based study design. Students of pharmacy give survey forms to the Pharmacists and pharmacy technicians to assess the essential drug list in pharmacies of Lahore. The findings from the survey were used to answer the objectives of the study.

3.2 Study Variables

Variables measured in this study are the cumulative scores for the assessment of essential drug list in the pharmacies. Pharmacists' and pharmacy technicians perceptions of essential drug concerning their attitudes, beliefs about the effects of essential drugs use and the impact of essential drugs on patient health, stock of pharmacists' choice of essential drug products, on the selection of essential drug dosage forms products by the patients and on the role that it plays in patient-pharmacist interactions.

The scores were obtained using a series of survey questions to address each of the given objectives. These variables were used to address the objectives of the study. Other variables included the demographic factors such as name of pharmacy, location of the pharmacy, number of years of practicing as a pharmacist, pharmacy open for how many hours, phone number of pharmacies; and other miscellaneous factors.

Frequency of patient interaction regarding essential drugs and weekly prescription volume. Stock of essential drugs are also evaluated that the stock present in pharmacies full fill the need of majority of population of Lahore peoples or not. These were used in analyzing the objective of the study.

3.3 Sample Selection

The study population consists of pharmacies licensed by pharmacy bar council of Punjab, in the Lahore. A pharmacies essential drug list assessment database was obtained from the different pharmacies of Lahore. The database is comprised of a questions for the assessment of EDL in pharmacies of Lahore including pharmacy name, mailing address, city, pharmacy opening hours, phone number and practice type.

The pharmacies were sorted based on EDL type either the pharmacies follow WHO EDL or Pakistan EDL and the database was restricted to the pharmacies of Lahore and pharmacist and pharmacy technicians working in a community setting. The community pharmacy setting was selected so that the observations of the pharmacists dealing with a larger number of consumers of essential drugs could be recorded. The list included drugs by WHO and national essential drugs, which is of Pakistan. Pharmacists and pharmacy technicians practicing in independent pharmacies, large chain pharmacies and small chain pharmacies.

Inclusion Criteria

In order to done the study, the pharmacy had to be:

- Licensed
- Registered under the Board of Pharmacy
- Pharmacist Practicing within the retail pharmacies
- Pharmacy technicians working in a community pharmacy setting

3.4 Sample Size Determination

The study used a random sample of the pharmacies who met the inclusion criteria. Sample size was decided by keeping in mind the pharmacies of different areas of Lahore .sample size can be increase or decrease depending on choice.

60 pharmacies were selected for the study of the assessment of essential drug list by simple random sampling.

3.5 Survey Instrument

The instrument used for the study is a web-based questionnaire, constructed by the researcher. Some questionnaires are printed and given to pharmacies for the filling of forms. There was no previously validated survey available in the literature for investigating the research questions in this study. The questionnaire was constructed to obtain responses from the target sample group of pharmacies about their perceptions of the essential drug. The survey consists of only one section. Survey consist of 25 questions and having 1 comment box for the pharmacists and pharmacy technicians for sharing their thoughts, ideas, suggestions regarding essential drug list with us.

Question 1,2, 3, 6 are use to assess that which EDL follow in pharmacies, %age of essential drugs use and prescription volume of essential drugs ,updated EDL and awareness about EDL. Question 4, 9 10 is use to assess the stock information of EDL either the stock is minimum, maximum or optimum and the stock is properly stored or not .answer given in yes or no. Question 12 is related to patient counseling in pharmacies. Question 25 is write in form to check that how much essential drugs are available at affordable prices in different retail pharmacies of Lahore.

Before emailing the some survey forms to the sample pharmacies, a study was conducted to check all the questions in questionnaires.

3.6 Data Collection

Survey forms options imported into IBM SPSS Statistics version 19 for analyses. The survey was given to the registered pharmacies, the time required to complete the survey is only 15 minutes. The consent of the pharmacists to participate in the study was implied by the completion of the survey. The survey was completed over a period of 5 days. Firstly , the survey was sent to all the pharmacies selected by random assignment. A period of 3 days was given for them to complete the survey because pharmacists and pharmacy technicians are very busy sometimes they do not fill the survey form at that time so an adequate time period is given to obtain good results. After 2 days the survey form was collected from pharmacies. After collecting all forms data entry is done .for this purpose SPSS software required which is very easy to operate and also give good and valid results of surveyed perform.

3.7 Data Analyses

The questionnaire was tested for reliability and validity. Content and face validity for the questionnaire was determined by systematic examination of the survey .Construct validity and reliability of the questionnaire were tested. The data collected from the questionnaires was analyzed using the IBM SPSS Statistics version 19 for Windows. To analyze the results of the study, a total measure of the items addressing each of the objectives was obtained by summing the responses. In IBM SPSS result are develop in the form of charts ,by the choice of students who perform thesis work. Descriptive statistics were reported for each of the objectives of the study and for the demographics of the study for the assessment of essential drug list in pharmacies.

3.8 Summary of Methodology

Methodology was based on the assessment of World Health Organization essential drug list and national essential drug list of pakistan. A survey of some areas of Lahore pharmacies was conducted and both public and private pharmacies were selected.

A total of 60 pharmacies were surveyed, means data was obtained from registerd 60 pharmacies of Lahore, registered by pharmacy bar council. The staff of these pharmacies was cooperated very well. Construct validity and reliability of the questionnaire were tested using SPSS software measurements. Descriptive statistics and analysis charts for Independence were generated to study the relationship between measures for each of the research questions and the demographics & miscellaneous variables..A large number of the surveyed pharmacists were found to check attitude towards essential drugs list availability. This study is done to check an equal distribution among pharmacists who thought essential drug list in pharmacies improves the patient health and those who thought that it does not improve patient health.

At each pharmacy data on the availability, storage, labeling, dispensing, brands and prices of essential medicines for treatment of diseases were collected. Percentage availability of essential medicines stock in pharmacies ,and how much prescription contain essential drugs that is received by pharmacists in retail pharmacies were calculated for surveyed essential drug list assessment. Affordability for public of lowest income was also determined. This work includes both qualitative and quantitative analysis.

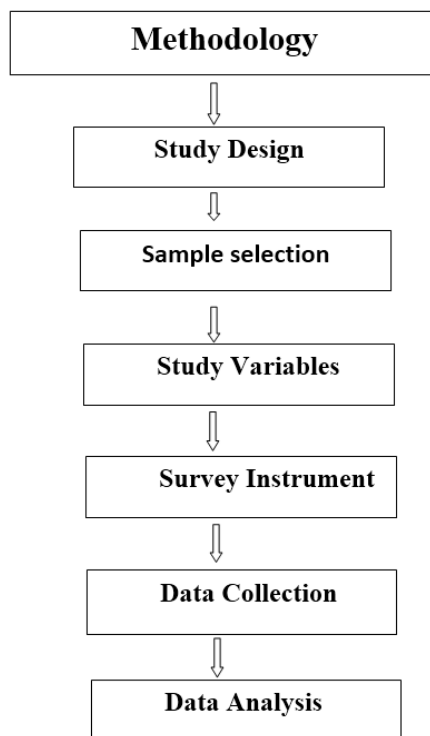


Figure 3.2 Methodology

Results:

Table:4.1 Which essential drug list is implemented in your pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid WHO	7	11.7	11.7	11.7
Pakistan	18	30.0	30.0	41.7
Both	34	56.7	56.7	98.3
None	1	1.7	1.7	100.0
Total	60	100.0	100.0	

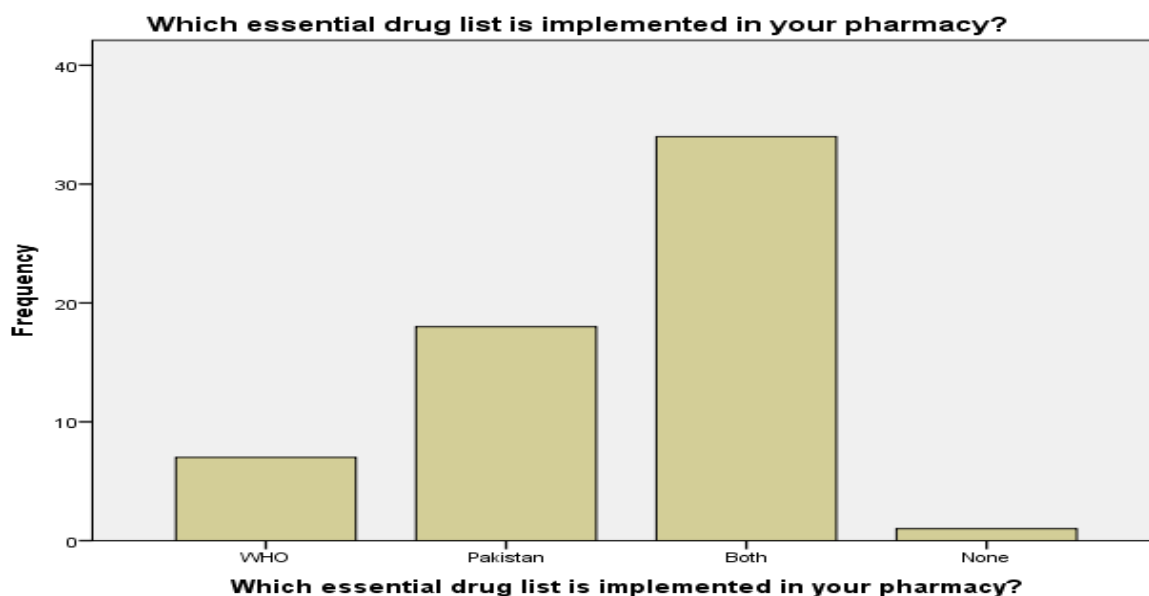


Fig: 4.1 EDL Implementation

Table:4.2 Which %age of essential medicine are use in your pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 20-40%	10	16.7	16.7	16.7
40-60%	17	28.3	28.3	45.0
60-80%	27	45.0	45.0	90.0
80-100%	6	10.0	10.0	100.0
Total	60	100.0	100.0	

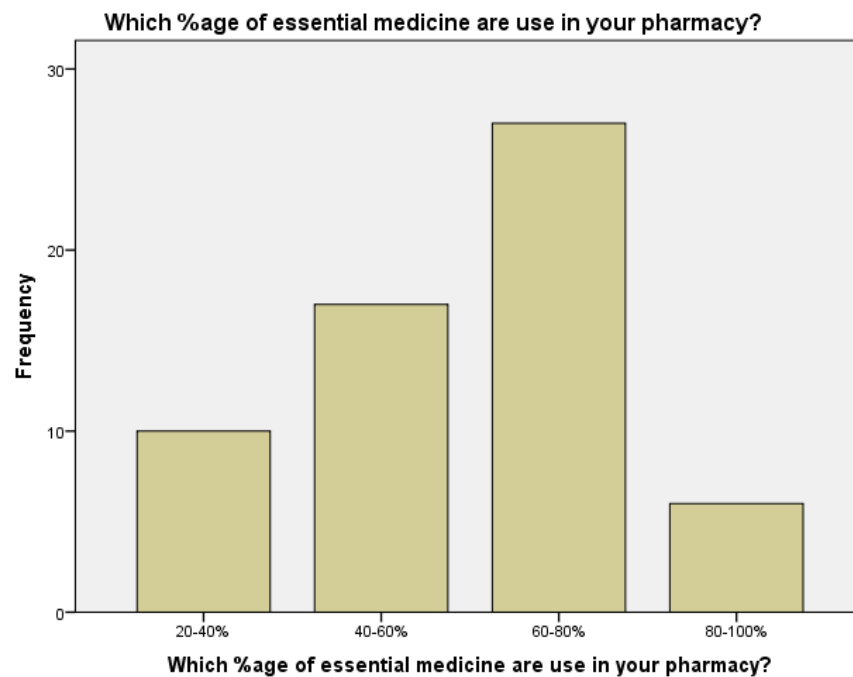


Fig :4.2 %age of EM

Table:4.3 How much prescription contain essential drugs on daily basis?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-50	16	26.7	26.7	26.7
50-100	25	41.7	41.7	68.3
100-150	13	21.7	21.7	90.0
>200	6	10.0	10.0	100.0
Total	60	100.0	100.0	

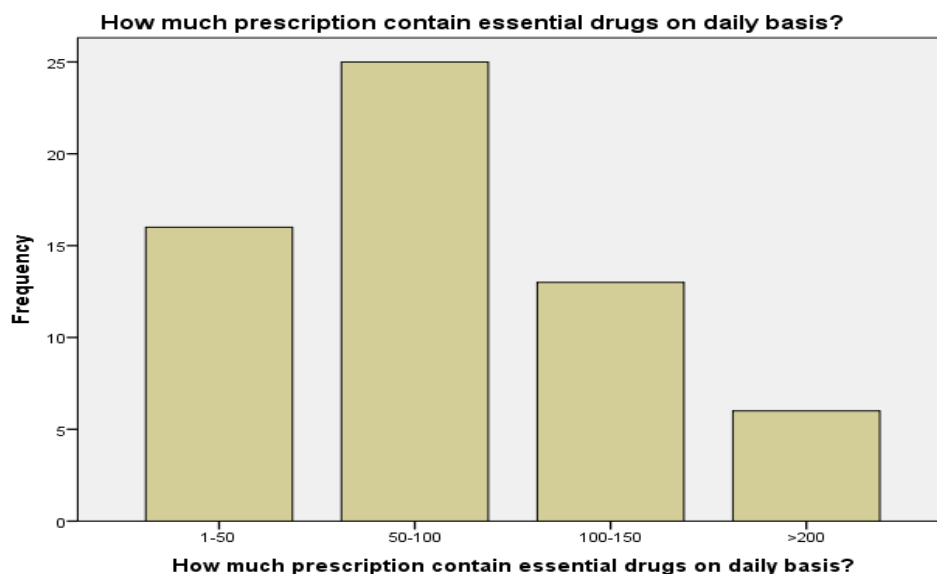


Fig : 4.3 Daily basis essential drugs prescriptions

Table:4.4 How much stock of essential drugs present in your pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Minimum stock	8	13.3	13.3
	Maximum stock	35	58.3	71.7
	Optimum stock	17	28.3	100.0
	Total	60	100.0	100.0

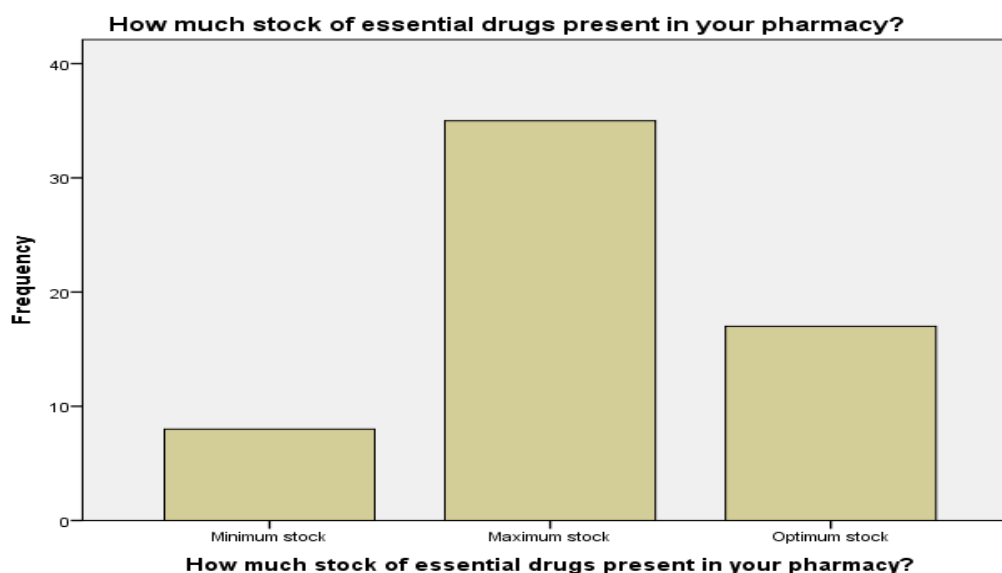


Fig: 4.4 Stock of ED

Table :4.5 Do you have awareness about essential drugs?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	48	80.0	80.0
	No	5	8.3	88.3
	Little bit	7	11.7	100.0
	Total	60	100.0	100.0

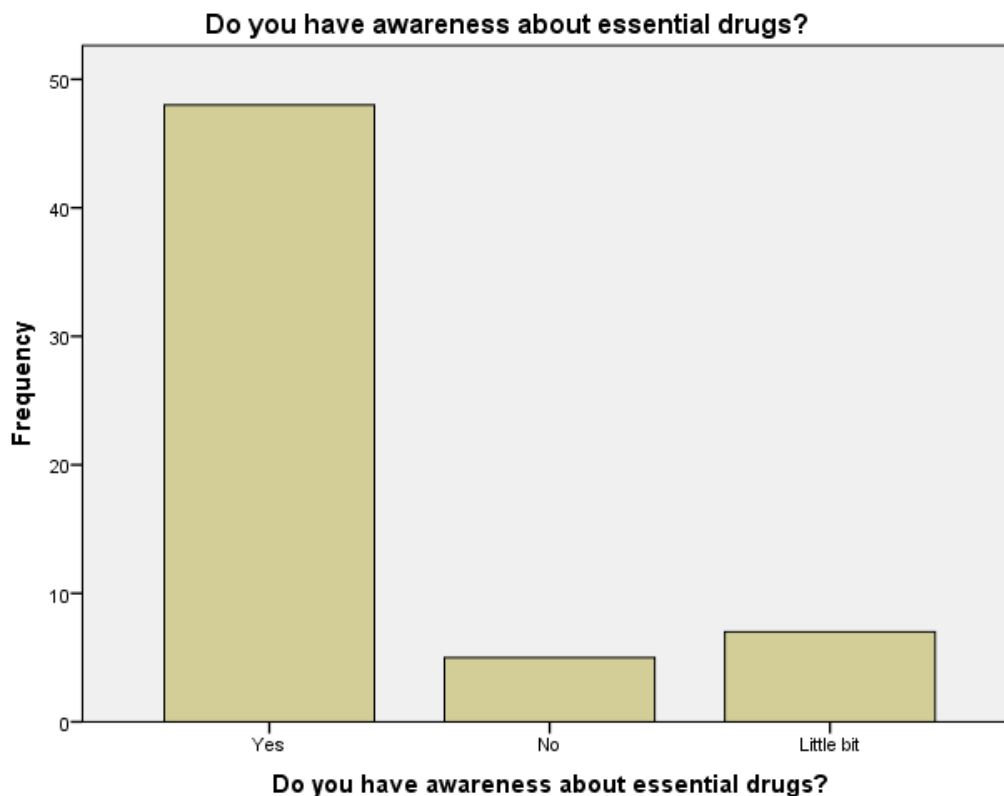


Fig :4.5 Awareness about EDL

Table :4.6 Do you have updated national essential drug list in this pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	46	76.7	76.7
	No	14	23.3	100.0
	Total	60	100.0	100.0

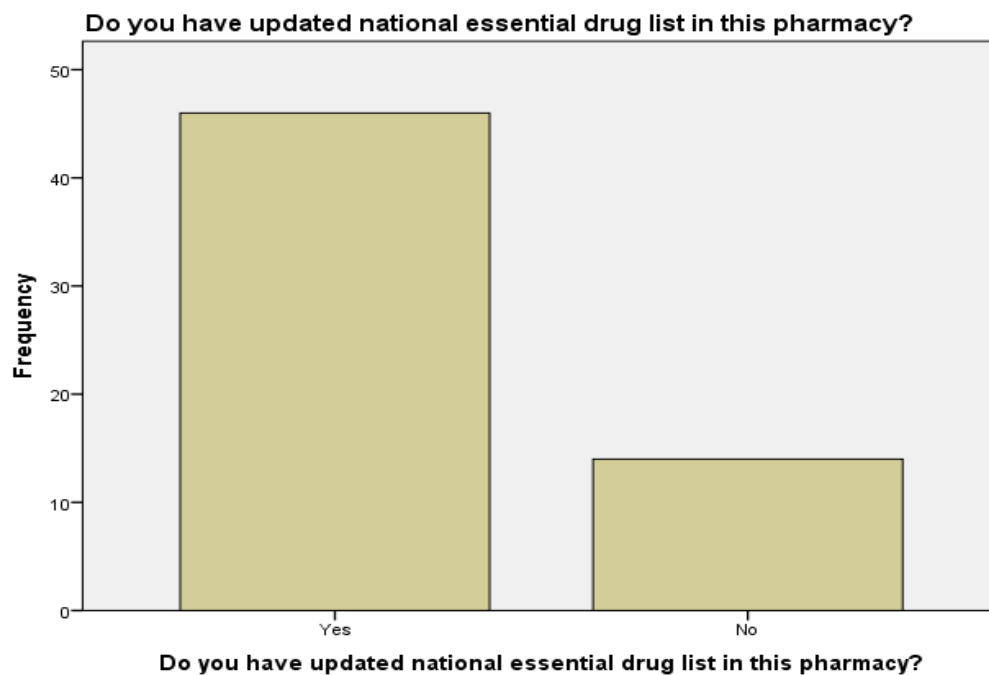


Fig :4.6 Updated NEDL

Table:4.7 Essential drug information is readily available in useful form, and consider when dispense medication?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	25	41.7	41.7	41.7
No	12	20.0	20.0	61.7
Valid Sometime	17	28.3	28.3	90.0
Most of the time	6	10.0	10.0	100.0
Total	60	100.0	100.0	

Essential drug information is readily available in useful form, and consider when dispense medication?

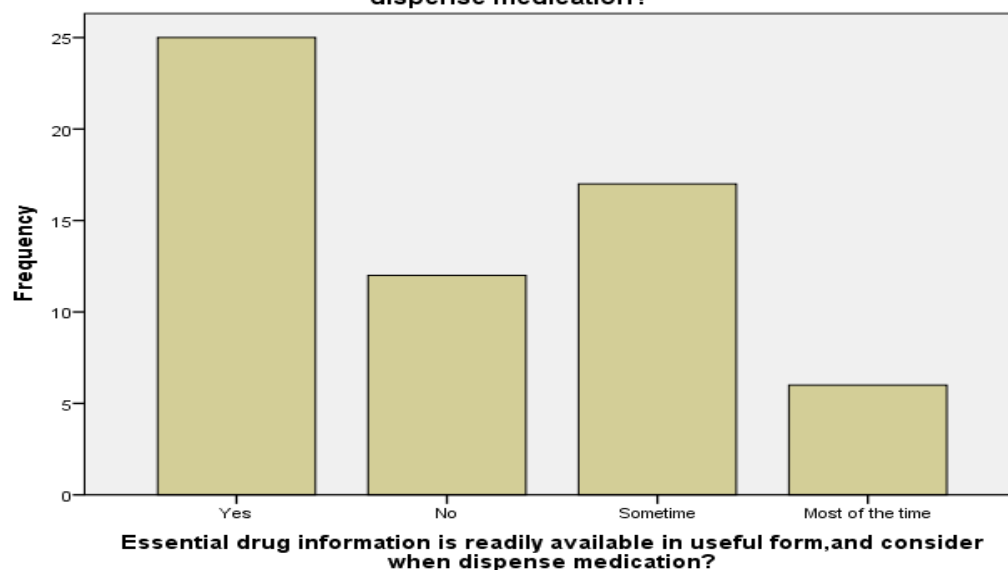


Fig: 4.7 Readily available information about EDL

Table :4.8 Which antibiotic present commonly in received prescription?

	Frequency	Percent	Valid Percent	Cumulative Percent
Ciprofloxacin	28	46.7	46.7	46.7
Amoxicillin	20	33.3	33.3	80.0
Valid Metronidazole	8	13.3	13.3	93.3
Other	4	6.7	6.7	100.0
Total	60	100.0	100.0	

Which antibiotic present commonly in received prescription?

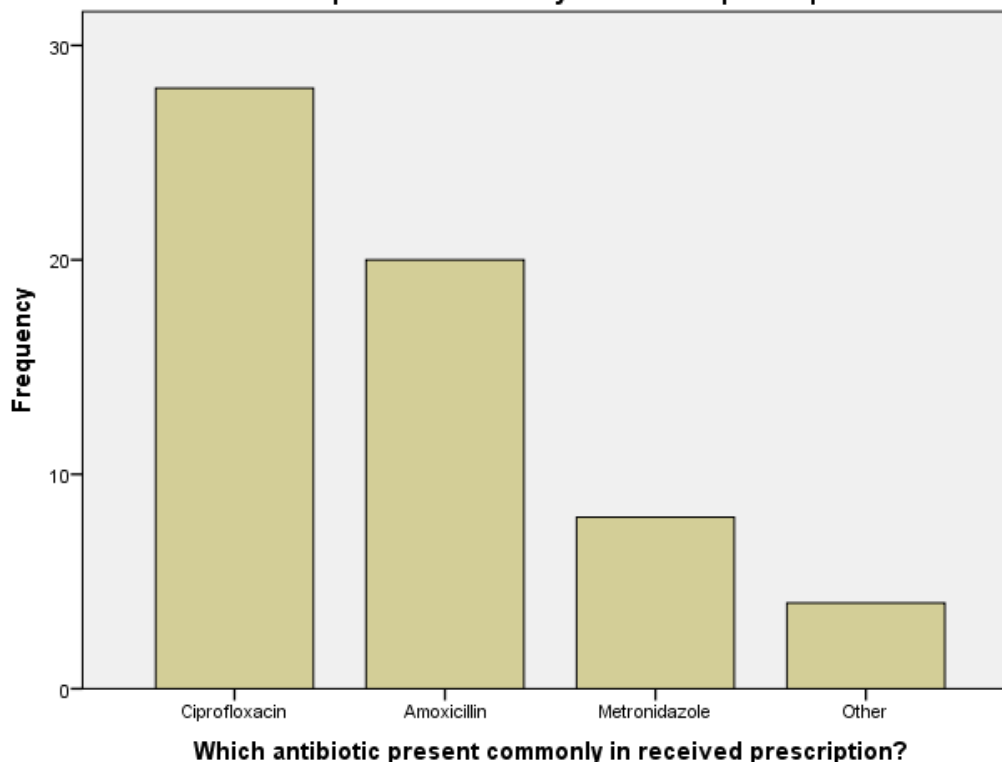


Fig : 4.8 Commonly prescribed antibiotic

Table :4.9 Do you think stock of essential drugs in this pharmacy satisfy the need of majority of people?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	57	95.0	95.0	95.0
No	3	5.0	5.0	100.0
Total	60	100.0	100.0	



Fig :4.9 Stock of ED satisfy the need of people

Table :4.10 The essential drug stock is clean, orderly, properly stored and properly labelled?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	40	66.7	66.7	66.7
Valid Sometime	7	11.7	11.7	78.3
Valid Most of the time	13	21.7	21.7	100.0
Total	60	100.0	100.0	

The essential drug stock is clean,orderly,properly stored and properly labelled?

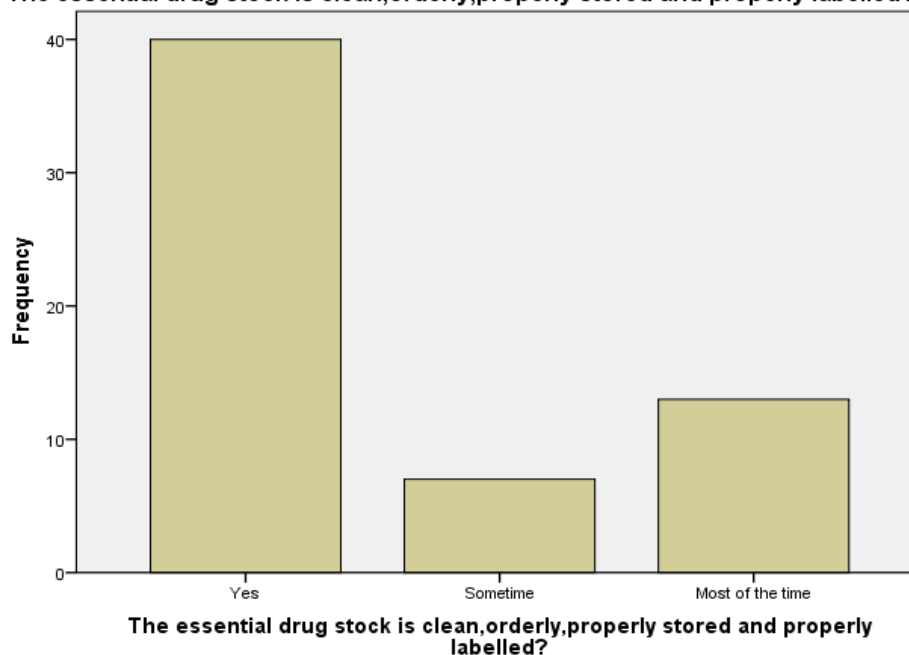


Fig : 4.10 Storage and labeling of ED

Table :4.11 If prescription received containing essential drug, that drug always available in this pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	24	40.0	40.0	40.0
No	6	10.0	10.0	50.0
Sometime not available	30	50.0	50.0	100.0
Total	60	100.0	100.0	

If prescription received containing essential drug,that drug always available in this pharmacy?

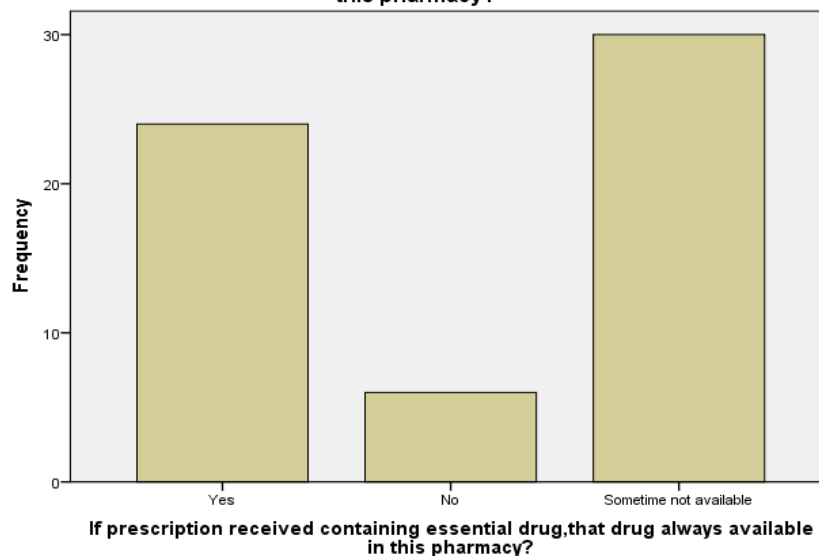


Fig : 4.11 availability of ED

Table: 4.12 Is in this pharmacy patient counselling is done regarding prescription containing essential drug?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	24	40.0	40.0	40.0
No	7	11.7	11.7	51.7
Sometime	24	40.0	40.0	91.7
Most of the time	5	8.3	8.3	100.0
Total	60	100.0	100.0	

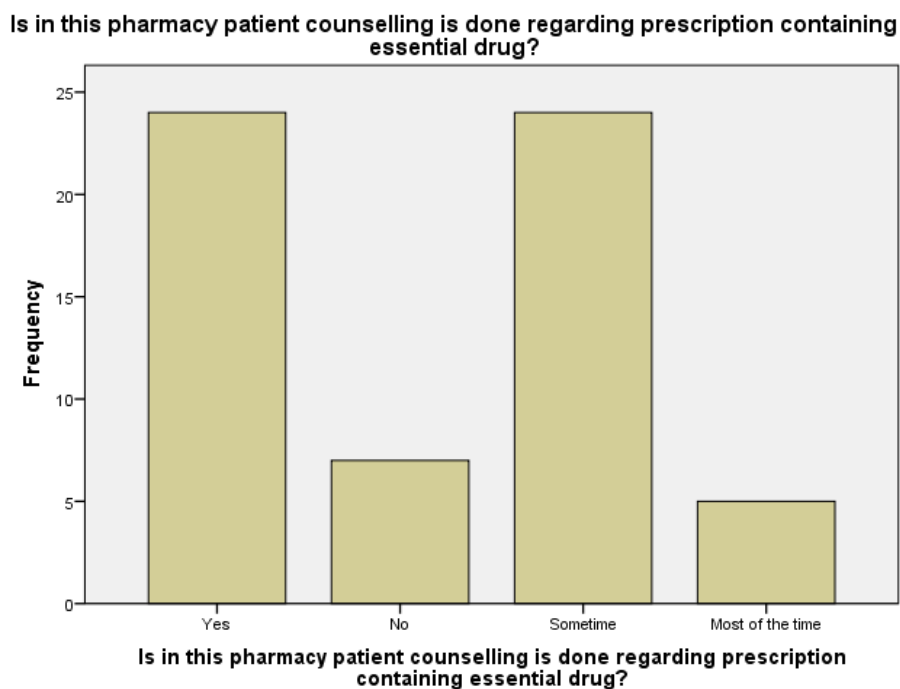


Fig: 4.12 Patient counseling

Table ;4.13 Registered pharmacy technicians performing packaging, dispensing of essential drugs in pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	29	48.3	48.3	48.3
No	7	11.7	11.7	60.0
Valid Sometime	20	33.3	33.3	93.3
Most of the time	4	6.7	6.7	100.0
Total	60	100.0	100.0	

Registered pharmacy technicians performing packaging,dispensing of essential drugs in pharmacy?

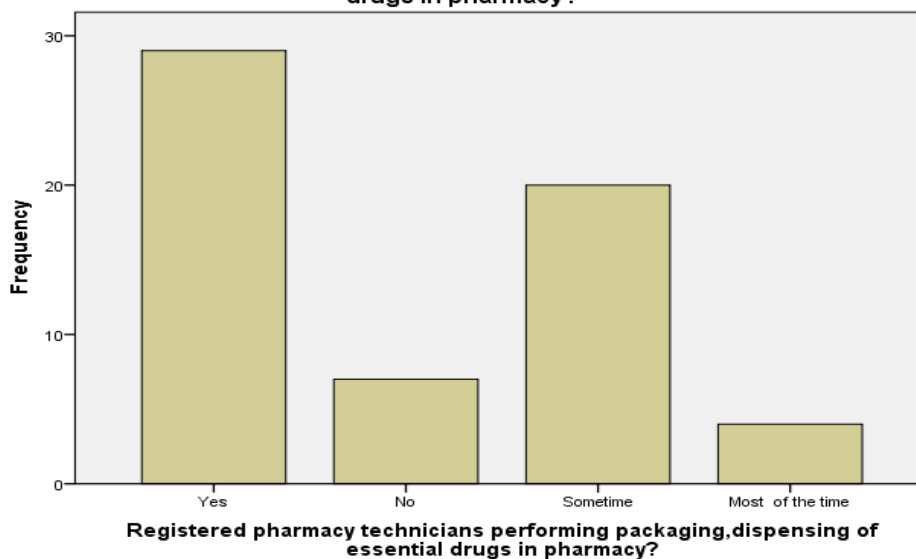
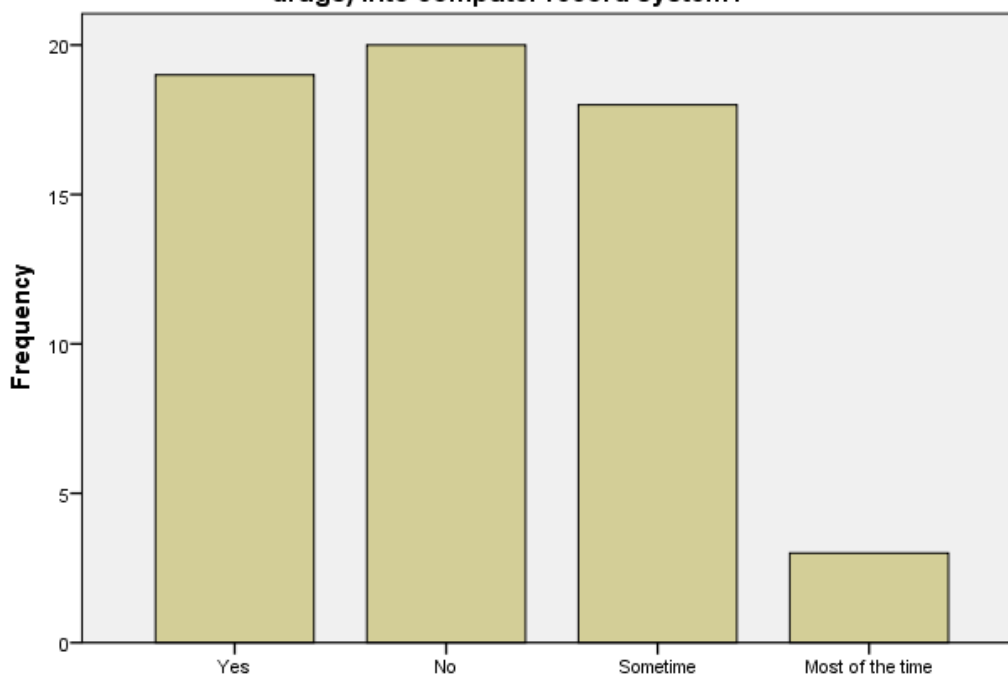


Fig:4.13 packaging performed by registered pharmacy technicians

Table :4.14 Is non-licensed person is permitted to type a prescription labelled(essential drugs) into computer record system?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	19	31.7	31.7	31.7
No	20	33.3	33.3	65.0
Valid Sometime	18	30.0	30.0	95.0
Most of the time	3	5.0	5.0	100.0
Total	60	100.0	100.0	

Is non-licensed person is permitted to type a prescription labelled(essential drugs) into computer record system?

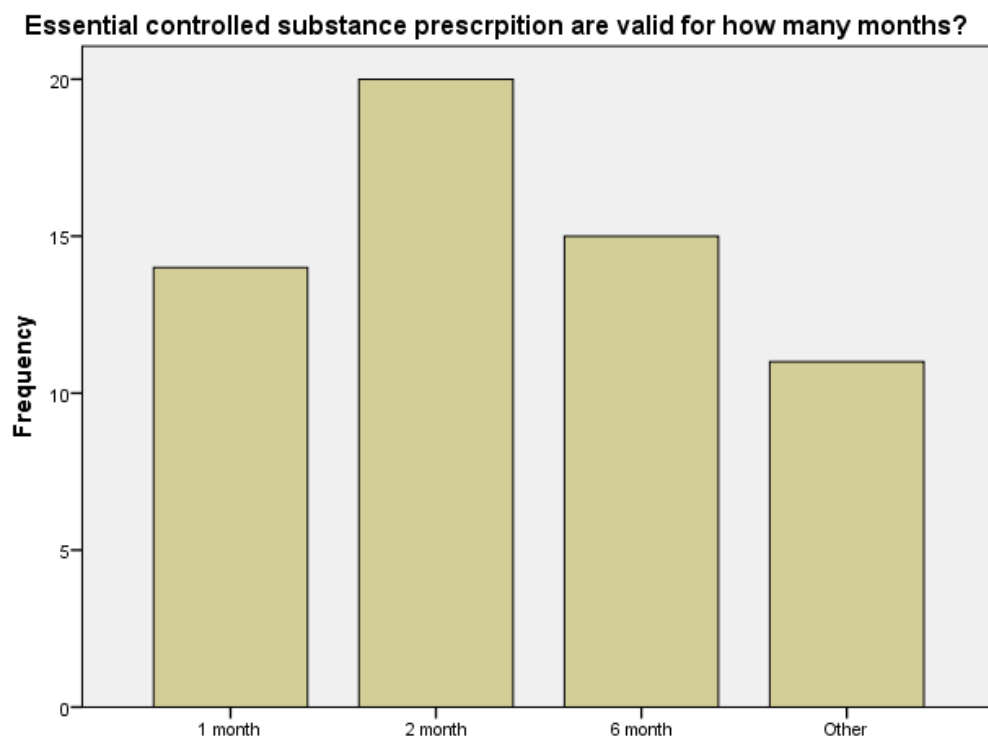


Is non-licensed person is permitted to type a prescription labelled(essential drugs) into computer record system?

Fig :4.14 Permission to non-licensed person

Table :4.15 Essential controlled substance prescription are valid for how many months?

	Frequency	Percent	Valid Percent	Cumulative Percent
1 month	14	23.3	23.3	23.3
2 month	20	33.3	33.3	56.7
Valid 6 month	15	25.0	25.0	81.7
Other	11	18.3	18.3	100.0
Total	60	100.0	100.0	



Essential controlled substance prescription are valid for how many months?

Fig :4.15 Essential controlled substance prescription

Table :4.16 Generic substitution of essential drugs is communicated to the patient?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	24	40.0	40.0	40.0
No	7	11.7	11.7	51.7
Valid Sometime	22	36.7	36.7	88.3
Most of the time	7	11.7	11.7	100.0
Total	60	100.0	100.0	

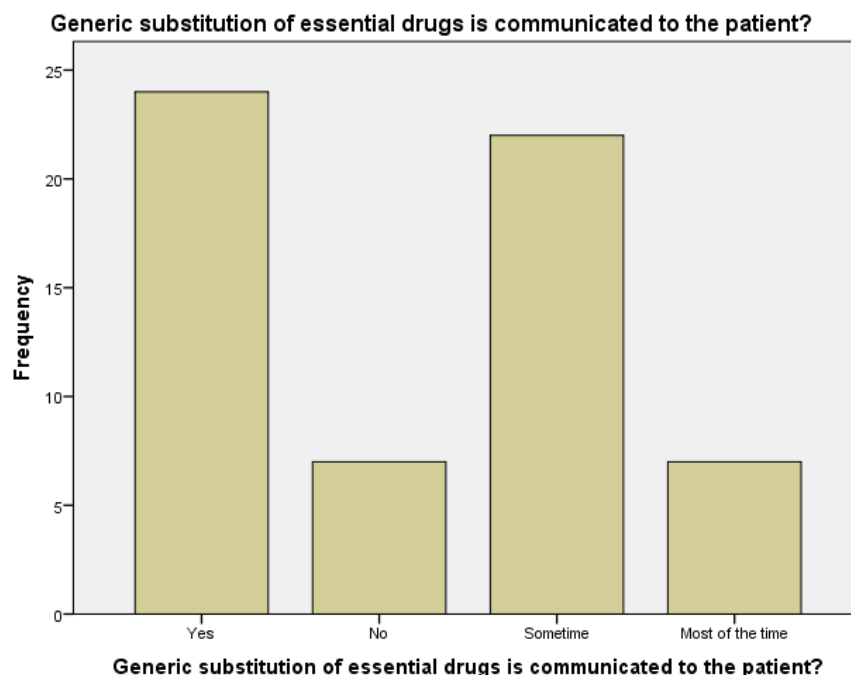


Fig : 4.16 Communication of generic substitution

Table :4.17 Prescribed essential medicines are dispense in a safe and secure manner?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	33	55.0	55.0	55.0
No	2	3.3	3.3	58.3
Valid Sometime	10	16.7	16.7	75.0
Most of the time	15	25.0	25.0	100.0
Total	60	100.0	100.0	

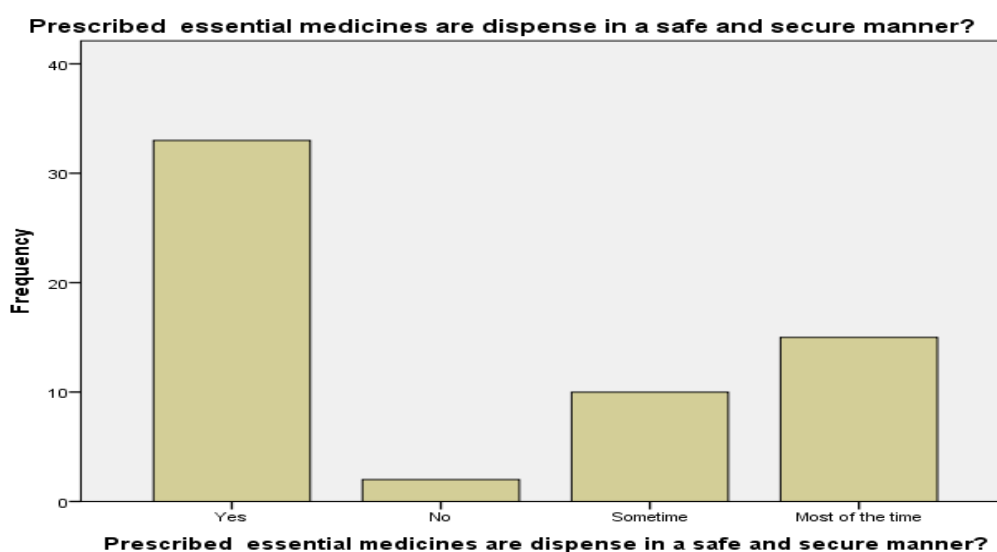


Fig :4.17 EM dispensing in safe and secure manner

Table 4.18 Which brand of Simvastatin is mostly present in your pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Zocor	23	38.3	38.3	38.3
Vytorin	15	25.0	25.0	63.3
Valid Simcor	20	33.3	33.3	96.7
Other	2	3.3	3.3	100.0
Total	60	100.0	100.0	

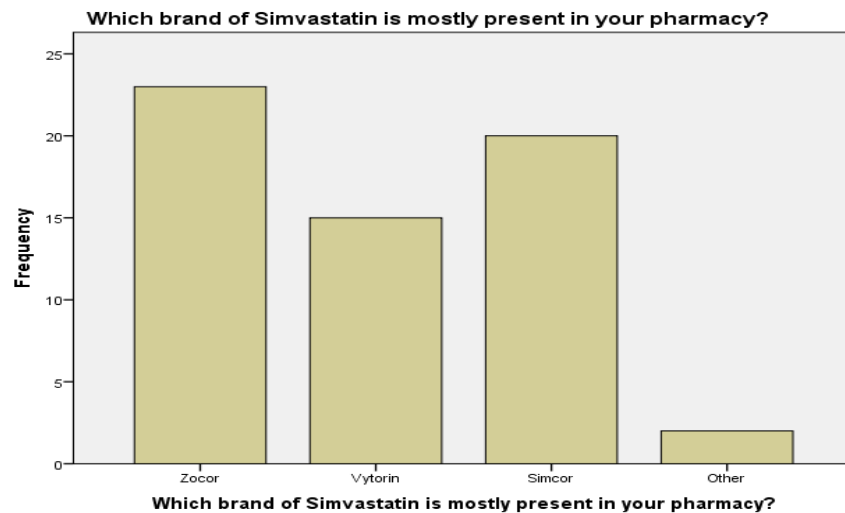


Fig : 4.18 Mostly present simvastatin brand

Table 4.19 Which brand of Aspirin is mostly present in your pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Disprin	31	51.7	51.7	51.7
Loprin	26	43.3	43.3	95.0
Valid Other	2	3.3	3.3	98.3
D	1	1.7	1.7	100.0
Total	60	100.0	100.0	

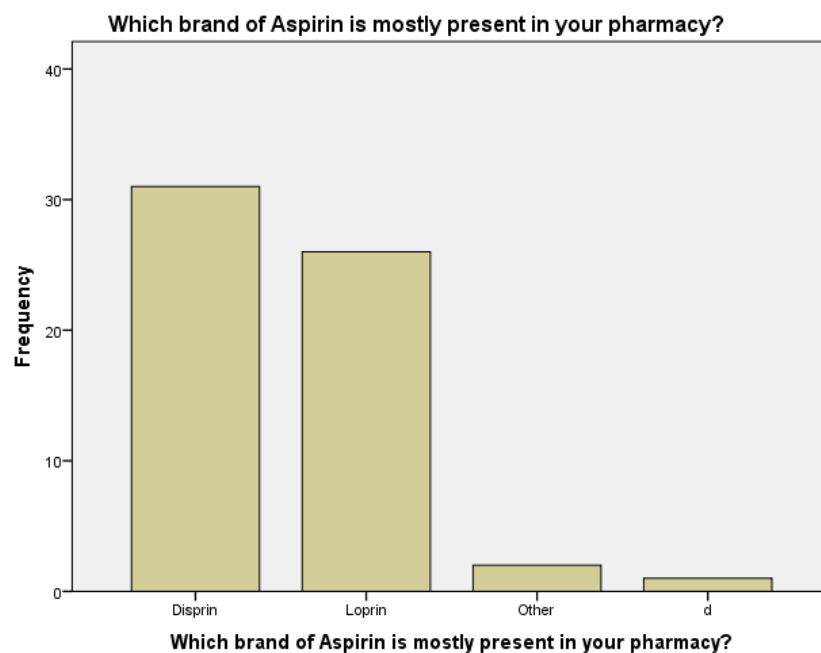


Fig: 4.19 Mostly present aspirin brand

Table :4.20 Most of the prescription received contain which essential drug?

	Frequency	Percent	Valid Percent	Cumulative Percent
Paracetamol	24	40.0	40.0	40.0
Aspirin	18	30.0	30.0	70.0
Valid Omeprazole	16	26.7	26.7	96.7
Other	2	3.3	3.3	100.0
Total	60	100.0	100.0	

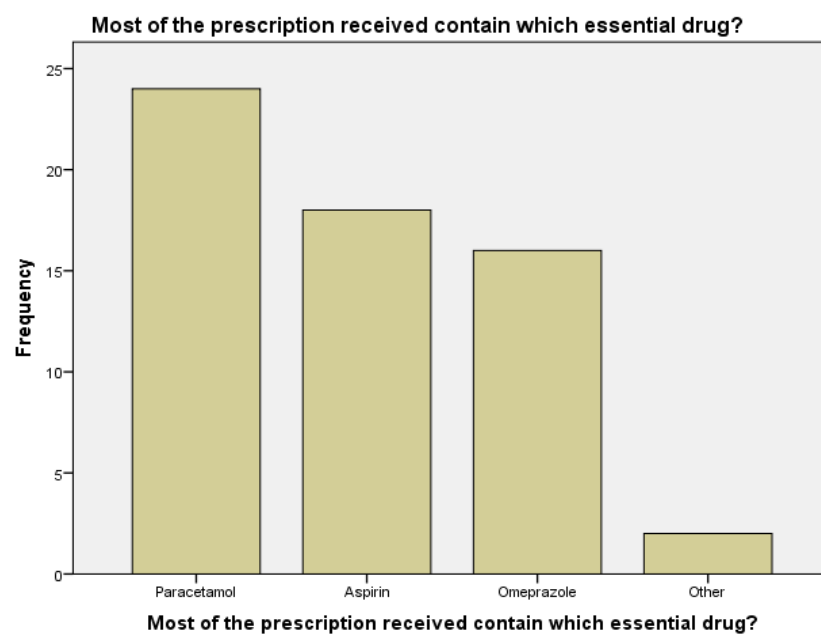
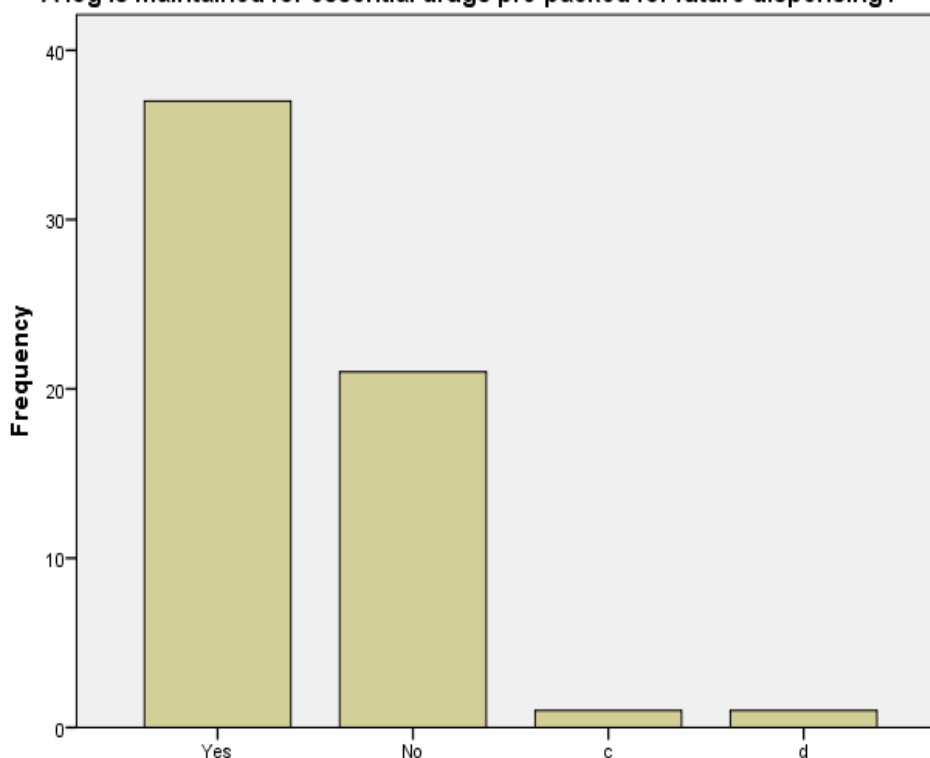


Fig : 4.20 Received prescription contain mostly ED

Table :4.21 A log is maintained for essential drugs pre-packed for future dispensing?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	37	61.7	61.7	61.7
No	21	35.0	35.0	96.7
Valid C	1	1.7	1.7	98.3
D	1	1.7	1.7	100.0
Total	60	100.0	100.0	

A log is maintained for essential drugs pre-packed for future dispensing?



A log is maintained for essential drugs pre-packed for future dispensing?

Fig :4.21 Maintenance of log for ED

Table:4.22 Does your pharmacy implement the use of common electronic file for essential drugs?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	35	58.3	58.3	58.3
No	22	36.7	36.7	95.0
Valid C	2	3.3	3.3	98.3
D	1	1.7	1.7	100.0
Total	60	100.0	100.0	

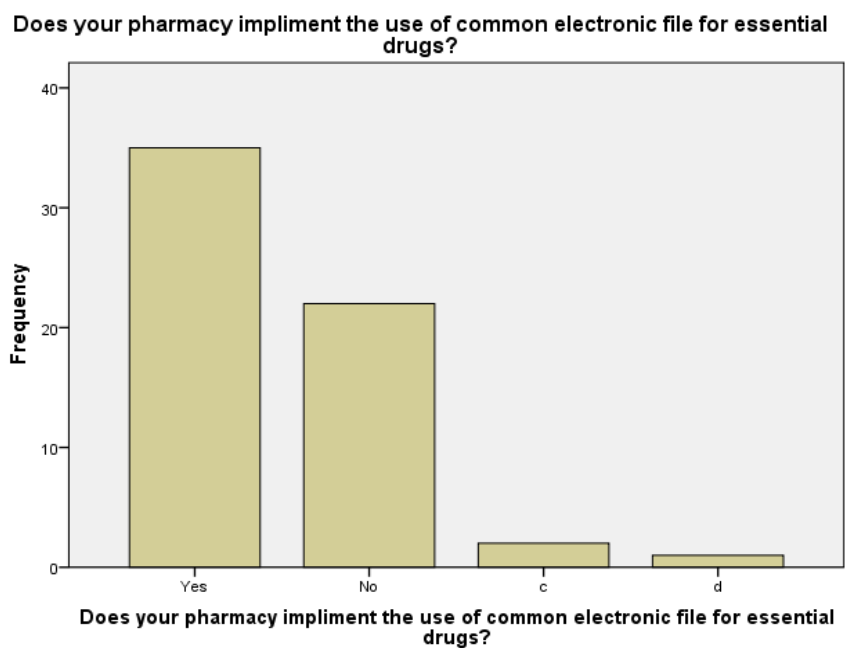


Fig : 4.22 Common electronic file for ED

Table :4.23 Do you always receive prescription having drugs according to essential drug list of Pakistan?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	22	36.7	36.7	36.7
No	12	20.0	20.0	56.7
Sometime	15	25.0	25.0	81.7
Most of the time	11	18.3	18.3	100.0
Total	60	100.0	100.0	

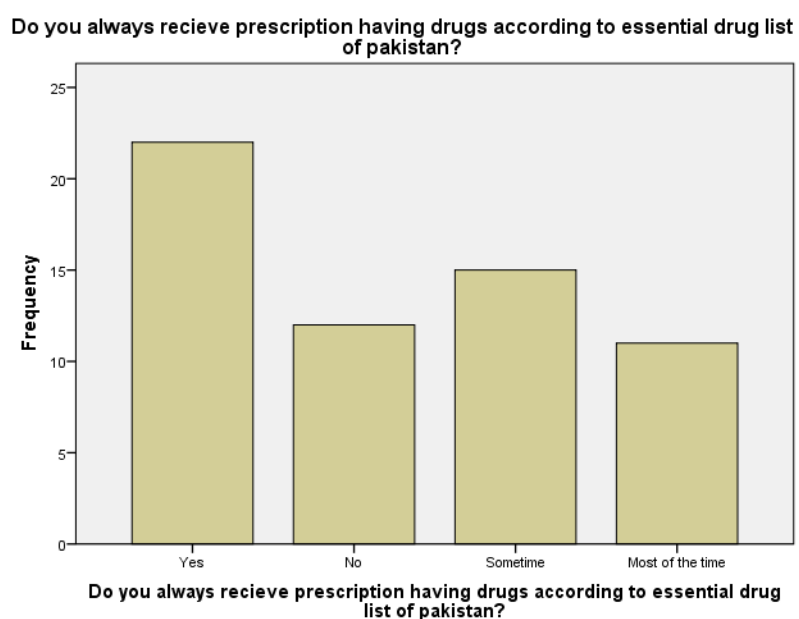
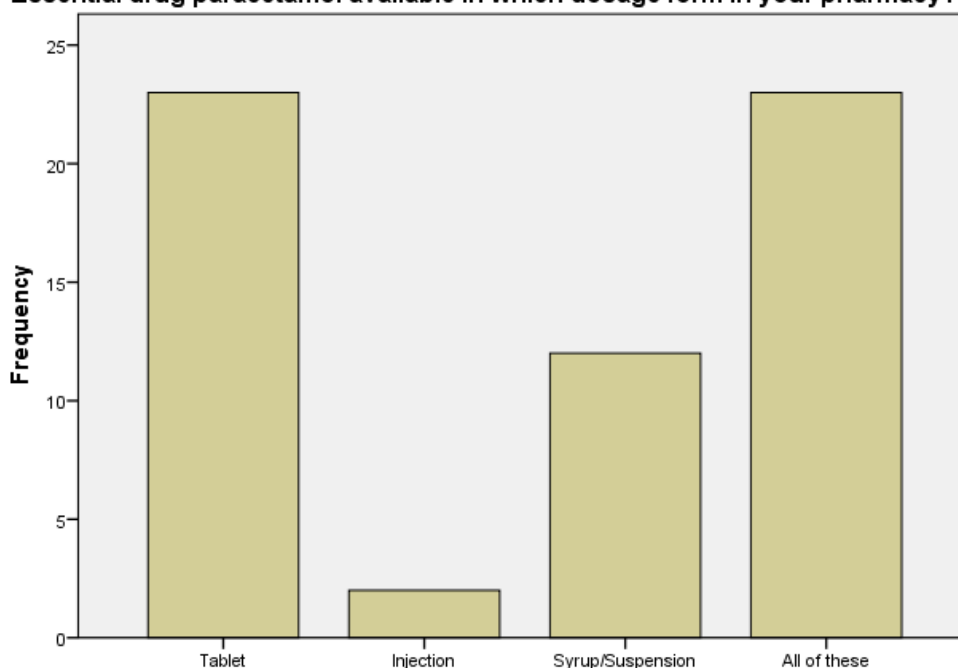


Fig : 4.23 Received prescription always contain drug according to NEDL

Table: 4.24 Essential drug paracetamol available in which dosage form in your pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
Tablet	23	38.3	38.3	38.3
Injection	2	3.3	3.3	41.7
Valid Syrup/Suspension	12	20.0	20.0	61.7
All of these	23	38.3	38.3	100.0
Total	60	100.0	100.0	

Essential drug paracetamol available in which dosage form in your pharmacy?



Essential drug paracetamol available in which dosage form in your pharmacy?

Fig :4.24 Availability of paracetamol dosage forms

Table :4.25 Do you have essential drugs at affordable prices for patients in your pharmacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
All essential drugs	15	25.0	25.0	25.0
Some of the essential drugs	12	20.0	20.0	45.0
Valid Most of the essential drugs	32	53.3	53.3	98.3
d	1	1.7	1.7	100.0
Total	60	100.0	100.0	

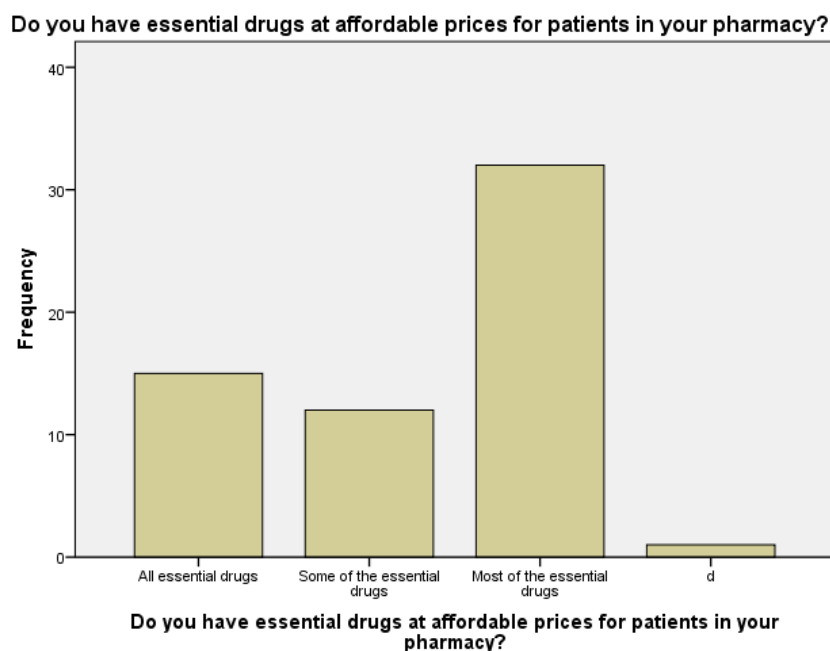


Fig : 4.25 Affordable prizes of ED for patients

Report

Semi government pharmacies had the highest (>80%) availability of essential drug list. while pharmacies of public health care facilities, private pharmacies showed a fairly high availability (50 - 80%) of surveyed essential drug list.

In Lahore different area's pharmacies follow both list of essential drugs of WHO and NEDL of Pakistan. 60-80% of essential drugs use in pharmacies and on daily bases 50-100 received prescription contain essential drugs which show that these pharmacies fulfill the need of majority of population of Lahore, because these drugs are prescribed by the prescribers. Stock of essential drugs are maximum in pharmacies and stock is orderly, cleanly, properly stored and properly dispensed in pharmacies and almost all pharmacist and pharmacy technicians have awareness about essential drug list and information of essential drug list is readily available in most of the pharmacies surveyed. Most of the pharmacies have updated essential drug list ciprofloxacin antibiotic is commonly present in received prescription. Some of the pharmacies provide patient counseling about prescribed essential drugs. Mostly registered pharmacist perform packaging, dispensing of essential drugs in pharmacies. Some of the non licensed persons are allow to type prescription in to computer system. Essential controlled drug substance prescription are valid for 2 months in most of the pharmacies. Generic substitution is sometime communicated to patient. Most of the pharmacies dispense drugs in safe and secure manner. Zocor brand of atorvastatin is mostly present in pharmacies. And disprin brand of aspirin which essential OTC drug is most commonly present in pharmacies. Most of the prescription received contain paracetamol essential drug which is also an OTC drug but also prescribed by most of the prescriber because of its therapeutic effect. Common electronic file and log is maintained in most of the pharmacies. Essential drug paracetamol is available in tablet, injection, syrup and suspension dosage form in most of the pharmacies. Most of the essential drugs are available at affordable prizes in pharmacies of different areas of Lahore.

A majority of the pharmacists believed that it has a great effect on the patients and the patients are highly influenced by essential drug list. However, most of the pharmacists agreed that their choice of the drugs was not impacted much. They follow the essential drug list in their pharmacies.

Pharmacists commented that in comment box of survey forms that effectiveness of updated list of essential drugs are less than optimal and that need to focus on updated national and WHO essential drug list in retail pharmacies. Pharmacists and pharmacy technicians conveying quality information to the patients more effectively. All pharmacies of Lahore must have essential drug list in their pharmacies. They must follow these lists as these lists improve the patient health and contribute major part in promoting patient care by treating communicable and non-communicable diseases.

Discussion

Availability of surveyed essential medicines list are present in both public and private pharmacies is fairly high in Lahore. Many factors affect access to medicines. Unaffordable medicine prices, poor availability, irrational use of

medicines, unfair health financing mechanisms, unreliable medicines supply systems, the quality of medicines and poor adherence of patients are among the factors that affect access to medicines.

The pharmacies in lahore shows an improvement of the availability of essential drugs in pharmacies. Every pharmacy had a fairly high availability of the EM surveyed. Although essential drug paracetamol is available in most of the pharmacies in both tablet and injection dosage form. Most of the prescription contain essential drugs, which are readily available by most of the pharmacies at affordable prizes.

Essential Over-the-counter (OTC) drugs are one of the most important and easily available public health aids for the treatment of common conditions or symptomatic relief. Although there are different means of providing the consumers with drug information.^[64] Prescription and controlled essential drugs are also important in promoting patient health and they must be available at affordable prizes for public of lahore and all over the Pakistan in fact all over the world. these drugs must be present in all dosage forms which are mention in essential drug list of Pakistan National essential drug list in all retail pharmacies of lahore.

5.1 Reliability and validity

All the questions of the survey, used to measure each of the study objectives, had satisfactory validity as per analysis results . Additionally, these results also support the internal reliability of the survey. ^[65] The final survey responses also produced an acceptable value, further supporting the reliability of the instrument and indicating that the survey can be used satisfactorily for future studies.

5.2 Discussion of study objectives

It has been observed in the past that pharmacists and pharmacy technicians do not have a favorable attitude towards the updating essential drug list in pharmacies. A previous study conducted was surveyed by pharmacists about essential drug list in pharmacies. Their findings revealed that most of the pharmacists believed essential drug list in pharmacies are not very important in promoting patient health and essential drug advertising to be non-beneficial to the consumers. A few studies have tried to research the opinions of pharmacists towards essential drug list and have encountered similar findings. A 2000 study conducted by Desselles and Aparasu to assess pharmacists' attitudes towards essential drug list in pharmacies of received prescription medications found that 59% of the pharmacists did support the concept of updated EDL in the pharmacies. in an other study conducted in 2005 ,It was found that the pharmacists did believe that essential drugs in pharmacies emphasized the safe use of the product or that their information content was adequate for making appropriate health decisions such as deciding whether to consult a healthcare professional. It has been shown previously that computer record system of essential drugs lacked accuracy of information. No common electronic files for essential drugs in different pharmacies of Lahore.

Respondents of this study reiterate the beliefs of the pharmacists, previously surveyed in two different studies told that essential drug lists in Lahore pharmacies not use properly. Evidence has shown that patients can use essential drugs not use properly to treat their conditions because some of the pharmacies have not prescribed essential drug at sometimes. For example, a 2010 study conducted to examine the use of essential non-prescription medicines among elderly patients with chronic illnesses found that the products were not used at the right dosages. Such unsafe use can often result in adverse drug events.^[66] A large number of pharmacists in the present study were of the opinion that essential drugs if not available in pharmacies could lead poor patient condition and increase the death rate of people and may become the cause of spreadable communicable diseases. Overall, a majority of the pharmacies follow the essential drug list which help in promoting the patient condition and reduce the death rate because they the essential drugs are mostly available in pharmacies. and the pharmacists of retail pharmacies in the current study believed that the effects of essential drugs are favorable for consumers. They felt that essential drug list creates higher preferences for brands in cases where generics would suffice and is responsible for the reduced costs of essential drug products. However there was no literature found to support this observation.

The research also aimed to evaluate the impact of stock of essential drugs in pharmacies on pharmacists' recommendations. Since pharmacists are a valued source of information for essential drugs, it was essential to know if essential drug list is one of the factors that prescriber would consider important while recommending a essential drug product. As per the results obtained in this study, the pharmacists strongly adopted the idea of essential drug list in pharmacies and they told that they mostly receive prescription of drugs from essential drug list. In pharmacies they properly labeled and stored the stock of essential medicines . The pharmacies have optimum stock that fulfill the need of majority of population of Lahore. These findings match the opinions of pharmacists of retail pharmacies recorded in the literature previously.

In a study carried out in 2002, it was demonstrated that essential drugs awareness of pharmacy technicians also play major role in promoting the health conditions of patients . They were more likely to be influenced by medical forces and made recommendations based on their training and knowledge.

Interestingly, however, a large number of pharmacists agreed to the fact that controlled substances of

essential drug list are stocked in safe and secure manner. The decision of stocking a essential drug product in the pharmacy, in conjunction with the patient demand, may not be driven by the pharmacists but by the companies owning the pharmacies. Another purpose of the present study was to understand pharmacists' opinions about the influence of essential drug list on patients' selection of essential non-prescription medications. In a study conducted by Raza Salman to evaluate consumers' risk perceptions of prescription and essential medications, In this study drugs availability and patient affordability of drugs showed that some of the essential drugs are not available at affordable prizes in different pharmacies of Lahore city of Pakistan.

The respondents of this survey were very strongly opinionated about the impact of essential drug list in pharmacies on prescribers' choice of the essential drug products for patients. In other study pharmacists expressed their concerns about the products purchased by the patients being unnecessary or worse, unsuitable for their conditions, if essential drug is not prescribe by prescriber. Pharmacists found that oftentimes patients are adamant about buying certain essential drugs. The selfdiagnosis and treatment is especially dangerous in the case of essential nonprescription drugs because the medications are easily accessible to the patients with no control of a health care professional and thus have a greater potential for misuse. The result of the present study showed an almost equal use of essential drug list in different pharmacies of Lahore and the pharmacists thought that essential drugs prescribing improves patient health and pharmacists who thought it does not improve patient health conditions. Previous research has highlighted the effect of direct prescribed availability of essential drugs to patients .

Patients have been shown to react negatively if the physician refuses to write a prescription for a drug that the patient requested because prescriber have most knowledge about essential drugs than patients believes of some drugs. However,essential prescription drugs has also shown to foster patientphysician relationship by promoting a discussion about the essential medicines between patients and physicians. This is comparable to the results of the current study showing a mixed opinion among the pharmacists about the effect of essential drugs list on the patient-pharmacist relationship. The reason for these mixed findings may be that even though the pharmacists have stated that they counsel an increasing number of patients about essential drug use, the number is not substantial enough. Patients are often seen bypassing the pharmacist and obtaining the medicines on their own. As stated previously, patients may also have formed their own opinions about certain essential drug products and may be adamant about the use of the same. This can lead certain pharmacists to believe that their image as a gatekeeper of non-prescription drugs and in turn, their relationship with the patients is negatively impacted. At the same time, however, the results of this study suggest that a large number of pharmacists have encountered patients who asked about differences between brands, sought more information about essential drug products and valued their opinions after exposure to essential drugs if these drugs list present in pharmacies. Pharmacists who had such experiences would be of the opinion that essential drug list in pharmacies has a positive effect on the health of the patients.

There was no literature to support the fact that the impact of essential drug use on prescriber' choice of drugs differed according to the location of the pharmacy. Other variables did not have any effect on the perceptions of EDL in pharmacies. This further establishes the generalizability of the survey by exemplifying that the opinions of the pharmacists of the Lahore pharmacies are not affected by any differences in the demographics of the pharmacist and other miscellaneous factors.

A recent study carried out by the WHO and HIA Essential Drugs list implementation in Lahore pharmacies indicated that availability of essential drugs is as much important as their affordability in ensuring access to essential drugs. [67] Therefore, public health interventions intended to ensure access to essential drugs should focus on promoting partnerships between governments of the developing world, pharmaceutical industries, and nongovernmental agencies in order to provide access to affordable essential drugs to their populations. Although there is an increasing commitment to ensure the access to essential drugs , still there are great opportunities for ensuring access to essential drugs for the majority of the population while adopting cost-effective interventions. For instance, policymakers of Pakistan essential drug list should promote and enforce the utilization of generics instead of originator brand names. In an other stdy found that in the average public sector availability of generic medicines in the lahore region was less. To improve the access to essential drugs, Pakistan governments should effectively regulate their pharmaceutical sector by keeping their national drug policies and essential drugs lists up-to-date, as well as monitor routinely the availability and prices of drugs. This would lead to prevent wasteful and inadequate use of drugs.

5.3 Recommendations for Future Research

The comparative aspects of this study might provide some insight in which pharmacies of Lahore might learn and follow essential drug list. Thus, this study could be repeated by policymakers to measure the strength of association Essential Drugs Programs of different pharmacies of Lahore between public health interventions and health status indicators in order to identify interventions that matter. In light of the lack of similarities between the pharmacies of following the WHO model list and national EDLs in lahore, one can ask why these EDLs are different even for

pharmacies of same cities that face similar challenges related to costs, drug effectiveness, morbidity patterns, and rationality of prescribing.

Future research in essential drugs should examine other demographic and socioeconomic factors that impair countries of the developing world. Future research is needed to understand how national drug essential drug list and WHO essential drug list affect choices of the medicines to the population of the Lahore. The findings of such research would help researchers to identify common knowledge, attitude, and beliefs toward use of essential drugs across surveyed pharmacies. Future research is also needed to investigate why and how national and WHO essential drugs programs do not perform well as expected or deliver less than expect.

5.4 Limitations

This survey was conducted in some areas of Lahore city not included all pharmacies of Lahore, and survey done mostly on well established pharmacies which have essential drug list and fulfil the requirements of the storage, dispensing etc of essential drugs although most of the pharmacies which are not well established were not surveyed. Availability of essential medicines may change depending on pharmacy and hence these findings may not reflect the situation throughout the all pharmacies of Lahore.

Conclusion:

In response to the poor access to medications and the high cost of drug therapy in developing countries, WHO developed an EDL. The EDL provided developing countries with a reference for safe, effective, and affordable drugs. According to the WHO (2001), “the core of the concept of EDL is that use of a limited number of carefully selected drugs based on agreed clinical guidelines leads to a better supply of drugs, to more rational prescribing, and to lower costs”. Hence, the EDL is the foundation of a NDP, and in many countries it is a mechanism used to implement such policy.

However, despite the development and incorporation of the WHO EDL, Essential Drugs Programs of pharmacies of Lahore Selected it ensure that Lahore retail pharmacies have essential drugs list that cause little reduction in morbidity and mortality. This work sought to describe the extent to which the EDLs of Lahore pharmacies adhere to the WHO model list, and the extent to which the EDLs differ from pharmacy to pharmacy.

Essential drug list available in all pharmacies surveyed. The availability of essential medicines was high in both public and private sectors in Lahore. Most medicines are affordable to the lowest income earners in the community. There were many generic brands and generics available for most of the medicines in private and semi government community pharmacies increasing both availability and affordability.

Comparison across the selected areas of Lahore pharmacies and other survey reports indicates significant disparity between the implementation of essential drug list in different retail pharmacies of different cities of Pakistan. While all other 2 cities of Pakistan are evaluated include additional agents in their lists compared to the WHO EML of Lahore, also it is seen from results that there were some of the drugs which featured on the WHO list but not on the national essential drug list, indicating a lack of “acceptance” of the WHO list. While some of this difference is due to disease prevalence and local prioritization, other reasons for this are unclear. As the number of medicines on the WHO list increases and broadens, it may be helpful to differentiate a core set of medicines that the WHO believes should be a priority for all countries from those medicines that may be a priority depending upon local disease prevalence and conditions. Further evaluation, in terms of WHO’s approach for the Model EML and countries’ perspectives for adaptation, is necessary to understand and address this scenario and guide future revisions. Moreover the positive progressive changes had been notice due to the availability of EDL in each pharmacy setup, the major reason we got form our survey was due to the drug act, and the increase percentage of the Pharm.D which has been appointed in all hospital and retail pharmacy and due to their authentic knowledge regards the drug, and drug law and proper implementaion of WHO essential drug list in setup, it not only increase the public safety, but also make Pakistan as a developing country in field of pharmacy, and rapid progress had been notice in the Lahore as compare to other city of Pakistan, In Pakistan there has been considerable work in terms of medicines related policy acts and operative guidelines. However considerable gaps exist between policy and practice and between medicine policies and health systems strategies. Average number of medications prescribed is higher than other LMICs and prescription practices frequently do not follow standard recommended therapies from specialists down to general practitioners. implementation of the concept of essential medicines is intended to be flexible and adaptable to many different situations; exactly which medicines are regarded as essential remains a national or institutional responsibility. An essential medicine has been suggested as a strong indicator of the effectiveness of health systems and there should be clear relationships between the national EML, standard treatment guidelines, and procurement practices within the country.

In light of the fact that the EDL only includes drugs and indications deemed essential, the large number of follow-on drugs, follow-on indications, and priority-rated follow-on drugs on the EDL suggest their importance. From a public policy perspective, it may prove counterproductive to erect hurdles that impede follow-on research and development.

Our survey based research end with the positive result, as compare from last many years, by the greater

emphasis and tremendous input of Govt. of Punjab towards the Health institutes

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