

# Assessment of Perception about Adverse Drug Reactions among Healthcare Professionals and Public in Mysore City

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**Abstract:** *The objective is to assess community pharmacists, nurses and patients' knowledge, behaviors and experiences relating to adverse drug reaction (ADR) in Mysore city, and to create awareness accordingly. A cross-sectional study was conducted using a self-administered questionnaire. A sample of 51 community pharmacists, 52 nurses and 77 patients were studied in Mysore city. Posters and Pamphlets were used to create awareness. Results shows that 91% response rate was obtained. 44 (44.2%) of community pharmacists and nurses were familiar with the ADR reporting process. 53.8% of community pharmacists & 75% of nurses were aware of the seriousness of ADRs. As per the survey 51.94% of patients have experienced ADR in which 14.3% of them ignored the ADR. 11.7% of patients have reported ADR. 31.2% of community pharmacists have prevented possible ADRs by verifying whether the patient fall into high-risk groups for developing ADRs. The majority of community pharmacists in Mysore city lack in knowledge of the ADR reporting process. Reasons for not reporting ADRs most importantly included lack of awareness about the method of reporting, misconception that reporting ADRs is the duty of physician and hospital pharmacist and ADRs are common and can be ignored. Pharmacovigilance authorities should take necessary steps to create awareness regarding seriousness of ADR in the Community.*

**Keywords:** Pharmacovigilance, Cross sectional study, Adverse drug reaction, Awareness

## 1. Introduction

ADRs are the most common cause of morbidity, mortality and poor economic outcomes [1]. Therefore, post-marketing surveillance is very important for monitoring the risk and benefits of pharmaceutical products after they have been released on the market [2].

Traditionally, the role of the pharmacist was limited to the preparation and dispensing of drugs prescribed by the physician. Recently, the role of the pharmacist has expanded to other aspects of patient care. These roles include reporting ADRs, improving patients' health, and economic outcomes [3]-[4]. Pharmacists can play an important role in ADR reporting and pharmacovigilance by increasing the number as well as the quality of submitted report. However, in many countries the knowledge of pharmacists about pharmacovigilance and ADR reporting is poor and the rate of reporting is low [5].

A recent study reported lower awareness of the ADR reporting program and a poor reporting rate (13.2%). Barriers to ADR reporting identified by previous studies conducted by various researchers included, most commonly, a lack of knowledge about where and how to report ADRs, and

unavailability of ADR reporting forms [6].

Assessing the knowledge, behaviors and experiences of healthcare professionals relating to spontaneous reporting of ADRs is very important.

When healthcare professionals have adequate knowledge of the ADR process, they can improve knowledge of others as well about ADR reporting, importance of early detection and measures to be taken to prevent possible ADRs. Pharmacovigilance authorities should take necessary steps to urgently design interventional programs in order to increase the knowledge and awareness of pharmacists regarding the ADR reporting process [7].

## 2. Objectives

### 2.1 Primary objective

To assess the knowledge, behavior & experiences of community pharmacists, nurses, and public relating to adverse drug reaction (ADR) in Mysore city.

## 2.2 Secondary objective:

- 1) To create awareness regarding early detection of adverse drug reactions.
- 2) To create awareness regarding reporting of adverse drug reaction.
- 3) To assess whether the health care professionals (community pharmacist and nurses) and public have made an effort to prevent possible adverse drug reactions.
3. To assess the common ADR occurred.

## 4. Methodology

### 3.1 Study design and setting

This was a cross-sectional study conducted among a convenience sample of community pharmacists, nurses and public from Mysore city, Karnataka.

### 3.2 Sample design

**3.2.1 Sample size:** Sample size of 180.

**3.2.2 Sampling type:** Convenience non-probability sampling.

### 3.2.3 Inclusion criteria:

- 1) Participants-
  - a) Community pharmacists
  - b) Nurses & patients.
- 2) Language– English, Urdu, Kannada.
- 3) Geographical location–Mysore city.

### 3.2.4 Exclusion criteria:

- 1) Participants-
  - a) Pharmacist- hospital pharmacists & clinical pharmacist
  - b) physician. Dentist

### 3.3 Study tool

Two sets of questionnaires were prepared. One for health care professionals i.e., community pharmacists and nurses. The other was for general public.

### Questionnaire for health care professionals:

The questions were framed to study the experience of the participants regarding ADR, to understand the knowledge of the participant regarding importance of ADR reporting process and severity of ADR, to assess the most commonly encountered ADR, to understand the role of participants in management of ADR, to study the patient's behavior following an ADR experience, to assess the knowledge of community pharmacist regarding possible ADRs, to assess whether the patients are provided with counseling by the health care professionals regarding prevention of ADR, to understand the measures taken by the health care professionals in prevention of ADR.

For creating awareness, visual presentations on ADRs were

used. This included; WHO definition of the ADR, how to report the ADRs, risk factors of ADRs and the role of pharmacists in preventing and reporting of ADRs. ADR awareness posters were prepared and displayed in the prominent areas of community pharmacies where most of the customers could visualize. Firstly, the content of posters was explained to the community pharmacists and requested them to explain the same to their customers.

Along with posters, few pamphlets were prepared to explain the content effectively.

The content of the posters was such that:

- List of antibiotics (penicillin, ciprofloxacin, cefixime and cefuroxime axetil) with its common adverse effects (hypersensitivity, dermatitis and anaphylactic reactions), ADR reporting app and toll-free number.
- Awareness about Do's and Don'ts of commonly used drugs (Doxycycline, aspirin and chloramphenicol maleate).
- Information on adverse effects like (sedation, convulsions, falls, fracture and angioedema) of drugs (promethazine, pethidine, nitrazepam & enalapril) which are likely to appear in geriatric population.
- Information on ADRs like dystonia, grey baby syndrome, calcium precipitation in lungs & liver damage associated with metoclopramide, chloramphenicol & sodium valproate respectively observed in pediatric population.

### 3.4 Data collection and ethical consideration

Pharmacy students visited each pharmacy and invited community pharmacists to participate with their consent in the study after explaining the aims of the study. Participants were asked to answer the questionnaire offline based on their convenience. Survey responses were recorded in a goggle spread-sheet. Participants were informed that all information provided was completely confidential and the results would be presented anonymously.

### 3.5 Data analysis

Different categories were established, data was tabulated and statistical inference was drawn.

Descriptive statistics (frequency and percentage) were used to analyze the data with the aid of goggle forms.

## 5. Results

A total of 49.51% of Community Pharmacists, 50.48% of Nurses & 77.00% of general Public were included in the survey. The results for the following survey are described below.

**Table 1:** Distribution of people who have been taken a survey:

Survey	No. of people	Percentage
Community Pharmacists	51	49.51%
Nurses	52	50.48%
General Public	77	77.00%

**Question 01: Distribution of people who have been taken a survey (Community pharmacists and nurses)**

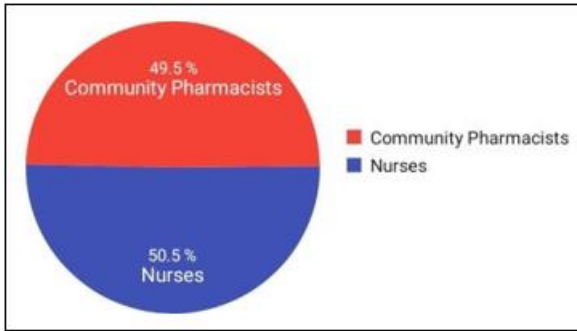


Figure 1

**Question 02: How often you have detected ADR in your patients?**

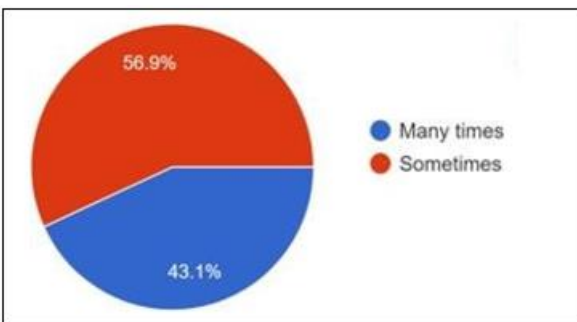


Figure 2 (a): Community Pharmacists

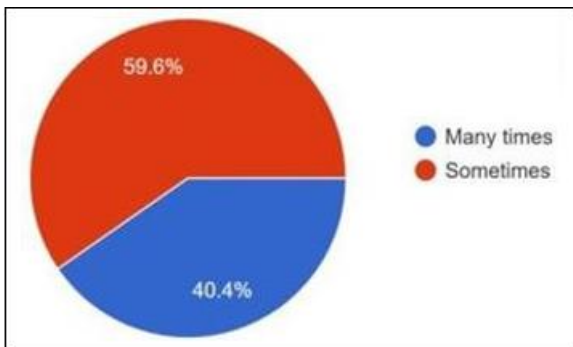


Figure 2 (b): Nurses

**Question 03: Are you familiar with ADR reporting system (forms, website, apps, and toll-free number)?**

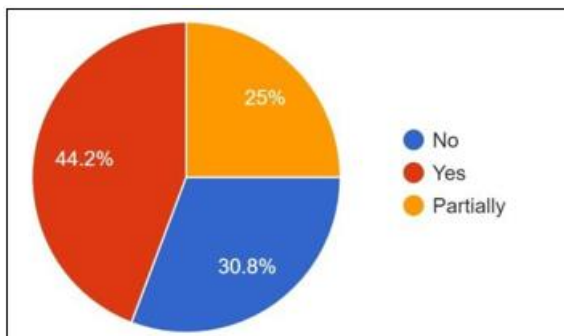


Figure 3 (a): Nurses

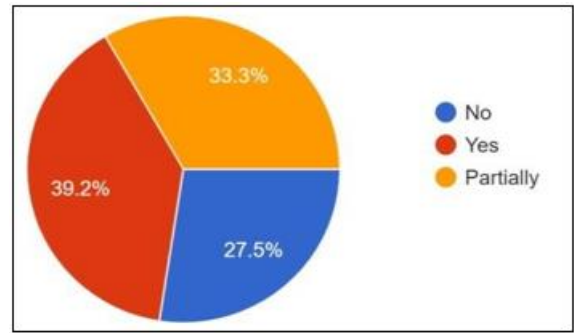


Figure 3 (b): Community Pharmacist

**Question 04: Have you ever reported ADR?**

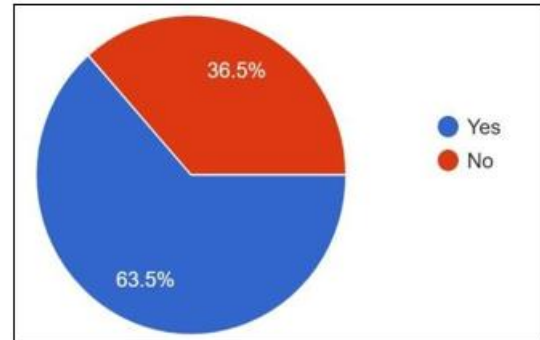


Figure 4 (a): Community Pharmacists

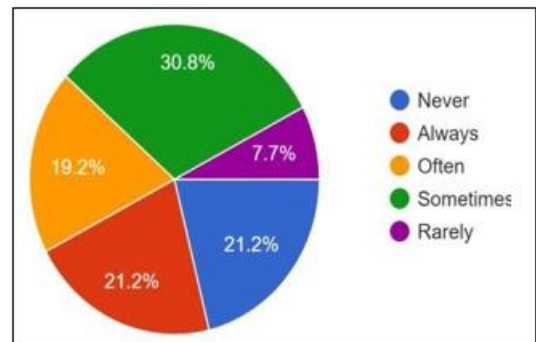


Figure 4 (b): Nurses

**Question 05: To whom did you report?**

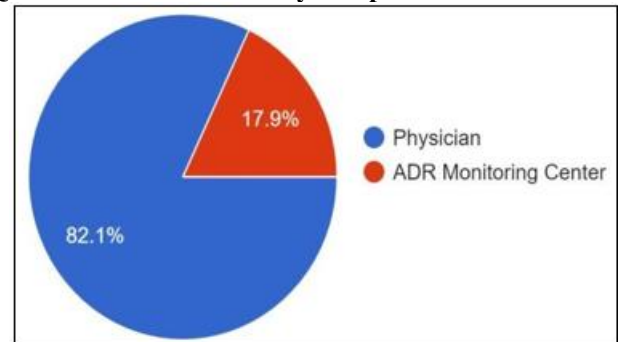


Figure 5 (a): Community Pharmacists

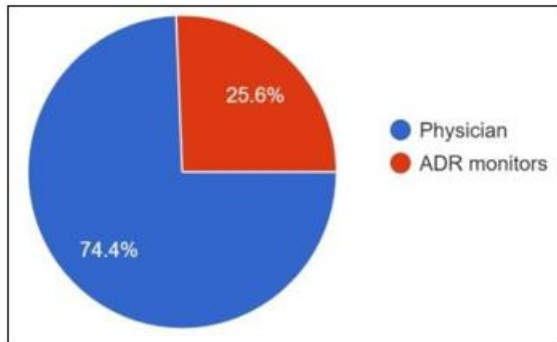


Figure 5 (b): Nurses

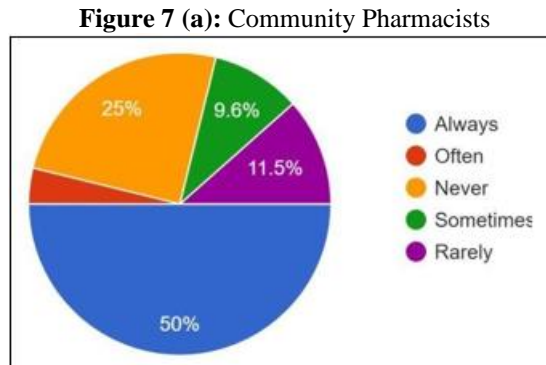


Figure 7 (a): Community Pharmacists

Figure 7 (b) Nurses

Question 06: How often your patients inform you if they are allergic to any medications?

Question 08: Can ADR lead to death of a patient?

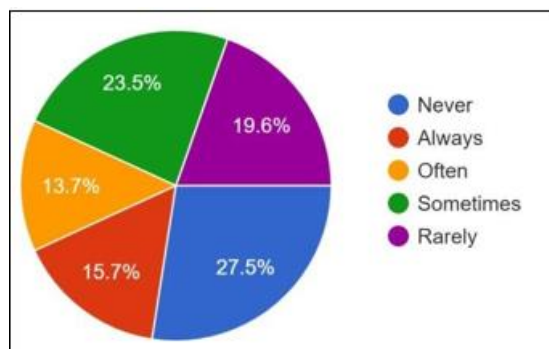


Figure 6 (a): Community Pharmacists

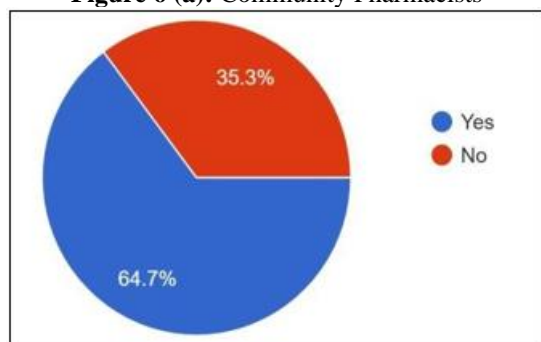
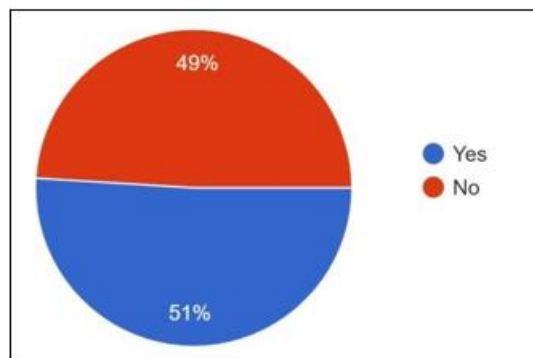


Figure 6 (b): Nurses

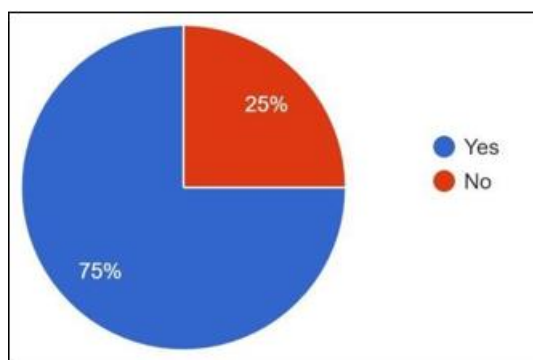
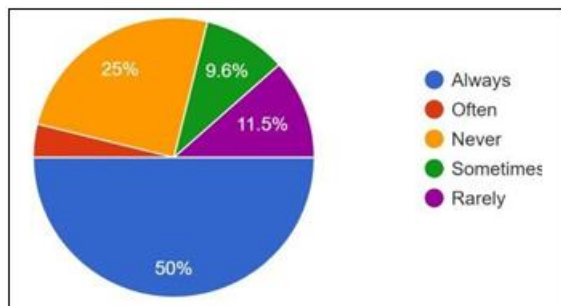


Figure 8 (b): Nurses

Question 07: How often a female patient tells you she is pregnant/lactating when dispensing nonprescription medications?

**Survey Results General Public:**

Questions which have been asked to **General Public** in online forms (**Google forms**) & they are represented by the following graphs/pie chart which is given below.



Question 09: Have you or your family member ever come across any adverse drug reaction?



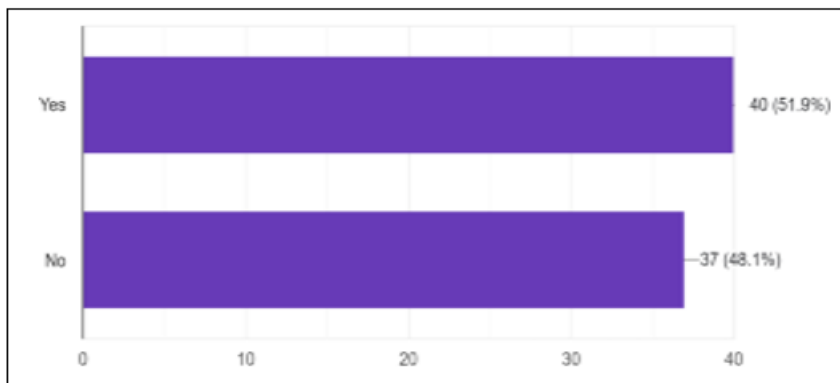


Figure 9

Question 10: If yes, what was your next step?

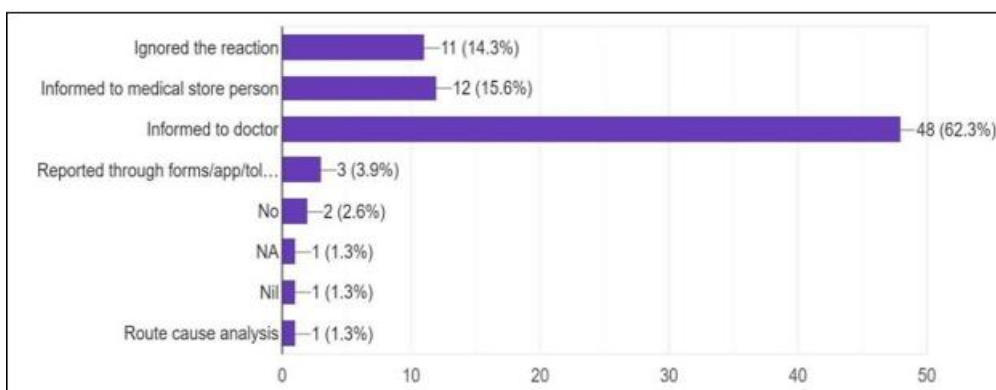


Figure 10

Question 11: If you had informed to community Pharmacists, what he/she advised you to do?

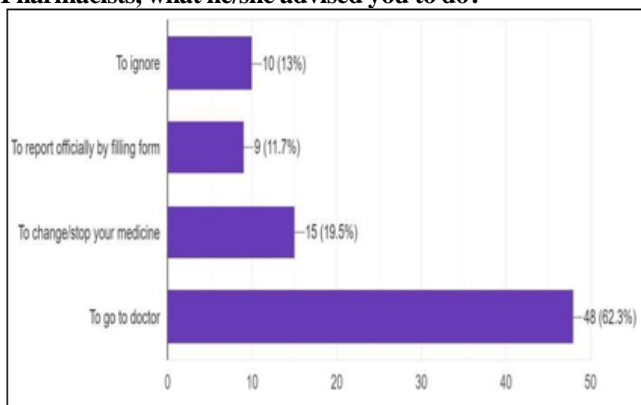


Figure 11

Question 13: Does your doctor and medical store person inform you about the possible adverse effect you may face due to the given medication?

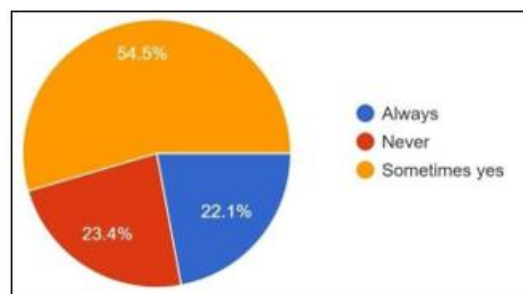


Figure 13

Question 12: If you had informed to your doctor, did he/she made you report through ADR reporting forms?

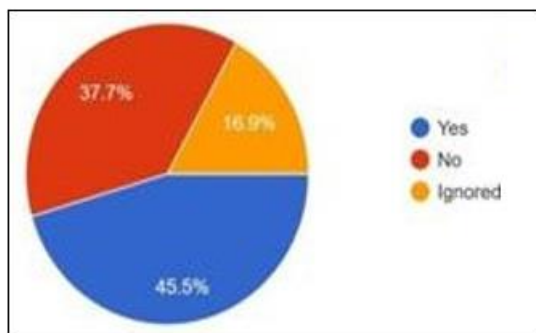


Figure 12

Question 14: Do your community pharmacists inform you when/ how to use medicines?

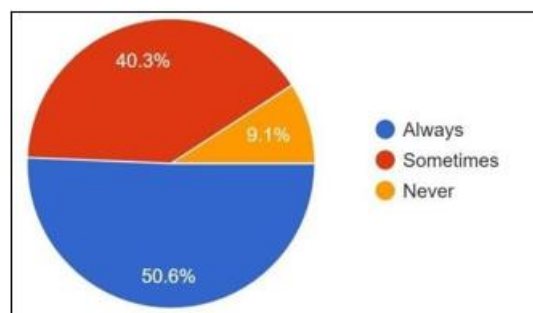
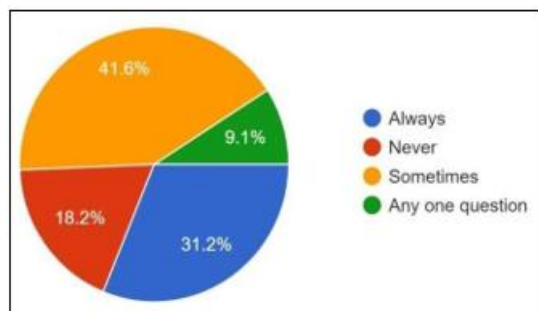


Figure 14

**Question 15: Does your community pharmacist ask you following things before giving you medicine/ E.g. Are you pregnant/ is this for any pregnant lady, for any elderly person above 60 years, do you have any other illness?**



**Figure 15**

As per our survey 28.8% patients do not provide essential details such as their allergic tendency, pregnancy/lactating status when purchasing OTC drugs, which increase the risk of developing ADRs.

## 6. Limitations of the Study

- 1) The study is limited to one geographical area, Mysore city.
- 2) Convenience sampling was done which can lead to population interference, less reliable.
- 3) Consent was taken orally not in writing.
- 4) Only popular drugs & their ADR were targeted.
- 5) Posters were displayed only on community pharmacies.
- 6) Only two statistical measures were used i.e., frequency and percentage.

## 7. Future Directions

- 1) It would be suggested for future research using an alternate sampling method in order to get more reliable information.
- 2) Applying the same study on a larger sample, over a greater geographical scope.
- 3) Cross-country comparisons in the Asia.

More posters and other visual presentation could be used to acknowledge the causes of ADR such as drug interactions, irrational use of medication, drug dosing etc.

## 8. Discussion

Majority of the ADR were reported to the physician. Reasons for not reporting ADRs to AMC includes:

Lack of awareness about the method of reporting, misconception that reporting ADRs is the duty of physician and hospital pharmacist and ADRs are simple and should not be reported. The most common approach perceived by community pharmacists & Nurses for managing patients suffering from ADRs was to refer him/her to a physician (38.5%).

- 1) Posters could be displayed in clinics, waiting room areas, hospitals, streets etc.
- 2) Number of statistical inferences can be included such as mean deviation, standard deviation.

- 3) Similar studies can be performed by framing Null hypothesis and testing it and determining the level of significance.

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## Author Profile



**Dr. Sarah Ateeq**, completed her Pharm D from Rajiv Gandhi University of health sciences and PGDip in Medicine and Poison information from JSS Academy of Higher Education and Research for which she received the gold medal. She worked as a clinical pharmacist in Apollo Hospital for a period of 6 months and during the pandemic, she worked as a medical officer at a Covid Care Center. Presently she is working as an assistant professor at Farooqia College of Pharmacy.



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