



Assessment on Safe Use of Medication and Public Perspective about Clinical Pharmacist among Healthcare and Non Health Care Personnel

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ABSTRACT

BACKGROUND: Clinical Pharmacy services promote patient care and also helps in optimization of medication therapy. Now Clinical Pharmacy practices were emerged and it has been recognised in multidisciplinary setup in Health care system. The main aim was to assess the knowledge attitude and practice on safe use of medication and public perception about clinical pharmacy practice role in Indian Health care settings among health care and non health care personnel.

MATERIALS AND METHODOLOGY : The Observational cross sectional study was conducted through Google form among 215 participant for a period of 6 months.The Questionnaire consists of Demographic details, Knowledge, Attitude, Practice and Perspective about Clinical Pharmacy practice role.Statistical package instat, was used for analysing the data and descriptive statistics and unpaired t test were performed to determine association between KAP on safe use of medication among Health care personnel and Non Health care personnel. **RESULTS:** Among 215 Participants, Only 15 % of health care and 46% of non health care personnel have poor knowledge , 10.5 % of healthcare and 22.5 % of non healthcare personnel have low attitude and 8.5% of healthcare and 11 % of non healthcare personnels have poor practice on safe use of medicines. Among 215 study participants, in which 79.07% of Health care and 27.13% of Non-Health care personnel have heard about 'Clinical Pharmacist' Profession. Majority of Non-Health care Personnel (82.95%) don't know the differences between Clinical Pharmacist and Hospital Pharmacist. **CONCLUSION:** The present study concludes that Health care personnel have Good knowledge and High attitude on safe use of medication than Non Health care personnel and

also some misconceptions were observed in both groups regarding medication use. Majority of non healthcare personnels were unaware of the existence and role of Clinical Pharmacy services in Health care.

Key words: Clinical Pharmacy, Health care personnel, Non Health care personnel, Observational study, Misconception.

I. INTRODUCTION:

The ultimate goal of medication use is to minimize the patient risk and achieve therapeutic outcome along with improved quality of life of the patient. The rational use of medication involves the use of right drug with right dose according to their own individual requirement, at low cost to the community and that should be appropriate to their clinical needs.(1) Some of the medication error results into morbidity and mortality and remain undetected and also increases the hospital stay that leads to inappropriate medication use. With the help of clinical pharmacist and other health care professional, medication errors can be prevented(2) WHO reported that more than 50% of all medicines were inappropriately prescribed and dispensed and 50% of patients were taking medicines incorrectly around worldwide.

In our country irrational use of drugs have several reasons, they are:

- Lack of Information: In India, we don't have proper facilities regarding currently used drugs with up to date information. Majority of practitioners depends on Medical representatives.
- Inadequate training of medical graduates: Lack of proper clinical training regarding writing a prescription during training period, dependency on diagnostic aid, rather than clinical diagnosis, is increasing day by day in doctors.

- Poor communication Between patient and Health care Professionals: Healthcare Professionals providing less information about the use of drugs and Patients also have Hesitant to ask basic information of use of drugs to the Health care professionals.

- Demand from the patient: To satisfy the patient expectations and demand of quick relief, clinicians prescribe drugs for every single complaint. Also, there is a belief that “every ill has a pill” All these increase the tendency of poly pharmacy.

- Defective drug supply system and ineffective drug regulation, leads to irrational use of drugs.

- Promotional activities of pharmaceutical industries: The lucrative promotional programme of the various pharmaceutical industries influence the drug prescribing.(3)The strategy to improve recovery and avoid any harmful damage to health is mainly achieved by accurate patients knowledge about the medication prescribed at emergency discharge.(4)

Clinical pharmacists care for patients in all health care settings. They possess in-depth knowledge of medications that is integrated with a foundational understanding of the biomedical, pharmaceutical, socio behavioral, and clinical sciences. To achieve desired therapeutic goals, the clinical pharmacist applies evidence-based therapeutic guidelines, evolving sciences, emerging technologies, and relevant legal, ethical, social, cultural, economic, and professional principles. They routinely provide medication therapy evaluations and recommendations to patients and health care professionals.(5)

Role of Clinical Pharmacist:

- Provision of drug and poison information
- Medication history interview
- Clinical review
- Patient counselling
- Ward round participation
- Adverse drug reaction monitoring
- Community pharmacy
- Role of clinical pharmacists in research

Additional duties of Clinical Pharmacist

- Medical writing
- Medical coding
- Medical billing
- Medical transcription
- Pharmacovigilance
- Clinical research and drug development

In government sector and nongovernmental organizations, CPs may have a role in policy framing, drug/poison information

centers, health camps, awareness programs, pharmacovigilance center, patient counseling center, etc.(6)Clinical pharmacy services were started in 1997 in India, 5 in contrast to United States where the services were started in early 1960s. However 15 years have been passed out after the introduction of clinical pharmacy in India, but still the involvement of clinical pharmacist in the health care team is negligible compared to the developed countries like United States, Australia etc. where the role of clinical pharmacist is being actively performed and accepted by all the health care professionals. Clinical pharmacy practice in the hospital settings, as seen in other countries, can improve the drug use process by promoting the quality and safe use of medicines thereby improving overall health care of the patients in India.(7)Clinical pharmacy is practiced in many countries and makes a significant contribution to improved drug therapy and patient care. India is a country with significant problems with medication use, but until recently Indian pharmacists have not been educated for a patient care role. Postgraduate pharmacy practice programs have been established at two pharmacy colleges in South India as a result of a joint Indo Australian program of Co-operation.(8)

II. MATERIALS AND METHODS:

The Cross sectional study was conducted through Online Google forms for a period of 6 months and In this study, 215 Participants were enrolled and data collection done through Online Google forms. Age above 18 and all gender were included in our study.

Data Collection :

- The data was collected by a Specially prepared Questionnaire and The Questionnaire were translated into Tamil language.

- The questionnaire was converted to Google forms.

- The Questionnaires were validated around 10 clinical pharmacist through Google forms and around 10 Non Health care Personnel by direct interview, according to their responses, a fewer modification were made to the particular set of Questions, in such a way that the General Population will be able to easily understand.

- The validated Questionnaires was distributed through electronically via link or e-mail.

- The Questionnaire consists of 5 sections.
- This Knowledge section consists of Six questions, in which Responses to these Questions were recorded as "Yes or No". For Yes, given score =1 and No =0 point, with Total Knowledge score ranging between 0-6 points.
- If their scores were Greater than 3 (>3), it is considered as Good Knowledge and Less than or equal to 3 (≤3) considered as Poor Knowledge.
- In Attitude Section, it consists of Five Questions. Attitude on Safe use of medication were assessed by using "LIKERT SCALE" responses with 4 points for each question.
- Options were Strongly disagree, Disagree, Sometimes agree, Agree (4,3,2 and 1) scores were given for one to four Questions and reverse scoring was given only for fifth Question. Total scoring was 20, in that Greater than or equal to 15(≥15) considered as High attitude, 11-15 considered as medium attitude and less than or equal to 10 (≤10) considered as Low attitude.
- In Practice section, it consists of six Questions. Practice on Safe use of medication were assessed by "LIKERT SCALE" responses with three points for each question.
- Options were Always, Sometimes and never (3, 2 and 1) scores were given for one to five questions and reverse scoring was given for sixth question.

Total scoring ranges between 12, in that greater than 6 considered as Good practice and less than or equal to 6 considered as Poor practice.

Data Analysis:

The Data was analyzed by using Statistical package Instat. Descriptive statistics and Unpaired t- test were performed to determine the association between KAP on safe use of medication among Health care personnel and Non Health care personnel.

III. RESULTS:

Demographic Characteristics:

A total of 215 members were participated in this study. Among 215 participants, 34.88% (n=75) were male and 65.11%(n=140) were female. 53.02% of the participants were educated upto Undergraduate (n=114) , 31.61% were educated up to Postgraduate (n=67) and 15.81% were educated below or upto Higher secondary (n= 34). 8.83% of the participants were Health care professionals (n=19), 31.16% of the participants were Medical or paramedical students and 60% (129) were Others Professionals and students. 25.58% of the participants were suffering from Chronic illness (n=55).

Table 1:Age wise distribution

AGE (years)	FREQUENCY(N= 215)	PERCENTAGE (%)
18-28	146	67.90%
29-38	14	6.51%
39-48	28	13.02%
49-58	17	7.90%
59-68	4	1.86%
> 69	6	2.79%

Table 1: shows that among 215 participants 146 (67.90%) were between the age of 18-28 and 6 (2.79%) least participants were above the age group of 69.

Table 2 : Profession wise distribution

PROFESSION	FREQUENCY(N=215)	PERCENTAGE(%)
Health care professionals	19	8.83%
Medical /paramedical student	67	31.16%
Non Health care personnel	129	60%

Among 215 participants, 19 (8.83%) were healthcare professionals, 67 (31.16%) were medical/paramedical students, 129 (60.0%) were Non health care personnel.

Knowledge

Table 3: Knowledge on safe use of medication among Health care personnel and Non Health care personnel

QUESTION	HEALTH CARE PERSONNEL		NON-HEALTH CARE PERSONNEL		P value
	n=86(Yes)	M±SD	n=129(Yes)	M±SD	
1.Can you recall the name of your currently taken/from last used prescription medication?	59 (68.60%)	0.68±0.46	55 (42.64%)	0.42±0.22	0.0002*
2.Do you know the purpose for which the medicine is given to you?	80 (93.02%)	0.93±0.25	107 (82.95%)	0.82±0.37	0.0316*
3.Do you know when you should take your medication?	80 (93.02%)	0.93±0.25	118 (91.47%)	0.91±0.28	0.6815
4.do you have any idea that the food you can take can also interact with your medicine?	65 (75.58%)	0.75±0.43	44 (34.11%)	0.34±0.47	<0.0001*
5. Do you know how many days you have to take your medication?	72 (83.72%)	0.83±0.37	90 (69.77%)	0.69±0.46	0.0200*
6. Are you aware of any side effects of your medication?	62 (72.09%)	0.72±0.45	55 (42.64%)	0.42±0.22	<0.0001*

NOTE: Statistically significant values were shown as *(P-value < 0.05)

- From the total study participants(N=215), there is a significant difference between Healthcare and Non-Health care Personnel regarding recalling the name of their medication for (**P= 0.0002***), in which 68.60% of Health care Personnel and 42.64% of Non-Health care Personnel can able to recall their medication.

- From the study participants (N=215), about 109(50%) study participants know about the food drug interaction and also there is a significant difference were identified between (75.58%)Health

care and (34.11%)Non-Health care Personnel (**P=<0.0001***).

- From the study participants (N=215), about 83.72% of Health care and 69.77% of Non-Health care Personnel know about their course of duration of medication and there is a significant difference were identified between Health care and Non health care Personnel(**P= 0.0200***).

- A total of 215 participants, there is a statistically significant difference were identified between Health care and Non-Health care Personnel (**P=0.0001***), in which 72.09% of Health care and 42.64% of Non-Health care Personnel were aware of side effects of their medication.

Attitude

Table 4: Attitude on safe use of medication among Health care personnel and Non Health care personnel

QUESTION	HEALTH CARE PERSONNEL		NON-HEALTH CARE PERSONNEL		P VALUE
	n=86	M±SD	n=129	M±SD	
1.The Same medication can be taken without any consultation, if the symptoms reoccur.	54 (62.79%)	2.80±1.10	55 (42.63%)	2.33±1.01	0.0016
2. Missed dose can be taken anytime whenever you remember.	66 (76.74%)	2.62±0.92	74 (57.36%)	3.11±1.02	0.0003
3. Increasing the dose of your medicine can relieve the symptoms soon.	56 (65.11%)	2.55±0.99	69 (53.48%)	2.80±1.03	0.076
4. If the symptoms get resolved or cured, then your medication can be stopped without following the course of duration.	65 (75.58%)	2.51±1.02	70 (54.26%)	2.98±1.02	0.0012
5. Long term use of medication can cause side effects or any other complications.	76 (88.37%)	3.41±0.77	110 (85.27%)	3.59±0.78	0.1105

NOTE: Statistically significant values were shown in Bold (P-value<0.05)

- A total of 215 study participants, in which 62.79% of Health care and 42.63% of Non-Health care Personnel were disagreed that use of self-medication if the symptoms reoccur. There is a significant difference were identified between Health care and Non-Health Personnel (**P=0.0016**).
- From the 215 study participants, there is a significant difference were identified among Health care and Non-Health care Personnel (**P=0.0003**), in

which 76.74% of Health care and 57.36% of Non-health care Personnel disagreed that missed dose can be taken any time.

- There is a Statistically significant difference were identified between Health care and Non-Health care Personnel (**P =0.0012**). Among 215 Participants, 75.58% of Health care and 54.26% of Non-Health care Personnel were disagreed that medication can be stopped if the symptoms get cured without following the duration of mediation.

Practice

Table 5:Practice on safe use of medication among Health care personnel and Non Health care personnel

QUESTIONS	HEALTH CARE PERSONNEL		NON HEALTH CARE PERSONNEL		P VALUE
	n=86	M±SD	n=129	M±SD	
1.Will you take the medicines regularly as per the prescription?	67 (77.91%)	2.74±0.51	81 (62.79%)	2.61±0.52	0.0686

2. Will you prefer a different brand of your medicine, if your brand is not available in nearby pharmacy?	21 (24.42%)	2.08±0.63	20 (15.50%)	1.86±0.65	0.015
3. Will you inform your past medication history to the doctor while consulting him?	62 (72.09%)	2.65±0.60	98 (75.97%)	2.73±0.49	0.2597
4. If you have any allergies will you inform that to your Doctor?	69 (80.23%)	2.75±0.53	102 (79.06%)	2.69±0.63	0.48
5. Will you ask any doubts about your medication while consulting the Doctor?	45 (52.33%)	2.44±0.64	81 (62.79%)	2.49±0.71	0.572
6. Will you take any medicines according to the suggestions of your friend or relatives?	56 (65.12%)	2.54±0.68	61 (47.29%)	2.35±0.68	0.046

NOTE: Statistically significant values were shown in Bold (P-value<0.05)

- A total of 215 study participants, in which 24.42% of Health care and 15.50% of Non-Health care Personnel were willing to take different brand of medication. There is a significance difference identified among Healthcare and Non-Health care Personnel(**P=0.015**).

- From the study participants (215), in which 65.12% of Health care and 47.29% of Non-Health care Personnel reported that they aren't taking medications according to the suggestions of their friends and relatives. There is a significant difference were identified among Health care and Non-Health care Personnel(**P=0.046**).

Table 6: Perspective about clinical pharmacist among Health care personnel and Non Health care personnel

QUESTIONS	HEALTH CARE PERSONNEL (n=86)		NON-HEALTH CARE PERSONNEL (n=129)	
	Yes	No	Yes	No

1. Do you know who a clinical pharmacist is?	68(79.07%)	18(20.93%)	35(27.13%)	94(72.87%)
2. Do you know the difference between clinical pharmacist and hospital pharmacist	60(69.77%)	26(30.23%)	22(17.05%)	107(82.95%)
3. Are you satisfied with the answers given by your doctor for your queries while consultation?	63(73.26%)	23(26.74%)	101(78.29%)	28(21.71%)
4. Do you know that there are drug information centers with qualified professionals, who are always ready to help you with your queries regarding your medication?	45(52.33%)	41(47.67%)	21(16.28%)	108(83.72%)
5. Will you make use of the drug information centers if you have an easy access to one? (through call \ email\whatsapp)	74(86.05%)	12(13.95%)	92(83.64%)	18(16.36%)

- Among 215 study participants, in which 79.07% of Health care and 27.13% of Non-Health care personnel know about the Clinical Pharmacist Profession. About 69.77% of Health care and 17.05% of Non-Health care Know the difference between Clinical Pharmacist and Hospital Pharmacist. Majority of Non-Health care Personnel (82.95%) don't know the differences between Clinical Pharmacist and Hospital Pharmacist. Some of the people mentioned that they know the Clinical Pharmacist but they failed to describe the difference between CP and HP in both groups. While assessing their statement regarding difference between CP and HP, some of the

responses revealed that the study participants were unaware of the difference between a CP and a HP.

- Majority of the Study Participants, in which 73.26% of HCP and 78.29% of NHCP were satisfied with answers given by doctors regarding queries. A total of 215 study participants, half of the Study Participants in both groups were unaware of the existence of the Drug Information Centre's and also 86.05% of Health care and 83.64% of Non-Health care Personnel reported that they were willing to make use of Drug Information Centre's, if they had any easy accessibility resources.

Table 7: What will you do if you have any query regarding your medicines while taking it?

Q6) What will you do if you have any query regarding your medicines while taking it?	HEALTH CARE PERSONNEL (n=86)	NON-HEALTH CARE PERSONNEL (n=129)
a) Again, consult or call doctor	27(31.40%)	71(55.04%)
b) Stop the medication	2(2.33%)	10(7.75%)

c) Search using Internet	27(31.20%)	29(22.48)
d) Ask a Clinical Pharmacist	30(34.88%)	19(14.73%)

Among 215 participants, 55.04% of the Non-Health care Personnel mentioned that they will consult or call doctor, if they have any query

regarding about medicine and 22.48% of the Non Health care Personnel mentioned that they will search using interne

Table 8: With whom are you more comfortable asking your doubts regarding your medicines

Q7) With whom are you more comfortable asking your doubts regarding your medicines.	HEALTH CARE PERSONNEL (n=86)	NON-HEALTH CARE PERSONNEL (n=129)
a) Doctors	31(36.05%)	79((61.24%)
b) Nurses	4(4.65%)	7(5.43%)
c) Clinical Pharmacist	45(52.33%)	21(16.28%)
d) family and friends	6(6.98%)	22(17.05%)

- Among Non-Health care personnel, 61.24% were more comfortable to ask doubts regarding medication and diseases to "Doctors".
- Among Health care Personnel, 52.33% were more comfortable to ask their doubts regarding medication and diseases to "Clinical Pharmacist".

RoleOf Clinical Pharmacist

- Assessing the patient's status and determining whether the prescribed medications are optimally meeting Patient's needs and goals of care.
- Giving unbiased information about medication.

- Providing drug information to doctors, nurse and healthcare associates as and when required.
- Patient education and counselling about Food and drug interaction and medication related problems.
- Reducing readmission of patients due to drug failure.
- Ward rounds (Checking the drug charts and discharge summary to detect medication related problems)
- Spreading awareness on medication safety and prevention of medication abuse.

After reading the description of role of Clinical pharmacist, Participants were answered below mentioned questions.

Table 9: Do you think that the clinical pharmacist has clear cut knowledge regarding your medication?

8.QUESTIONS	HEALTH CARE PERSONNEL (n=86)		NON-HEALTH CARE PERSONNEL (n=129)	
	YES	NO	YES	NO
Do you think that the clinical pharmacist has clear cut knowledge regarding your medication?	80(93.02%)	6(6.98%)	91(70.54%)	38(29.46%)

93.02% percent of the Health care personnel were agreed that Clinical Pharmacist has clear cut Knowledge regarding medication and 70.54% of

the Non-Health care Personnel were agreed that Clinical Pharmacist has clear cut knowledge regarding medication.

Table 10: Clinical pharmacist is needed in every healthcare department for individual patient to educate him/her about their medication and to follow up them

9. QUESTIONS	HEALTH CARE PERSONNEL (n=86)		NON-HEALTH CARE PERSONNEL (n=129)	
	A/SA	D/SD	A/SA	D/SD
A Clinical Pharmacist is needed in every healthcare department for individual patient to educate him/her about their medication and to follow up them.	82(95.35%)	4(4.65%)	120(93.02%)	9((6.97%)

Among 215 participants, Both Health care Personnel (95.35%) and Non-Health care Personnel (93.02%) agreed that Clinical Pharmacist needed in every department for individual patient to educate about their medication and to follow up them.

IV. DISCUSSION:

The study revealed to assess both Health care personnel and public knowledge, attitude and practice on safe use of medication. This study was conducted through Online Google forms, so that people can easily fill via email or link, despite of that only 215 participants were enrolled in our study. These findings were expected that Health care personnel had good knowledge and High attitude than Non Health care personnel. Generally Health care personnel were expected to have good knowledge and attitude towards medication use.

One of the main aim of this study to know about the perception of Health care personnel and Non Health care personnel towards clinical pharmacist profession. In this study, Majority of the Non Health personnel have not heard the profession named 'clinical pharmacist' and their roles in hospital settings. When we asked whether they know about difference between Hospital Pharmacist and clinical pharmacist, in that some of the people mentioned that they Know the Clinical Pharmacist but they failed to Describe the difference between Clinical pharmacist and Hospital Pharmacist in both groups. While assessing their statement regarding difference between Clinical Pharmacist and Hospital Pharmacist, some of the responses revealed that the study participants were unaware of the difference between a Clinical Pharmacist and a Hospital Pharmacist.

Clinical pharmacy services were started in 1997 in India, 5 in contrast to United States where

the services were started in early 1960s. but still the involvement of clinical pharmacist in the health care team is negligible compared to the developed countries like United States, Australia etc. (7)

Several studies have been also conducted to assess health care providers' perception towards clinical pharmacy services. In the United Arab Emirates, 74% of the respondent health professionals appreciated the role of clinical pharmacists in minimizing medication error and improving patient treatment outcomes. (9) In contrary, in Kuwait, 48.2% of physicians were found to be uncomfortable with a pharmacist's suggestion on the use of prescription medicines, and one-third of them were not expect the pharmacist to be available for consultation during rounds. According to the study done in Ethiopia, more than 70% of the health care providers had a positive attitude towards clinical pharmacy services. (10)

In current scenario, several studies stated that role of clinical pharmacist in hospital settings were improved and collaborative approach with clinical pharmacist in multidisciplinary team had increased safety and quality of patient care. The study conducted in India shows that GPs are aware of the current professional training of clinical pharmacist as being more patient orientated. The physicians are willing to collaborate with the clinical pharmacist in monitoring drug therapy and they could recognize the importance of pharmacist's participation in clinical ward rounds and their role as educators and advisors for patients on the safe use of drugs. (11) There are some of the barriers that need to be considered that interprofessional communication between health care professionals, staff shortages, overloaded work, insufficient communication, lack of time and lack of confidence to suggest their opinions to physicians, not participating in

multidisciplinary rounds. The staff shortages can be compensated by several approaches have been instigated, such as granting scholarships to candidates on Doctor of Pharmacy programs, extending residency programs.(12) The study conducted in India, concludes that there is an urge for improvement with respect to the educational and professional standards towards Doctor of Pharmacy course in India. If the country's pharmacy authorities be able to consider and adopt the view, opinions and suggestions provided by the Pharm D students, it can lead to a tremendous and sustained raise in the quality growth of Indian pharmacy education and profession as well.(13)

To our Knowledge, this is first study stated that perception of health care and Non Health care personnel towards clinical pharmacist profession. This study mainly conducted to create a awareness about the clinical pharmacy services in hospital settings to public. In addition to, know about their misconceptions regarding their safe use of medication and need of Clinical pharmacist in every department in hospital settings for inpatient care.

V. LIMITATIONS

- Most of the Study participants who have responded to the survey comes under the age group of 18-28.
- Very few people have responded to the survey who belong to chronic disease conditions, due to lack of technological access and education.
- As the survey is based on Google forms, there can be recall bias of the study participants.

VI. CONCLUSION

The present study concludes that Health care personnel had Good knowledge and High attitude on safe use of medication than Non health care personnel. Comparing the scores of practice section among Health care personnel and Non Health care personnel, they had good practice. Following misconceptions was observed that, Increasing the dose can relieve the symptoms soon, not completing the course of treatment, taking medication based on friends and relative's suggestions are the practices which leads to Medication error. In our study , amongst Non Health care personnel. Majority of study participants were unaware of the existence and role of Clinical Pharmacy services in Health care, due to Lack of education, Job opportunities, public awareness, Underutilization and lack of Governing authorities in India. Clinical Pharmacist provides all

medication related information, direct patient care that promotes the quality of health and disease prevention. Until now, the Clinical pharmacist were working in hospital linked to pharmacy practice and in some private sectors. But the Government have not recognized the importance of Clinical pharmacy services. Central and State government should take necessary steps to encourage the Clinical pharmacist services by creating Job opportunities in all government oriented hospitals.

ABBREVIATIONS:

CP: Clinical Pharmacist; HP: Hospital Pharmacist; GP: General Practitioner; KAP: Knowledge, Attitude and Practice.

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