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ASSESSMENT OF KNOWLEDGE ABOUT ADVERSE DRUG REACTION AMONG PHARMACY STUDENTS

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ABSTRACT
The objective was to assess the knowledge about adverse drug reactions among the pharmacy students of several colleges in Tamil Nadu. A cross sectional study was carried out among 150 students in various districts between June -July 2022 by using Google form containing MCQ type questionnaire. The students score was recognized as good and poor. The descriptive statistics were calculated using Microsoft word 2013. 150 students responded to that questionnaire and their about ADR was assessed. Despite of relatively better attitude towards pharmacovigilance and ADR, they had a limited knowledge regarding ADR and Pharmacovigilance. The study findings highlight the need to strengthen the community pharmacovigilance program for safer medications use at the community level. **Aim and Objective:** The main objective of the present work is to assess the knowledge about Adverse Drug Reactions among the pharmacy students in Tamil Nadu.

KEYWORDS: Adverse drug reaction, Pharmacovigilance, Knowledge Assessment, Pharmacy Students, Cross-sectional study.

INTRODUCTION
- We define an Adverse Drug Reaction as "an appreciably harmful or unpleasant reaction, resulting from an intervention related to the use of a medicinal product, which predicts hazards from future administration and warrants prevention or specific treatment, or alteration of the dosage regimen, or withdraw of the product".[1]
- ADRs are considered a major cause of patient's morbidity, mortality, hospital admissions as well as increasing length of hospitalization and cost of treatment.[2]
- It affects irrespective of the age group of patients worldwide with varying magnitude of causing morbidity and mortality.[2]
- Adverse Drug Reactions are unintended and undesired effects of drugs used for prevention, diagnosis, or treatment of disease.[3]
- ADRs are reported to be the 46th leading cause of death in the United States of America.[4]
- Adverse Drug effects are more commonly recorded in elderly clients than in young adults or middle age clients, because the geriatric population takes more drugs simultaneously than other age groups.[5]
- More than 60% of the adverse drug events were caused by drug- drug interactions. Of these, more than 46% were considered "preventable" because the drug-drug interaction was known.[5]
- A study from South India revealed that 0.7% of hospital admissions were due to ADRs and a total of 3.7% hospitalized patients experienced ADRs of which death accounts for 1.3%.[6]

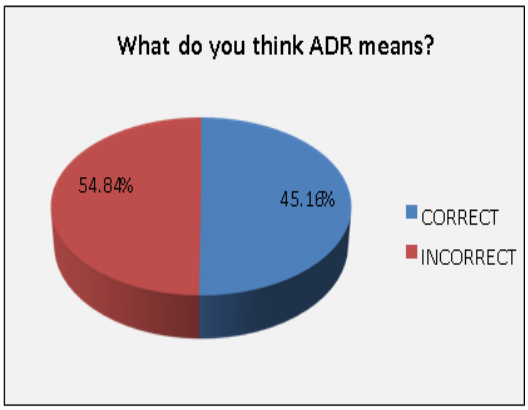
METHODS
The cross-sectional study was conducted over a period of one month (June-July) of 2022 among pharmacy students from nearly 10 pharmacy colleges in Tamil Nadu. The sample size is about 150 students in Third year and Final year B. Pharm. A semi structured questionnaire was adopted from previous studies with minor changes to suit the study population and the questionnaire was validated by the faculties of SS Institute of Pharmacy, Sankari.[7-11] It consists of 18 questions related to ADR, Pharmacovigilance, PVPI, and CDSCO. Out of 18 questions, 10 questions were multiple choice questions and 08 questions were yes/no type questions. The questionnaire was distributed over pharmacy students through Google form, all the questions were compulsory, restrictions were set, and only one response can be submitted by an individual student. Each correct answer and each positive response were given a score of 1 whereas the negative response or wrong responses were

given a score of 0. The maximum score was 18. The responses were collected and the data were analyzed in a statistical manner.

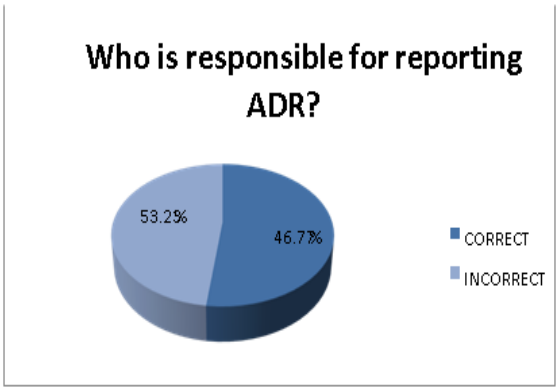
RESULTS

Totally 150 responses were received through google form. Among 18 questions, 10 questions were set related to assess the knowledge about ADR and they are MCQ type questions and the left 8 questions were set related to what they know about ADR and these are yes or no type questions.

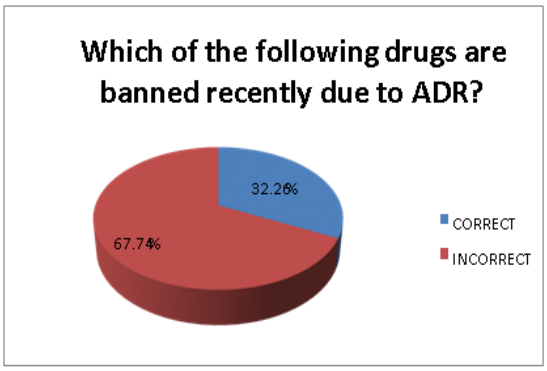
1. An idea about ADR, out of 150 responses 45.16% students were answered correctly and remaining were answered incorrectly. It indicates most of the students didn't have enough knowledge about the definition of ADR.



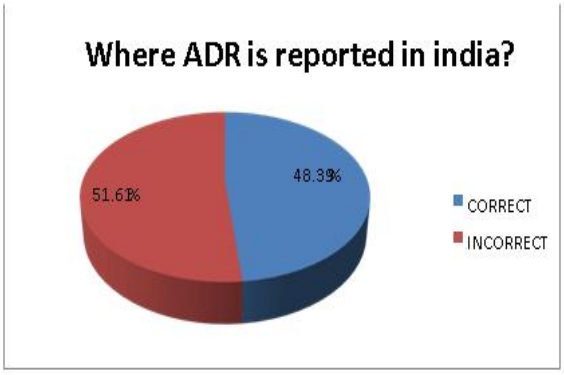
2. Responsible person for reporting ADR, out of 150 responses 53.23% students answered correctly and remaining were answered incorrectly. It indicates most of the students didn't have enough knowledge about responsible person for reporting ADR.



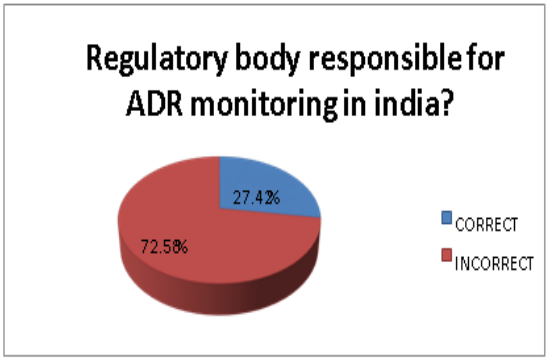
3. Some of the drugs are banned recently due to ADR, the question was raised, among out of 150 responses 32.26% were answered correctly and remaining were answered incorrectly. That means it indicates most of them didn't have the enough knowledge of recently banned drugs due to ADR.



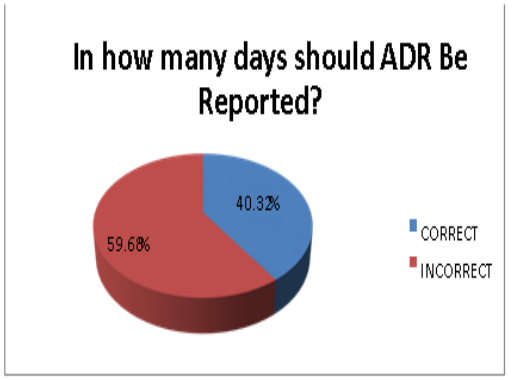
4. ADR reporting center in India, out 150 responses 48.39% answered correctly and remaining were answered incorrectly. It indicates most of them were answered incorrectly so they need the knowledge about ADR reporting.



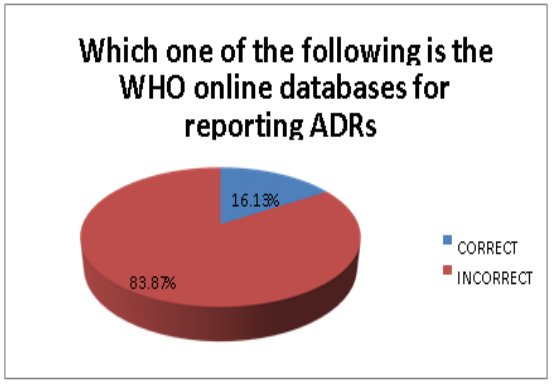
5. Regulatory body responsible for ADR monitoring in India, out of 150 responses 27.42% of them answered correctly and remaining people were answered incorrectly.



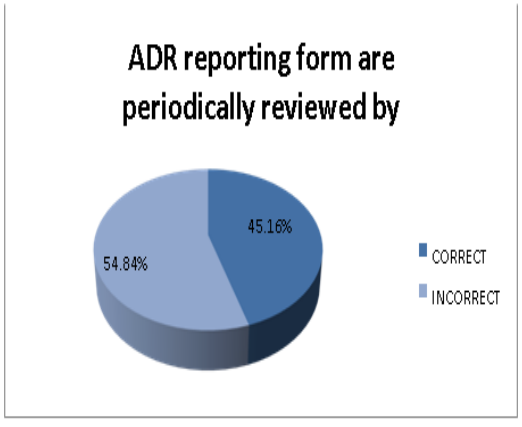
6. Time duration for ADR reporting, Out of 150 responses 40.32% was answered correctly and remaining were answered incorrectly. It indicates they didn't have the enough knowledge about time duration for ADR reporting



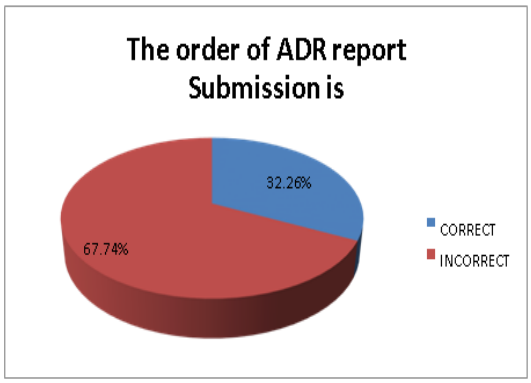
7. WHO online database for reporting ADR. Out of 150 responses 16.13% of them knew the online databases. It indicates majority % of them answered incorrectly.



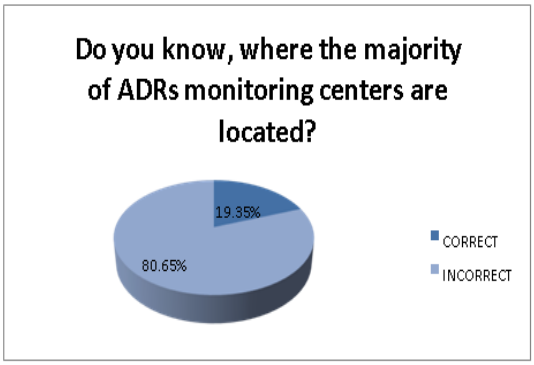
8. ADR reporting form are periodically reviewed by, out of 150 responses 45.16% were answered correctly and remaining of them were answered incorrectly.



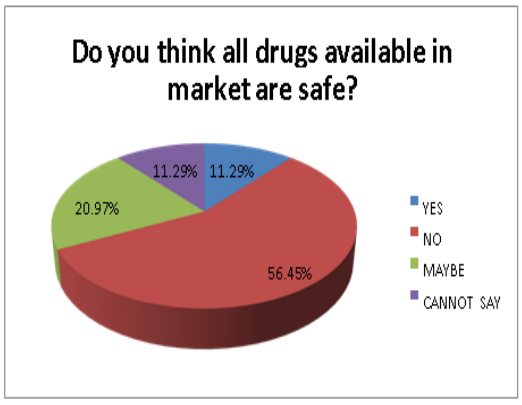
9. The order of ADR report submission, out of 150 responses 32.26% were answered correctly and remaining most of them were answered incorrectly. It indicates they have very poor knowledge about the ADR submission.



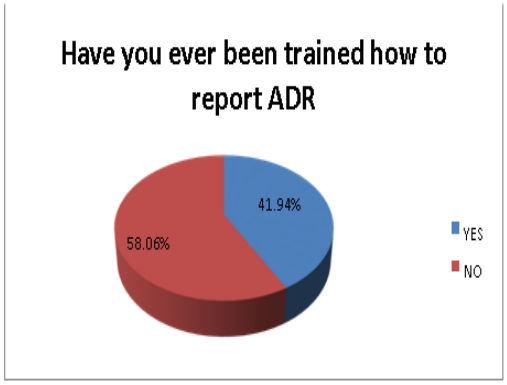
10. The questionnaire was where the majority of ADRs monitoring centers are located. Out of 150 responses 19.35% were know where the majority of ADRs monitoring centers are located. And remaining were answered incorrectly. It indicates they have very poor knowledge about where the monitoring center was located.



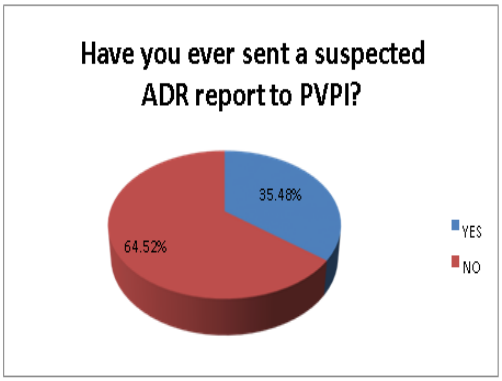
11. An idea about drugs available in market are safe or not, Out of 150 responses 11.29% of them answered yes and some of them answered "can't say" (11.29%) and majority answered no (56.45%) and some of them answered may be safer.



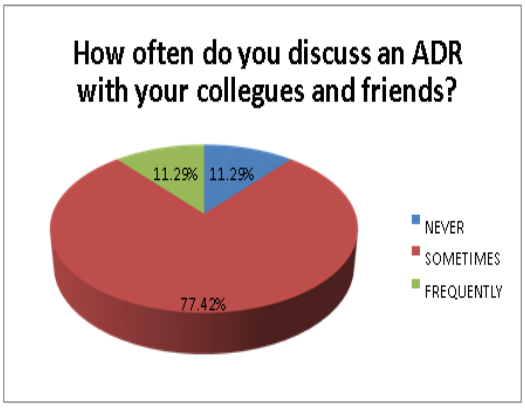
12. Have you ever been trained how to report ADR? Out of 150 responses 41.94% were answered yes and 58.06% were answered no. That means it indicates they need to gain the knowledge about ADR reporting.



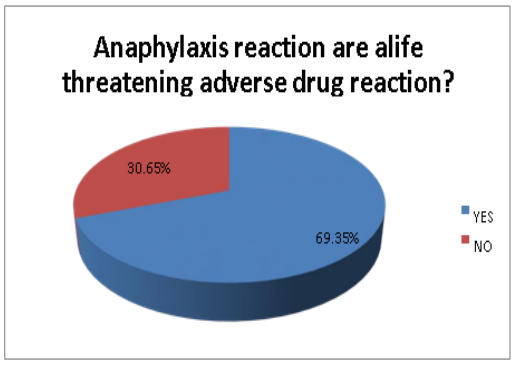
13. Have you ever sent a suspected ADR report to PVPI? Out of 150 responses 35.48% were answered yes and 64.52% were answered no.



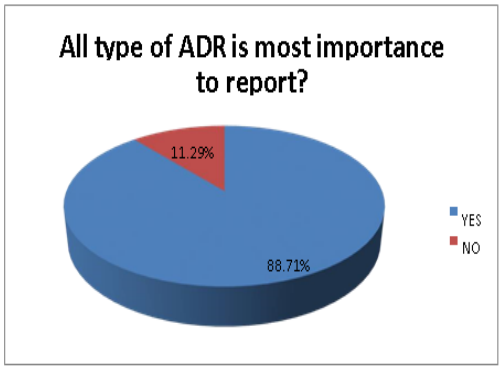
14. How often do you discuss an ADR with your colleagues and friends? Out of 150 responses 77.42% were answered sometimes and 11.29% were answered never and 11.29% were answered frequently. It indicates most of them are discussing sometimes about ADR with friends and colleagues.



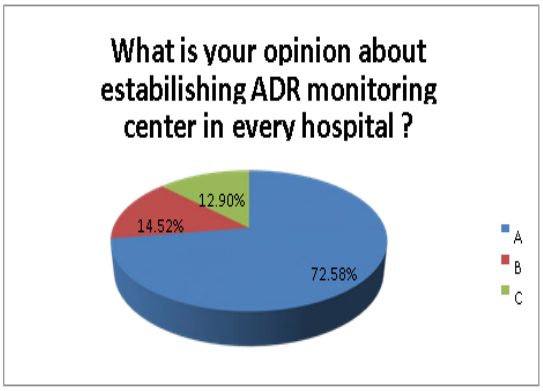
15. Anaphylactic reaction is a life-threatening adverse drug reaction, Out of 150 responses 69.35% were answered yes and 30.65% were answered no.



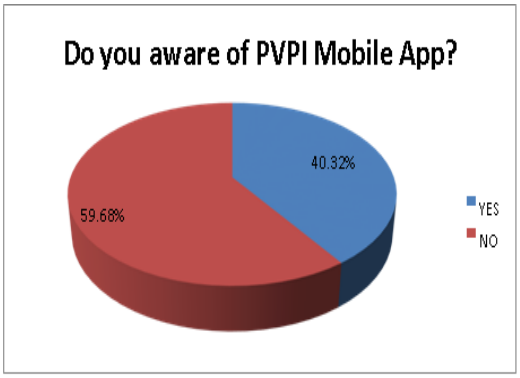
16. All type of ADR is most important to report. Out of 150 responses 88.71% were answered yes and 11.29% were answered no. It indicates most of them answered "all type of ADR is most important to report".



17. The opinion about establishing ADR monitoring center in every hospital? Out of 150 responses 72.58% of students said, "there should be ADR monitoring in every hospital" and 14.52% -one in a city is sufficient and 12.90%- not necessary in every hospital.



18. Awareness about PVPI mobile app, Out of 150 responses 40.32% were answered yes and 59.68% were answered no. It indicates most of the students didn't know about the PVPI mobile app, Therefore awareness should be spread accordingly.

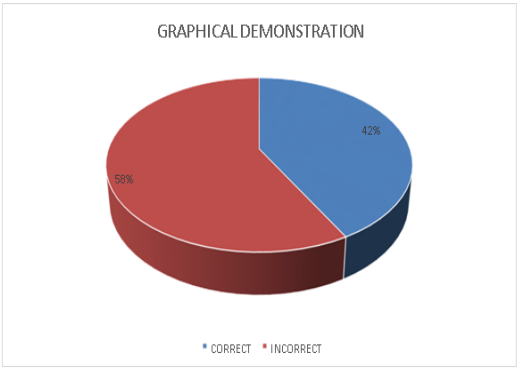


- Total 150 responses were received through Google form. Among 18 questions, 10 questions were MCQ type.
- From those 150 responses, 37 of them answered correctly and the majority 63 of them answered incorrectly. ❖ i.e. averagely
- Even though the correct answers were given to direct and simple questions, Maximum correct answers were given to
- Apart from

OVERALL RESULT

S. NO.	Questions	Correct/ Yes	Incorrect/ No
1.	What do you think ADR means	45.16%	54.84%
2.	Who is responsible for reporting ADR?	46.77%	53.23%
3.	Which one of the following drugs are banned recently due to ADR?	32.26%	67.74%
4.	Where the ADR is reported in India?	48.39%	51.61%
5.	Regulatory body responsible for ADR monitoring in India	27.42%	72.58%
6.	In how many days should ADR be reported	40.32%	59.68%
7.	Which one of the following is the WHO online database for reporting ADR's	16.13%	83.87%
8.	ADR reporting form are periodically received by	45.16%	54.84%
9.	The order of ADR report submission is	32.26%	67.74%
10.	Do you know, where the majority of ADR's monitoring centers are located	19.35%	80.65%
11.	Do you think all drugs available in market are safe	Yes- 11.29%	Maybe-20.97%
		No- 56.45%	Can't say-11.29%
12.	Have you ever been trained on how to report ADR?	41.94%	58.06%
13.	Have you ever sent suspected ADR report to PVPI?	35.48%	64.52%
14.	How often do you discuss an ADR with your colleagues and friends	Never-11.29%	Sometimes-11.29%
		Frequently-	---
15.	Anaphylactic reactions are a life threatening adverse drug reaction	69.35%	30.65%
16.	All type of ADR is most important to report	88.71%	11.29%
17.	What is your opinion about establishing ADR monitoring center in every hospital	Every hospital-72.58%	Not necessary-12.90%
		One-14.52%	---
18.	Do you aware PVPI mobile app	40.32%	59.68%

From the above details we come to conclusion that 42% of the students have enough knowledge and the majority 58% of the students have poor knowledge about the adverse drug reaction.



DISCUSSION

We define an Adverse Drug Reaction as "an appreciably harmful or unpleasant reaction, resulting from an intervention related to the use of a medicinal product, which predicts hazards from future administration and warrants prevention or specific treatment, or alteration of the dosage regimen, or withdraw of the product". ADRs are considered a major cause of patient's morbidity, mortality, hospital admissions as well as increasing length of hospitalization and cost of treatment. Pharmacovigilance detects, assess, understands and prevents adverse drug effects or any other drug related problems. Its aim was to ensure patients safety and rational use of medicines once a new medicine was released for general use in the patients. The present study was a questionnaire-based study which includes pharmacy students. Some of the students have only a basic knowledge about the term ADR, Some of them knew definition of ADR and similar related findings. Most of them were unware. Pharmacovigilance Programme of India (PVPI), and Central Drug Standard Control Organization (CDSCO). Most of them unaware of toll-free number of PVPI and most of them don't have the enough knowledge in reporting ADR via, **1.** Calling toll-free number **2.** Through filling yellow form **3.** PVPI App

CONCLUSION

The present study concludes that pharmacy students had poor knowledge about pharmacovigilance and ADRs reporting. The finding suggests the urgent need of frequent education programmes or trainings to raise awareness towards pharmacovigilance and ADRs. Pharmacovigilance authorities should take necessary steps to design interventional programs in order to increase the knowledge and awareness of pharmacist regarding ADR reporting process. The findings of our study suggest there is scope for improving the ongoing pharmacovigilance activities in Tamil Nadu through continuing education program and trainings. And the government should take necessary actions to improve the field of pharmacovigilance by appointing more than one pharmacovigilance centre in each district. By doing these ADRs can be continuously monitored and eradicated, this leads to minimizing of death rate due to ADRs.

This study shows that the pharmacists don't have enough knowledge about the adverse drug reaction.

If the pharmacist himself/herself don't have enough knowledge about ADR, then how a common man/woman will have the knowledge about adverse drug reaction? On leaving this question the study was concluded.

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