



A Cross-Sectional Study of Investigating the Errors in Prescription and Drug Prescribing Pattern among General Community

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Article History	Abstract
<p>Received: 17 June 2023 Revised: 27 Sept 2023 Accepted: 13 Dec 2023</p>	<p>The main purpose of this study is to access the awareness and knowledge of finding out errors in prescription among general public which include determination of the quality of prescription in hospital pharmacy and to address the errors identified in prescriptions. Implementation of teaching electronic medical record within didactic using drug info assignment. This survey emphasised the need for monitoring and evaluating the prescription handling conducted through google form. Therefore, the present study will help to understand the prescribing patterns and errors to the general community which will, in turn, improve the quality of the use of medicine and healthcare facilities. This following report has comprehensive studies that public have developed knowledge about prescription parts, drug information, self-evaluation, health care factors when compared to previous studies.</p>
<p>CC License CC-BY-NC-SA 4.0</p>	<p>Keywords: Cross-sectional, investigating, errors, prescribing patterns, google forms.</p>

Introduction

Hospital Pharmacy: The profession of pharmacy now places more of an emphasis on patient-centered, health outcomes-focused counseling, information, and professional services than it did before on technical, product-focused duties. The nation is embarrassed by this transformation, known as "Pharmaceutical Care," which involves pharmacists taking responsibility for patient outcomes related to their medication therapy in partnership with other healthcare professionals.¹ According to the Pharmacy Act of 1948, a registered pharmacist is a person whose name is currently included in the state's register of pharmacists, where he is now residing or doing his pharmacy-related profession or business.² The services of pharmacists are not only important to ensure the just and proper distribution of medications, but they also serve as a deterrent to the illegal sale of drugs for purposes other than medical treatment⁴.

Medical Definition of Prescription: A physician's order for the preparation and administration of a drug or device for a patient. A prescription has several parts. They include the superscription or heading with the symbol "R" or "Rx", which stands for the word recipe (meaning, in Latin, to take); the inscription, which contains the names and quantities of the ingredients; the subscription or directions for compounding the drug; and the signature which is often preceded by the sign "s" standing for signa (Latin for mark), giving the directions to be marked on the container.⁵

Merriam-Webster definition on prescription: The right acquired under common law by such possession which is prescribed as a rule⁶. A prescription serves as a legally binding medical record that governs the course of treatment for a specific patient in a health care program carried out by a

doctor or other certified healthcare professional. The word "prescription" comes from the Latin word "prescriber," which means "before" and "to write."⁷

An average prescription contains the following information: Prescriber office information, Date, Patient information (Title, Maturity level, Gender, and Accommodate of the Patient), Superscription (symbol), Inscription (Medication Prescribed)- Main Part of Medication, Subscription (Direction to Pharmacist/Dispenser), Signatura or Transcribed (Direction for Patient), Recertification Instructions, Prescriber's Signature, and Registration Plate⁸.

Forms Of Prescriptions:

- 1. Prescription for Extemporaneous preparations:** A pharmacist will mix medications or change a drug's concentration from that of the original manufacturer to create formulations that are tailored to a patient's specific needs.
- 2. Prescription for Official preparations:** Preparations that require no compounding are those that comprise prescription ingredients and are sold in the market in ready-to-use form.
- 3. Prescription for Patent preparations:** Patent law applies to prescribed preparations. Preparations covered by a patent include those distributed by businesses that have a manufacturing patent⁹.

Prescription Audit

It is a crucial tool for preventing drug abuse and promoting responsible drug use. By examining the various prescribing indicators, it is possible to access the performance of the healthcare professionals regarding the appropriate use of medications¹².

Auditing: Data, documents, and other resources are assessed to determine whether system performance satisfies predetermined requirements. Medical Audit: "A quality improvement process that seeks to improve patient care and outcomes through a systematic review of care against explicit criteria and the implementation of change."

Clinical Audit: can be characterized as the methodical evaluation of the effectiveness of medical care, taking into account the methods employed for diagnosis and treatment, the utilization of resources, the outcome, and the patient's quality of life¹³. The purpose of prescription pattern monitoring studies (PPMS) is to support the population's rational use of medicine (RUM). The prescribing, distribution, and administration of medications are its primary concerns. They encourage responsible drug usage and work to prevent the abuse or misuse of monitored substances¹⁴.

Prescription Errors

Prescribing errors may adversely affect outcomes and sometimes harmful to patients. To overcome this the pharmacist and the health care system found this study to enhance treatment effectiveness¹⁷.

During the study,

the term "prescription mistake" was defined as follows:

"Aclinically meaningful prescription error occurs when, as a result of a prescribing decision or prescription

writing process, there is an unintentional significant reduction in the probability of treatment being timely and effective or increase in the risk of harm

when compared with generally accepted practice"¹⁸.

Classification Of Prescription Errors:

There are two types of prescription errors: errors of omission and errors of commission.

1. When a prescription is filled incorrectly, such as when the patient's information, which must be included on the prescription, is missing, the dosage is incorrect, the dosage form is incorrect, the

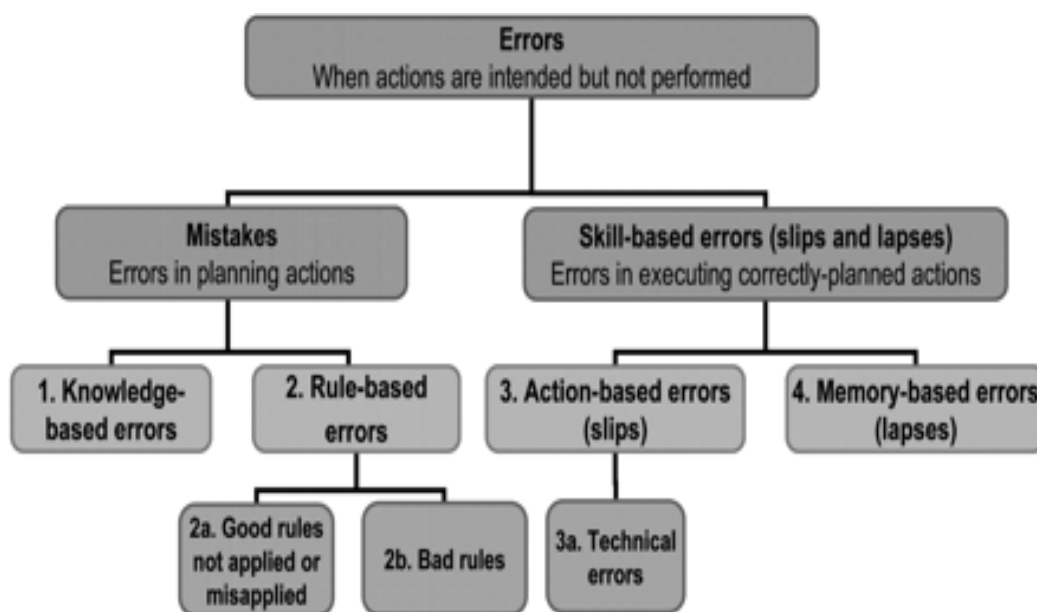
refill period is incorrect, or the prescription is illegible (the prescriptions which are difficult to read because of bad handwriting).

2. The mistake of the commission includes erroneous information about the medicine or patient, such as the improper substance, route, dose form, strength, and drug-drug interaction, and it may also include whether the patient's name is incorrect since it may result in the wrong patient receiving the medication¹⁹. Represented in figure 1.

Reasons For Prescription Error

1. **Acronyms:** make it difficult to grasp some elements of the prescription order. A pharmacist should interpret the Acronyms with extreme caution. Pharmacists shouldn't try to decipher an unclear prescription.
2. **Drug name:** Some medications have names that resemble or sound like those of other medications. Digitoxin and Digoxin are a couple of examples of such medications.
3. **Preparation strength:** The prescriber must specify the strength of the preparation. When a product is sold in a variety of strengths, it is crucial.
4. **The drug's dose form:** Many medications are offered in a variety of dosage forms, including liquid, tablet, and capsule.
5. **Dose:** Discuss unusually high or low doses with the prescribing physician. Possible pediatric dosage exists. To prevent a mistake, the pharmacist should contact the pediatric posology. A moderate dose may occasionally be given too frequently.
6. **Patient instructions:** The patient instructions provided in the prescription are either omitted or are not complete. In order to prevent confusion, the prescription should explicitly state the dosage of the medication, how often it should be taken, when it should be taken, and how it should be administered.
7. **Incompatibilities:** It's crucial to ensure that a prescription preparation has no therapeutic or pharmaceutical incompatibilities and that no medications given to the same patient interact negatively with one another.

Figure 1: Classification of Errors



Incorrect and Irrational Prescribing

Under prescribing: It is the use of an inappropriately low dose of a suitable medication or the failure to prescribe a medication that is both acceptable and suggested. In a study of 150 senior patients and the relationship between underprescribing and polypharmacy, the likelihood of under-prescribing dramatically increased with the number of prescriptions prescribed. The use of α -adrenoceptor antagonists following myocardial infarction, ACE inhibitors for heart failure, anticoagulants for atrial fibrillation, and bisphosphonates for osteoporosis was consequently unsuccessful.

Overprescribing: It involves prescribing medicine in excessive dosage (too much, too often, or for too long). Sometimes, medical intervention is completely unnecessary. For instance, only half of the hospital patients who received proton pump inhibitor medication were indicated. Over 10% of Britons over the age of 65 use polypharmacy, which is defined as the usage of five medications or more. And while not all polypharmacy is bad, some of it clearly causes adverse drug reactions and drug-drug interactions²².

Promoting Multidisciplinary Patient Care with the Involvement of a Pharmacist:

- i. We identified a variety of obstacles, including a lack of professionals, job overload, team member communication issues, and resistance to including a pharmacist on the care management team.
- ii. Furthermore, we have found that professional verbal exchanges (between pharmacists and doctors, for example) do not always result in appreciable outcomes. It should be underlined that insufficient funding may prohibit professionals from being hired or replaced²¹.

Electronic Medical Record

A computer-based electronic (digital) database that contains a person's medical data. It contains all the details you would ordinarily discover in a provider's paper chart: medical background, diagnosis, treatments, dates of vaccinations, allergies, lab findings, and notes from doctors. All healthcare professionals who are providing treatment for a patient have access to their electronic medical records (EMR), which they can use to make suggestions about the patient's care. In order to provide the best possible patient care, they efficiently enable communication and coordination among healthcare team members. The proper care is guaranteed throughout the provider's clinic by thorough and correct documenting of a patient's medical history, exams, diagnoses, and treatments in EMRs²⁰.

Study Criteria

Exclusion Criteria:

- Age group below 18 years.
- Individuals who are illiterate.
- children and mentally incompetent.

Materials and Methodology

The study is a cross-sectional survey designed to monitor and address Prescription errors among the general community using an anonymous online questionnaire survey performed through a platform known as google form. Google Form is an online tool that enables users to make polls and surveys that may be sent to approved people. A self-administered, formatted questionnaire was developed using google form, in which the participants were invited to submit responses through a link via email and social media. To monitor and address the Prescription errors, a questionnaire was prepared with 15 close-ended questions including demographic details (Name, Age, Gender) and general questions

concerning prescription errors in the community. The questions for the cross-sectional survey research were designed and hence validated by the guide. The response choice for these questions is in yes/no option. The participants take, approximately, 10 -15 mins to complete the survey.

Demographic Variables Gender Wise Distribution

This study involves total of 210 participants with 109 (51.9%) of male and 101(48.1%) of female represented in table 1 and figure 2.

Table 1: Gender wise distribution

Gender	No. of Participants (n = 210)	Percentage (%)
MALE	109	51.9
FEMALE	101	48.1

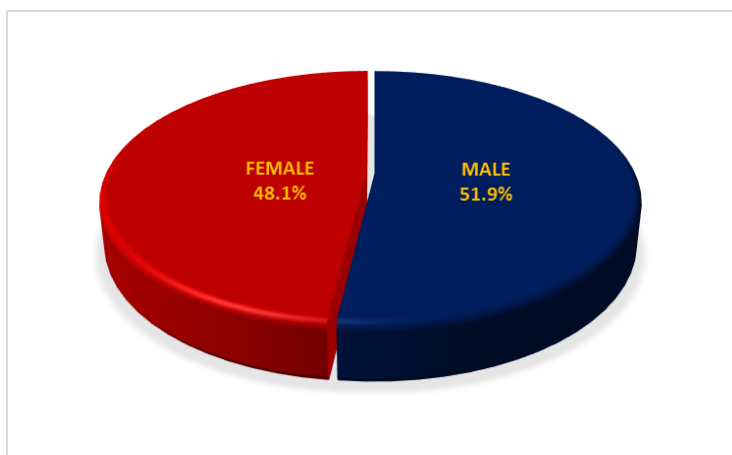


Figure 2: Gender wise distribution

AGE-WISE DISTRIBUTION

In this study, the age of the individuals are categorised into 5 groups as below 20, 20- 30, 31-40, 41- 50 and 51-60. Among these classes, the age group of respondents was found to be higher in 31-40 [72 (34.28%)] followed by 41-50 [61 (29.04)] and least respondents with below 20 participants [14 (6.6)] represented in figure 3 and table 2.

Table 2: Age wise distribution

Age (in years)	No. of Participants (n = 210)	Percentage (%)
Below 20	14	6.6
20 - 30	43	20.47
31 - 40	72	34.28
41 - 50	61	29.04
51 - 60	20	9.52

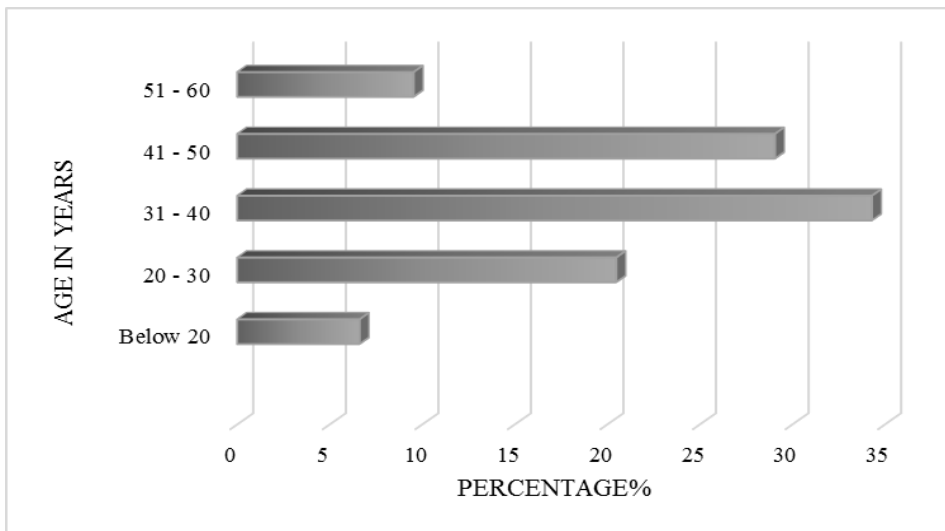


Figure 3: Age wise distribution

GENERAL DETAILS PARTS OF PRESCRIPTION

Q1) Have you noticed whether your exact name mentioned in the Prescription (with initial)

In this study, out of 210 participants, 34 (16.3%) response were found with observing the error and remaining 175 (83.7%) with free of errors represented in figure 4 and table 3.

Table 3: General details parts of prescription

Error in mentioning the name	No. of Participants (n = 210)	Percentage (%)
Error	34	16.3
Error Free	175	83.7

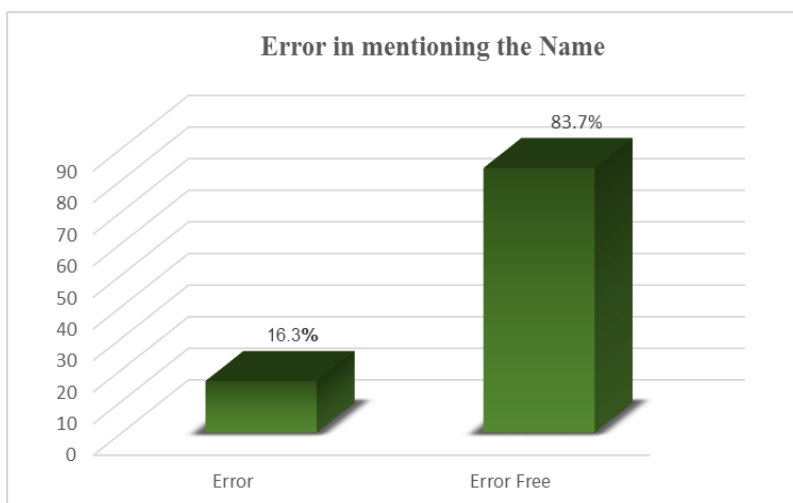


Figure 4: General details parts of prescription

Q2) Have you noticed whether your age is mentioned on the prescription

This study reveals that observation of errors were found to be lesser ie. 13 (6.2%) , than other cases because majority of the responses are agreed with free of errors of 197 (93.8%) on comparison with other cases represented in figure 5 and table 4.

Table 4: Error in mentioning the Age

Error in mentioning the Age	No. of Participants (n = 210)	Percentage (%)
Error	13	6.2
Error Free	197	93.8

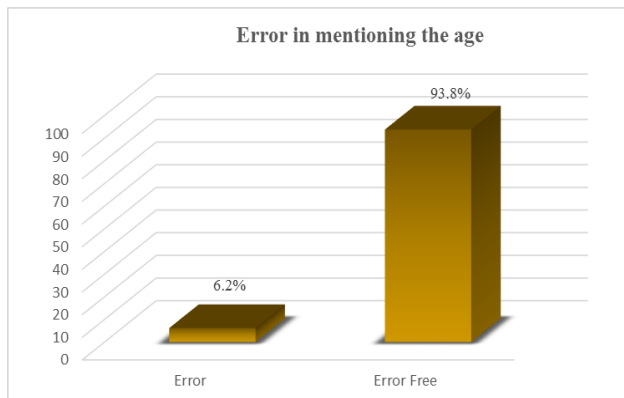


Figure 5: Error in mentioning the Age

Q3) Whether your appropriate gender has been mentioned on the prescription

In this study, among total participants, 32 (15.3%) of responded with aggreable to the error observations and 177 (84.7%) with free of error, represented in figure 6 and table 5.

Table 5: Error in mentioning the gender

Error in mentioning the Gender	No. of Participants (n = 210)	Percentage (%)
Error	32	15.3
Error Free	177	84.7

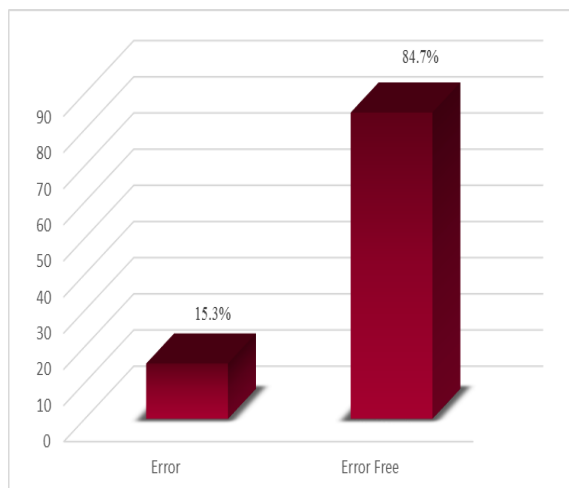


Figure 6: Error in mentioning the gender

Q4) Whether your disease is mentioned in your Prescription

In this study, out of total respondent, it we nearly found to be half of response with error observation 104 (49.8%) and half with free of errors 106 (50.2%) represented in figure 7 and table 6.

Table 6: Error in mentioning the disease

Error in mentioning the Disease	No. of Participants (n = 210)	Percentage (%)
Error	104	49.8
Error Free	106	50.2

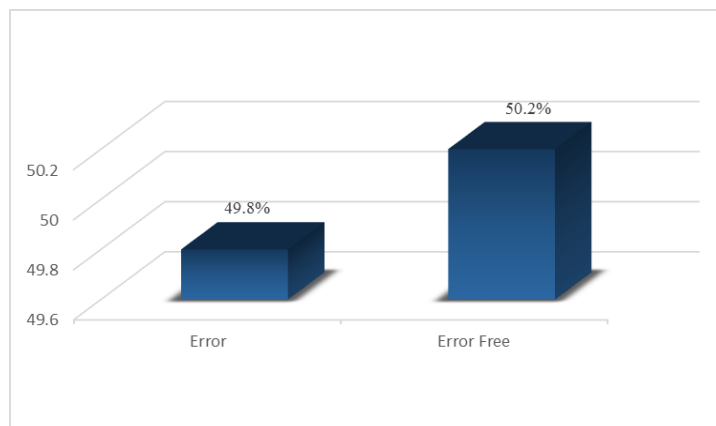


Figure 7: Error in mentioning the disease

Q5) Have you seen your prescription without mentioning the frequency (1-0-1)

This study concludes with 65 (31.1%) of response with error observation and 144 (68.9%) with free of error, represented in figure 8 and table 7.

Table 7: Error in mentioning the Frequency

Error in mentioning the Frequency	No. of Participants (n = 210)	Percentage (%)
Error	65	31.1
Error Free	144	68.9

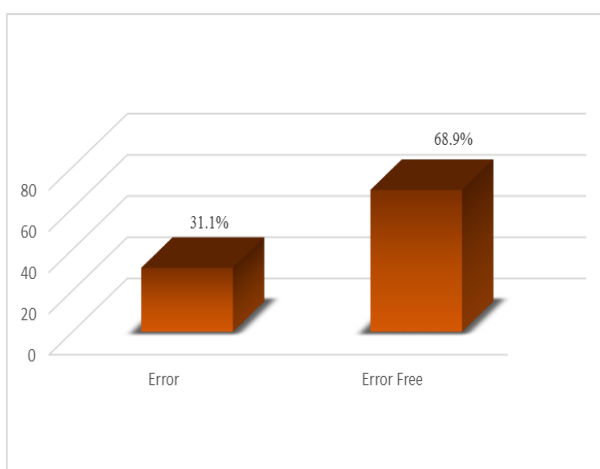


Figure 8: Error in mentioning the Frequency

Q6) Did you notice the dosage of the drug in prescription (like 100mg)

In this study, out of 210 respondents, 148 (71.5%) responded with free of error and 59 (28.5 %) with noticeable error, represented in figure 9 and table 8.

Table 8: Error in dosage of the drug in prescription

Error in mentioning the dosage of drug	No. of participants (n = 210)	Percentage (%)
Error	59	28.5
Error Free	148	71.5

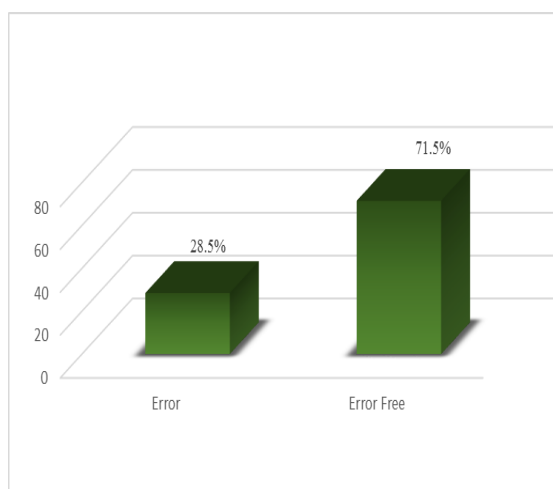


Figure 9: Error in dosage of the drug in prescription

Q7) Are there any absence of sign in the prescription (BF /AF)

In this study, among the total participants, 79 (38.9%) response was found with error observation and remaining 124 (61.1%) with error free, represented in figure 10 and table 9.

Table 9: Absence of sign in the prescription

Error in mentioning the Sign of direction	No. of Participant (n = 210)	Percentage (%)
Error	79	38.9
Error Free	124	61.1

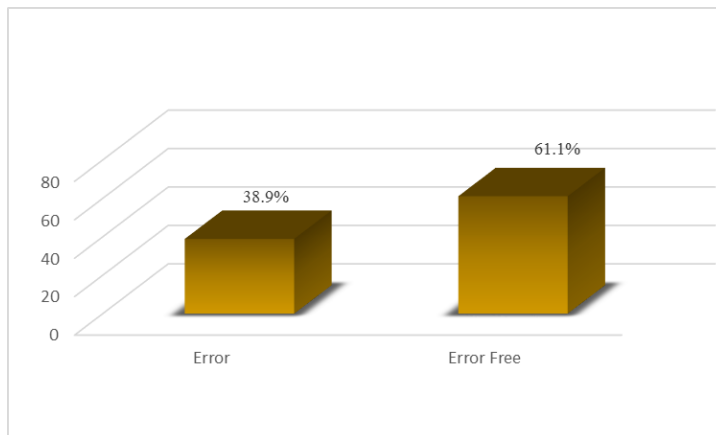


Figure 10: Absence of sign in the prescription

Q8) Did you notice the route of administration in the prescription [IV (injection) , IM, Oral (Tablet)]

In this study, 108 (53.5%) participants responded with free of error and 94 (46.5%) with noticeable error among the total, represented in figure 11 and table 10.

Table 10: The route of administration in the prescription

Error in mentioning the Route of Administration	No. of Participant (n = 210)	Percentage (%)
Error	94	46.5
Error Free	108	53.5

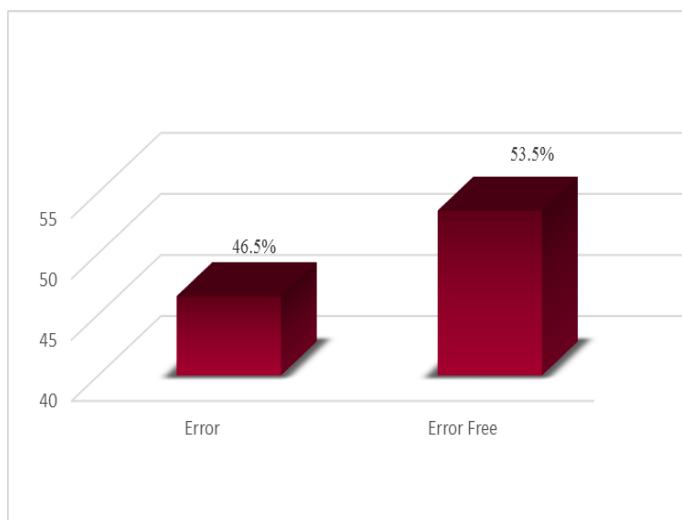


Figure 11: The route of administration in the prescription

Q9) Can you understand the physician handwriting

This study found with 120 (60.9%) of response occurred with error observation and 81 (39.1%) of response with error free, represented in figure 12 and table 11.

Table 11: understand the physician handwriting

Understanding physician writing	No. of Participants (n = 210)	Percentage (%)
Error	120	60.9
Error Free	81	39.1

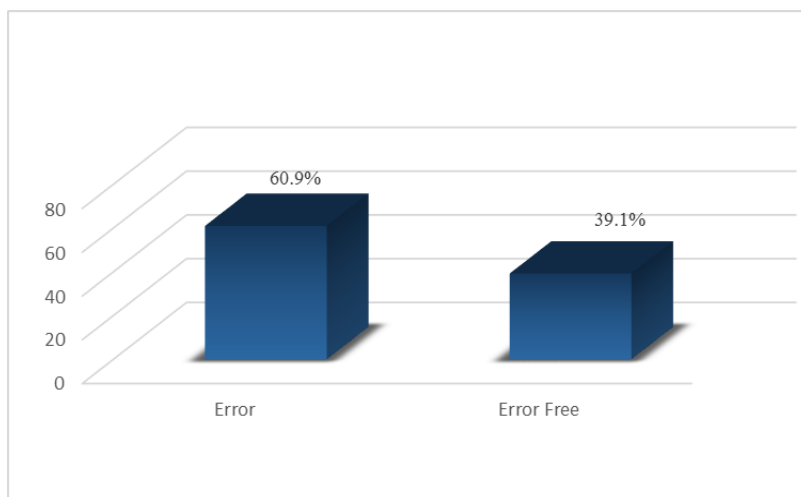


Figure 12: Understand the physician handwriting

Q10) Whether duration of drug is mentioned in your prescription (like 6-12 months)

In this study, 107 (51.4%) of responses are recorded with free of error and 101 (48%) of response with occurrence of error, represented in figure 13 and table 12.

Table 12: Duration of drug is mentioned in your prescription

Error in mentioning the duration of drug	No. of Participants (n = 210)	Percentage (%)
Error	101	48.6
Error Free	107	51.4



Figure 13: Duration of drug is mentioned in your prescription

Drug Information

Q11) While taking the prescribed drugs have you observed any side effects.

This study describes the self-evaluation of patients during the treatment namely Observation of side-effects. In this study, majority of responses is 152 (73.1%) is recorded with no sign of side effects and remaining 56 (26.9%) with observable side effects, represented in figure 14 and table 13.

Table 13: The prescribed drugs produced any side effects.

Observation in side effects	No. of Participants (n = 210)	Percentage (%)
Occurrence	152	73.1
No Occurrence	56	26.9

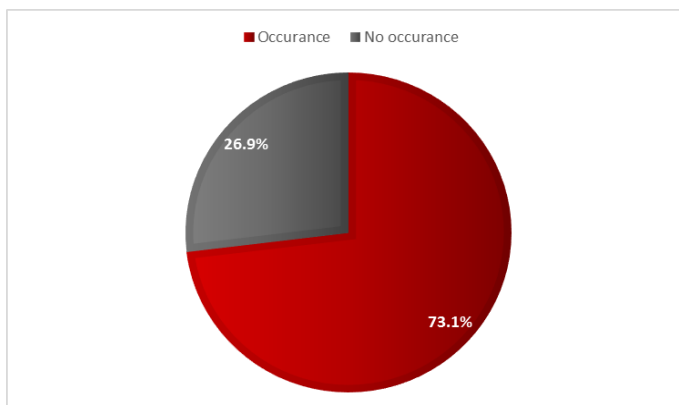


Figure 14: The prescribed drugs produced any side effects.

Q12) Whether those side effects have informed to concerned physician

This study describes about informing the side effects to concerned physician. In this survey, 95 (47.7%) responses have reported their side effects and 104 (52.3%) are not reported, represented in figure 15 and table 14.

Table 14: The side effects have informed to concerned physician.

Reporting side effects to physician	No. of Participants (n = 210)	Percentage (%)
Yes	95	47.7
No	104	52.3

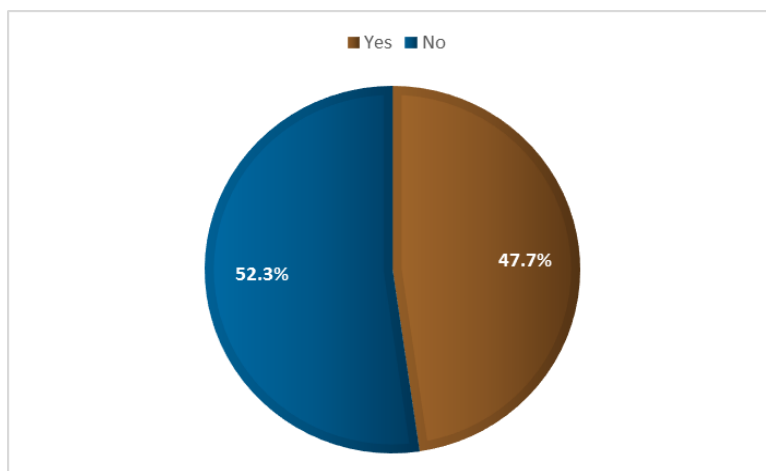


Figure 15: The side effects have informed to concerned physician.

Q13) Have you given the exact status of your health conditions to the physician and whether it is mentioned in the prescription

This study concludes with 67.2% of respondents are agreeable to free of error and 32.8% with error observation, represented in figure 16 and table 15.

Table 15: The status of the health condition

Error in mentioning of exact status of health condition	No. of Participants (n = 210)	Percentage (%)
Error	66	32.5

Error Free	137	67.5
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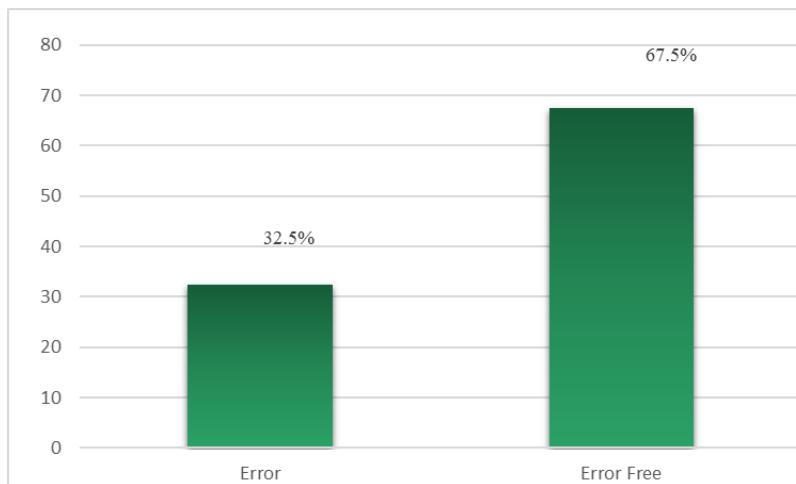


Figure 16: The status of the health condition

Self-Evaluation

Q14) If you notice those errors have you informed to respective healthcare center

This study deals with the reporting the errors to the respective healthcare centre. In this survey, among 210 participants 98 (48.8%) response were recorded with not Reporting and 103 (51.2%) with Reporting errors to Health care, represented in figure 17 and table 16.

Table 16: The errors of respective healthcare center

Reporting the profound errors to health care Centre	No. of Participants (n = 210)	Percentage (%)
Yes	103	51.2
No	98	48.8

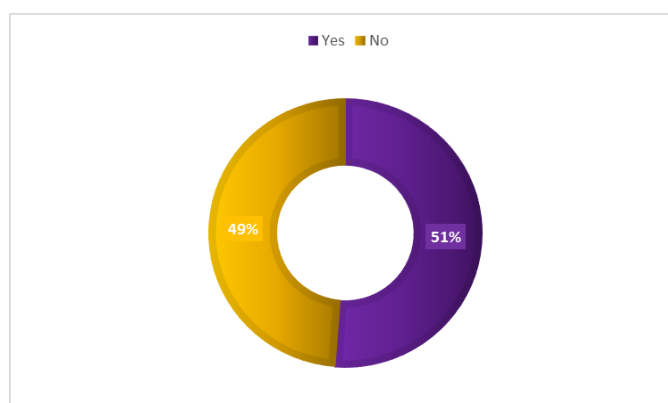


Figure 17: The errors of respective healthcare center

Health Care Centre

Q15) Do you have any idea about Drug Information Centre

This study describes the awareness and knowledge of the people about drug information centre. By this survey, we can conclude that only 148 (71.2%) of respondents have an idea about DIC where 60 (28.8%) stands with lack of awareness about DIC, represented in figure 18 and table 17.

Table 17: Awareness about Drug Information Centre

Awareness about Drug Information Centre	No. of Participants (n = 210)	Percentage (%)
Yes	60	28.8
No	148	71.2

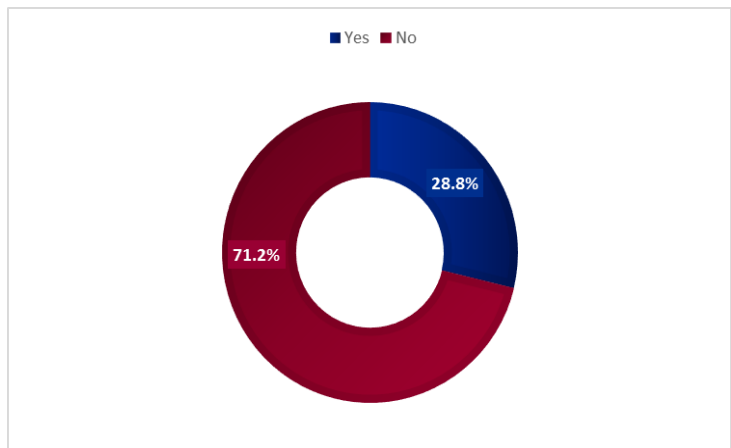


Figure 18: Awareness about Drug Information Centre

Overall, View

From this study, the mean for error occurred from the 210 responses were collected as 36.592%, while the mean for Error free responses was found to be 63.407%, represented in figure 19.

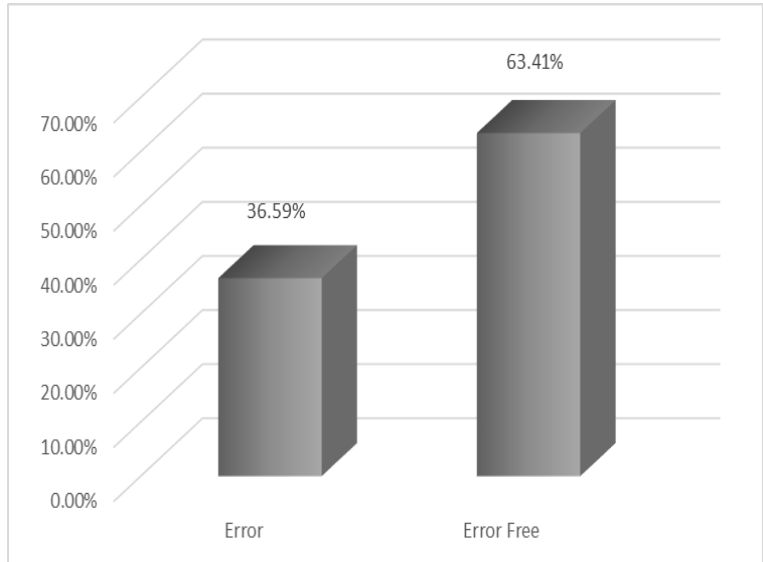


Figure 19: Overall Study

Discussion

In this study totally 210 responses were collected and among these 51.9% were male population and 48.1% were female populations. The response was between age group from 18-20 were 6.6% populations, 21-30 were 20.47% populations, 31-40 were 34.28% populations, 41-50 were 29.04 % populations, 51-60 were 9.52 populations. The questionnaire was split into four categories such as parts of prescription, drug information, self-evaluation and health care centre. As per the parts of prescription 38% were not aware about the parts of prescription and 73% have a knowledge about the

parts of prescription. The participant's knowledge was assessed based on their understanding toward the prescription.

As per the drug information 13 % were unaware about the information in the prescription and 98% were aware about the drug information. As per the self-evaluation 48.8 % unfollowed and 51.2% followed the self-evaluation. As per the health care centre 71.2 % were unaware and 28.8 % have knowledge about the health care centre. This present study assessing the need of improvement and knowledge about the errors in prescription among the individuals in order to improve the knowledge about the prescription. The results of this study can also be used as a foundation for future research on prescription handling, which will examine the potential for enhancing prescribing practises through interventional education.

Conclusion:

Prescription errors do occur commonly in clinical setting yet is preventable, wherein the Pharmacist play a crucial role in minimizing those errors. The primary purpose of this study is to figure out general public knowledge about the errors in prescription performed through google form. From survey results, the maximum responses were received from the Age distribution between 31-40 (34.28%) and gender ratio of male and female was 2:1. Interpretation of the survey shows that the "mean for error occurred" were collected from 210 responses that is 36.592%, while the mean for error free were found to be 63.407%, the ideal error were through physician handwriting (60.9%) and least error in mention of age (6.2%).

From past until present, people have stepped forward to know and identify about these errors is were discovered from the survey. The study has brought attention to the need to focus on prescription writing and to stop the practise of inappropriate prescribing by giving healthcare professionals appropriate, unbiased information.

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