



## ATTITUDE OF PRACTICING AND STUDENT HEALTHCARE PROFESSIONALS TOWARDS DOCTOR OF PHARMACY (PHARM D) PROGRAM AND CLINICAL PHARMACISTS IN SOUTH INDIA – AN INTERDISCIPLINARY, MULTI-CENTERED, CROSS-SECTIONAL EVALUATION

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### ABSTRACT

**Background:** The purpose of the study was to analyze the attitudes of practicing and student healthcare providers towards Doctor of Pharmacy (Pharm D) students and clinical pharmacists in India. A cross-sectional, structured, self-administered questionnaire-based survey was conducted at randomly selected hospitals and educational institutions in four southern states of India. A total of 379 participants (214 healthcare providers and 165 students) in eight institutions were asked to complete the questionnaire over a period of six months. The responses were collected and analyzed to assess the attitudes of study population regarding the Pharm D. Course and clinical pharmacist's roles in the hospital.

**Results:** More than 60% of the study population agreed that Pharm D. graduates can be designated the role of clinical pharmacist and agreed that they can contribute to decisions regarding drug interactions and adverse drug reaction; have special expertise in counseling the patient; are qualified to respond to drug treatment needs of the patients and can be involved in policy making concerning the hospital pharmacy services, but the respondents responded poorly when asked whether Pharm D's should monitor the effects of drugs on the patients or when asked whether the physicians should consult clinical pharmacists for any drug-related query.

**Conclusion:** Overall, there was a positive response from the majority of the study population, but still a few people viewed the role of Pharm D. negatively. This survey emphasizes an urgent need

for revising and internationalizing the curriculum of Pharm D and to improve the liaison between the healthcare professionals to meet the demands of the community.

**Keywords:** Attitude, Clinical pharmacy, Curriculum, Doctor of pharmacy, Healthcare providers.

## **BACKGROUND**

Clinical pharmacy, a discipline of pharmacy, where a pharmacist provides patient care, optimizes medication therapy, prevents a disease from happening and promoting health and wellness of a patient. Clinical pharmacists (CPs) ensure that correct patient receives the optimum dose of most appropriate medication for a specific condition via more rational dosage form and regimen over an appropriate time period, adverse drug reactions (ADRs) and drug interactions are minimized, and the patient and prescribers are presented with easily understandable information and support with the aim of maximizing drug effectiveness and minimizing unwanted reactions [1]. According to the European Society of Clinical Pharmacy, clinical pharmacy is defined as the health specialty in which the pharmacists are involved in developing and promoting rational and appropriate use of medicinal products and services [2]. CPs are a primary source of scientifically valid information and advice regarding the safe, appropriate, and cost-effective use of medications [3]. The practice of clinical pharmacy incorporates the philosophy of pharmaceutical care, which blends a caring orientation with specialized therapeutic knowledge, judgment, and experience thereby ensuring optimal patient outcome [1]. Some of the important roles of a clinical pharmacist can be summarized as: drug therapy monitoring, medication order review, ADR review, assessment of suspected drug interaction, drug therapy management recommendations i.e., continue/discontinue therapy and treat adverse reaction, reporting/documentation, clinical review, therapeutic drug monitoring, medication history interview, individual counseling, patient profile maintenance, and providing therapeutic information.

### ***Pharmacy Programs in India***

A variety of pharmacy degree programs are offered in India like Diploma in Pharmacy (D. Pharm), Bachelor of Pharmacy (B. Pharm), Master of Pharmacy (M. Pharm), Master of Science in Pharmacy [MS (Pharm)] and Master of Technology in Pharmacy [M. Tech (Pharm)], Doctor of Pharmacy (Pharm D.), Doctor of Pharmacy (Post Baccalaureate) and Doctor of Philosophy in Pharmacy (Ph.D.) [4].

### ***Clinical Pharmacy Programs in India***

Among the above-said programs, Doctor of Pharmacy (Pharm D.), Doctor of Pharmacy (Post Baccalaureate), M. Pharm (Pharmacy Practice), and M. Pharm (Clinical Pharmacy) are the courses introduced by Government of India and Pharmacy Council of India. Although, M.Pharm (Pharmacy Practice and Clinical Pharmacy) have been present in India for more than 15 years, Doctor of Pharmacy was introduced at a later stage in 2008 with goal of intensifying the patient care provided by the pharmacists. The main goal of introducing this course in India is to take pharmacy education to heights and also to standardize the pharmacy degree that is acceptable by many countries [5]. In India, the first batch of Pharm D. took admission to the course in 2008. The regular Pharm D is a six-year course after 10+2 or D. Pharm, which includes five years of academic study and one year of internship whereas the Pharm D (Post Baccalaureate) is a three-year program after B.Pharm with two years of academic study and one year of internship [6]. The curriculum is also in its developing state and it will take time to get well established and the Pharm D graduates have to work hard to get recognized in the society. The first batch of Pharm D (Post Baccalaureate) graduates came out in the year 2011 and graduates of regular Pharm D came out in 2014 and, every year, the Pharm D graduates coming out of pharmacy schools have increased leaps and bounds in India, but their acceptability level is largely unknown and, in order to get an optimal patient outcome, strong cooperation between pharmacists and physicians is necessary [7], no report was found in the

literature of a psychometrically sound instrument to measure interprofessional attitudes in medical and pharmacy students as well as physicians and pharmacists. Hence, there is a need for a single psychometrically sound instrument to measure attitudes of healthcare professionals toward Pharm D program and integration of clinical pharmacists in Indian healthcare scenario. Moreover, after two batches of Doctor of Pharmacy graduates have passed out in few colleges in India, there is literally poor or no awareness for clinical pharmacy services or Pharm D in India [8]. Hence, the other objective of this study was to investigate the student and practicing healthcare professionals' awareness of Pharm D course in India and their attitude towards the presence of Pharm D students and graduates in hospitals providing clinical pharmacy services. Professional clinical pharmacy services were not provided in India since the inception of pharmacy profession and, as a consequence, the word clinical pharmacist and Pharm D are new concepts in India. Hence, this study will give an overall attitude of fellow healthcare professionals towards Pharm D program and the integration of clinical pharmacists in Indian healthcare setting.

## **METHODS**

### ***Study Design***

A cross-sectional, questionnaire-based survey study was conducted over a period of six months September 2019 through February 2020.

### ***Questionnaire Development***

A semi-structured questionnaire with close-ended questions was designed exclusively for the purpose of collection of data, i.e., to assess the attitude of the physicians and other healthcare professionals regarding the course and outcome of Pharm D. The questionnaire for this study was designed initially as a 23-item self-administered questionnaire, which consisted of close-ended questions. Prior to this study, the questionnaire was piloted and evaluated for its content validity using the method developed by Lynn M [9]. Three experts were selected to test the validity of the content. The panel of experts included Head of the Pharmacy Practice Department, an Assistant Professor of Pharmacy Practice, and a Medical Dean of a tertiary care hospital. These three experts were provided with a copy of the questionnaire and the need and objectives of the study were clearly explained. Few changes were made in the phrasing of the questions and its order after discussion with the panel experts. The final questionnaire consisted of 16 questions, which were in the domain of questions related to course, questions related to roles, comparative questions, and questions to assess attitudes of healthcare professionals towards Pharm D and clinical pharmacists.

### ***Study Population and Data Collection***

The study population included practicing and student healthcare professionals. The study was conducted in four different states of India. The questionnaire was circulated to the above-said study population in four randomly selected teaching hospitals in India one in Andhra Pradesh, one in Karnataka, one in Kerala and one in Tamil Nadu; and four randomly selected multispecialty hospitals in India one in Andhra Pradesh, one in Karnataka, one in Kerala and one in Tamil Nadu. The e-mail addresses of a student representative from every college under study were collected and mailed the questionnaires to them. The student representatives were requested to pass it on to their respective classmates so that almost all students will have opportunity to express his/her opinion regarding Pharm D and clinical pharmacists. The responses from practicing healthcare professionals were mainly received by meeting them personally during their free time or the questionnaire is sent to them through e-mail and responses were collected by return e-mail.

### ***Data Analysis***

The responses to the questionnaire by the study population were collected and analyzed. Analysis was done using Microsoft Excel 2016.

## RESULTS

A total of 510 questionnaires were circulated among the study population and 379 responses were collected with a 74.3% response rate. Out of 379 responses, the number of responses received from Andhra Pradesh was 142 (37.5.37%), Karnataka 61 (16.1%), Kerala 105 (27.7%) and Tamil Nadu 71 (18.7%). The number of responses by physicians were 82 (21.6%), medical students 79 (20.9%), staff nurses 132 (34.8%), and PG nursing students 86 (22.7%). There were more respondents in the age group of 26-35 with total responses of 197 (52%), followed by 89 (23.5%) responses in the age group of 36-45, followed by 52 (13.7%) responses in the age group of 46-55 with the least response of 41 (10.8%) responses coming from the age group 56-65 years. Female respondents are more with 232 (62.5%) responses followed by 142 (37.5) responses from males. This is illustrated in Table 1.

**Table 1: Demographic details of respondents**

Characteristics of Respondents	No. of Respondents (N) N=379	Percentage (%)
<b>Healthcare Professional</b>		
Physicians	82	21.6
Medical Students	79	20.9
Staff Nurses	132	34.8
PG Nursing Students	86	22.7
<b>Age</b>		
26-35	197	52
36-45	89	23.5
46-55	52	13.7
56-65	41	10.8
<b>Gender</b>		
Male	142	37.5
Female	237	62.5
<b>Ethnicity</b>		
Andhra Pradesh	142	37.5
Karnataka	61	16.1
Kerala	105	27.7
Tamil Nadu	71	18.7

Out of total responses received, 70% of physicians, 67.5% of medical students, 61.5% of staff nurses, and 35% of PG nursing students agreed when asked whether clinical pharmacists are qualified to assess and respond to patient's drug treatment needs and 40% of PG nursing students even strongly agreed to this question. 60% of physicians, 57.5% of medical students, 43.1% of staff nurses, and 65% of PG nursing students agreed when asked whether a clinical pharmacist or a Pharm D. graduate should be seen as collaborator and colleague rather than their subordinate. On an average, approximately 25% of the respondents disagreed to this question. 62.5% of physicians, 57.5% of medical students, 35.4% of staff nurses, and 75% of PG nursing students agreed when asked whether Pharm D students and medical students should be involved in team work during their professional education to understand their respective role better. Again, on average, approximately 25% of the respondents strongly agreed to this question. 60% of physicians, 65% of medical students, 33.9% of staff nurses, and 55% of PG nursing students agreed to the question whether Pharm D graduates can contribute to decisions regarding drug interactions that can affect patient's health. Approximately, 30% of the respondents even strongly agreed to this question. When asked whether Pharm D graduates should be made accountable for any drugs that the physicians provide, 60% of physicians, 65% of medical students, 33.9% of staff nurses, and 55% of PG nursing students agreed and approximately 40% of the respondents strongly agreed to the same question. 62.5% of physicians and medical students, 52.3% of staff nurses, and 70% of PG nursing students agreed when asked whether there are several overlapping areas between Pharm D graduates and physicians

in treatment areas and approximately 25% of the respondents strongly agreed to this question. 60% of physicians, 45% of medical students, 58.5% of staff nurses, and 55% of PG nursing students agreed that clinical pharmacists have special expertise in counseling the patients on drug treatment, again approximately 25% of the respondents strongly agreed to this.

When asked whether Pharm D. graduates and physicians should contribute equally to the type and the dosage of mediations given to the patients, 52.5% of physicians, 60% of medical students and staff nurses, and 65% of PG nursing students agreed. When asked whether a clinical pharmacist’s primary function is to fill the prescription that a physician provides, 40% of physicians and medical students, 13.8% of staff nurses, and 45% of PG nursing students disagreed and approximately 30% of all the respondents agreed and strongly agreed to this question. To the question of whether Pharm D graduates should be involved in drug policy making and making decisions regarding hospital and pharmacy services, 67.5% of physicians, 70% of medical students, 55.3% of staff nurses, and 70% of PG nursing students agreed. 45% of physicians, 50% of medical students, 56.9% of staff nurses, and 70% of PG nursing students agreed when asked whether clinical pharmacists and physicians should take collective responsibility for monitoring the effects of drugs on the patients. 70% of physicians, 75% of medical students, 52.3% of staff nurses, and 30% of PG nursing students agreed when asked whether Pharm D graduates should clarify a prescription with the prescriber when they feel it is detrimental to the patient and 60% of PG nurse students strongly agreed to this. When asked whether physicians and pharmacists should be educated to establish collaborative relationship, 75% of physicians, 25% of medical students, 55.3% of staff nurses, and 62.5% of PG nursing students agreed to it.

When a question was posed whether a physician should consult a clinical pharmacist to manage a patient with adverse drug reactions and to overcome drug’s ineffectiveness, 47.5% of physicians, 45% of medical students, 60% of staff nurses, and 30% of PG nursing students agreed and approximately 25% of physicians and medical students disagreed to it. When asked whether physicians should be made aware that Pharm D can help physicians in providing right drug to the patient, 50% of physicians, 47.5% of medical students, 56.9% of staff nurses, and 60% of PG nursing students agreed and approximately 30% of the respondents strongly agreed to it. Approximately 50% of the respondents agreed and 30% of the respondents strongly agreed when asked about importance of interprofessional relationship between physicians and clinical pharmacists should be included in their professional curriculum. Table 2 summarizes the responses to questions present in the questionnaire.

**Table 2: Responses of Healthcare Professionals and Students to the Questionnaire**

Questions	Healthcare professionals	Strongly Disagree		Disagree		Agree		Strongly Agree	
		N	%	N	%	N	%	N	%
1. Clinical Pharmacists are qualified to assess and respond to patient’s drug treatment needs.	<b>Physicians</b>	4	5	10	12.5	56	70	10	12.5
	<b>Medical Students</b>	2	2.5	12	15	54	67.5	12	15
	<b>Staff Nurses</b>	4	3.07	22	16.9	80	61.5	24	18.5
	<b>PG Nurse Students</b>	8	10	12	15	28	35	32	40
2. A clinical pharmacist (Pharm D.) should be seen as collaborator and colleague rather than subordinate.	<b>Physicians</b>	0	0	24	30	48	60	8	10
	<b>Medical Students</b>	2	2.5	22	27.5	46	57.5	10	12.5
	<b>Staff Nurses</b>	4	3.07	40	30.7	56	43.1	30	23.1
	<b>PG Nurse Students</b>	0	0	16	20	52	65	12	15
3. During their education, Pharm D. and medical students should be involved in teamwork in order to understand their respective roles.	<b>Physicians</b>	0	0	10	12.5	50	62.5	20	25
	<b>Medical Students</b>	2	2.5	8	10	46	57.5	24	30
	<b>Staff Nurses</b>	6	4.6	36	27.5	46	35.4	42	32.3
	<b>PG Nurse Students</b>	0	0	4	5	60	75	16	20
4. Pharm D. graduates can contribute to decisions regarding drug interaction that can affect the patients’ health.	<b>Physicians</b>	2	2.5	6	7.5	48	60	24	30
	<b>Medical Students</b>	0	0	8	10	52	65	20	25
	<b>Staff Nurses</b>	6	4.61	36	27.5	44	33.9	44	33.9
	<b>PG Nurse Students</b>	0	0	4	5	44	55	32	40

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5. Pharm D. graduate should be accountable to patients for the drugs that you provide.	<b>Physicians</b>	2	2.5	6	7.5	48	60	24	30
	<b>Medical Students</b>	0	0	8	10	52	65	20	25
	<b>Staff Nurses</b>	6	4.61	36	27.5	44	33.9	44	33.9
	<b>PG Nurse Students</b>	0	0	4	5	44	55	32	40
6. There are many overlapping areas of responsibility between a clinical pharmacist and a physician in drug treatment of patient.	<b>Physicians</b>	0	0	10	12.5	50	62.5	20	25
	<b>Medical Students</b>	0	0	10	12.5	50	62.5	20	25
	<b>Staff Nurses</b>	4	3.07	28	21.5	68	52.3	30	23.1
	<b>PG Nurse Students</b>	0	0	8	10	56	70	16	20
7. Clinical Pharmacist have special expertise in counseling patients on drug treatment.	<b>Physicians</b>	2	2.5	6	7.5	48	60	24	30
	<b>Medical Students</b>	0	0	18	22.5	36	45	26	32.5
	<b>Staff Nurses</b>	2	1.53	22	16.9	76	58.5	30	23.1
	<b>PG Nurse Students</b>	0	0	16	20	44	55	20	25
8. Both Pharm D. graduates and physicians should contribute to decisions regarding the type and dosage of medicine given to patients.	<b>Physicians</b>	0	0	16	20	42	52.5	22	27.5
	<b>Medical Students</b>	2	2.5	16	20	48	60	14	17.5
	<b>Staff Nurses</b>	2	1.53	20	15.3	78	60	30	23.1
	<b>PG Nurse Students</b>	0	0	8	10	52	65	20	25
9. The primary function of a clinical pharmacist is to fill the physician's prescription without a question.	<b>Physicians</b>	4	5	32	40	24	30	20	25
	<b>Medical Students</b>	4	5	32	40	24	30	20	25
	<b>Staff Nurses</b>	8	6.15	18	13.8	62	47.7	42	32.3
	<b>PG Nurse Students</b>	12	15	36	45	0	0	32	40
10. Pharm D. graduates should be involved in making drug policy decisions concerning the hospital/pharmacy services upon which their work depends.	<b>Physicians</b>	0	0	4	5	54	67.5	22	27.5
	<b>Medical Students</b>	0	0	4	5	56	70	20	25
	<b>Staff Nurses</b>	24	18.5	19	14.6	72	55.3	15	11.5
	<b>PG Nurse Students</b>	0	0	0	0	56	70	24	30
11. Clinical Pharmacists as well as physicians should have responsibility for monitoring the effects of drugs on the patients.	<b>Physicians</b>	2	2.5	2	2.5	36	45	40	50
	<b>Medical Students</b>	2	2.5	2	2.5	40	50	36	45
	<b>Staff Nurses</b>	6	4.6	12	9.3	74	56.9	38	29.2
	<b>PG Nurse Students</b>	0	0	0	0	56	70	24	30
12. Pharm D. graduates should clarify a physician's order when they feel that it might have detrimental effects on the patients.	<b>Physicians</b>	2	2.5	2	2.5	56	70	20	25
	<b>Medical Students</b>	2	2.5	2	2.5	60	75	16	20
	<b>Staff Nurses</b>	10	7.6	14	10.7	68	52.3	38	29.2
	<b>PG Nurse Students</b>	0	0	8	10	24	30	48	60
13. Physicians and clinical pharmacists should be educated to establish collaborative relationships.	<b>Physicians</b>	2	2.5	4	5	60	75	14	17.5
	<b>Medical Students</b>	2	2.5	4	5	60	25	14	17.5
	<b>Staff Nurses</b>	4	3.07	14	10.7	72	55.3	40	30.8
	<b>PG Nurse Students</b>	0	0	14	17.5	50	62.5	16	20
14. Physicians should consult clinical pharmacists for helping patients with adverse reaction or refractory to drug treatment.	<b>Physicians</b>	6	7.5	20	25	38	47.5	16	20
	<b>Medical Students</b>	2	2.5	24	30	36	45	18	22.5
	<b>Staff Nurses</b>	4	3.07	8	6.15	78	60	40	30.7
	<b>PG Nurse Students</b>	8	10	8	10	24	30	40	50
15. Physicians should be made aware that Pharm D. graduates can help in providing the right drug treatment.	<b>Physicians</b>	6	7.5	10	12.5	40	50	24	30
	<b>Medical Students</b>	0	0	18	22.5	38	47.5	24	30
	<b>Staff Nurses</b>	2	1.53	10	7.6	74	56.9	44	33.9
	<b>PG Nurse Students</b>	0	0	4	5	48	60	28	35
16. Inter-professional relationships between physicians and Pharm D. graduates should be included in their professional education programs.	<b>Physicians</b>	12	15	11	12.5	38	47.5	20	25
	<b>Medical Students</b>	6	7.5	12	15	40	50	22	27.5
	<b>Staff Nurses</b>	2	1.6	12	9.3	72	55.3	44	33.8
	<b>PG Nurse Students</b>	0	0	8	10	48	60	24	30

(Source: Lon J. Van Winkle et al.)[10]

N=No. of Responses; %=Percentage of responses

## DISCUSSION

This study was conducted to analyze the fellow healthcare professionals towards Pharm D program and the integration of clinical pharmacists in Indian healthcare setting. This is the first survey study conducted on Indian healthcare professionals to evaluate their attitude towards Pharm D course and the role of clinical pharmacists in Indian hospitals. A study of similar magnitude was conducted to

analyze the perception and attitude of educated Indian population towards Pharm D program in India [11]. In this survey, more than 60% of the respondents agreed that clinical pharmacists are qualified to assess and respond to patient's drug treatment needs; that they should be seen as a collaborator rather than a subordinate and they also agreed the importance of team work. Majority of respondents also agreed that there are a lot of overlapping areas between a clinical pharmacist and a physician in terms of responsibility sharing. More than 60% of practicing physicians and nurses agreed that a Pharm D. graduate and a clinical pharmacist should be held responsible for drugs that physician's provide and they also agreed that Pharm D. graduates can contribute to decisions regarding drug interactions, but about 20% physicians had a negative view to the question regarding sharing of responsibilities of decision making regarding drugs and dosages and also on monitoring of effects of drugs between clinical pharmacists and physicians, but more than 60% of study population agreed that a Pharm D. graduate can be involved in making drug policy decisions concerning the hospital/pharmacy services. Many agreed that the clinical pharmacist's role is not just to fill out the physician's prescription, but to be involved in direct patient care. More than 75% of physicians agreed that physicians and pharmacists should be educated to establish a collaborative relationship, to which only 55.3% of the nurses agreed, which may be due to the fact that nurses may have felt that they will belittled when physicians and pharmacists collaborate during their training years. More than 70% of the physicians and medical students agreed that a Pharm D. graduate can change a drug therapy if they feel that it might cause a detrimental effect on the patient's life, again to which only 52.3% nurses agreed. This is a great change in the mindset of physicians. This will enable a clinical pharmacist to smoothly integrate themselves in a hospital setup. About 60% of the study population agreed that clinical pharmacists have a special expertise in counseling the patients, but there was a very poor response when the study population was asked whether a physician had to consult with a clinical pharmacist for information regarding adverse drug reactions, to which less than 50% agreed and there was very poor response when a question regarding incorporating the importance of collaboration between Pharm D. and physicians in their professional educational curriculum was asked and most of the respondents (more than 50%) does not want the physicians to be made aware of the role of Pharm D., which is a bit demoralizing result. Overall, there was a positive response from the majority of the study population, but still a few people viewed the role of Pharm D. negatively. The negative view may be due to the lack of proper curriculum [12], unavailability of resources to Pharm D. students, lack of qualified faculties, and may be due to the unavailability of better practice setting for Indian Pharm D. students in the hospital. This study suggests that different regulatory bodies like Pharmacy Council of India and other supportive organizations should take initiative in taking this course to the next level since India is changing its status from a developing country to a developed country with a large population and rapid urbanization, which leads to increased physical inactivity and obesity leading to various diseases and other comorbidities [13] where a clinical pharmacist role will be indispensable.

### **LIMITATIONS OF THE STUDY**

This study had certain limitations as follows - we were unable to circulate the questionnaire to every medical and allied health science educational institutions all over India and personal contact with most of the respondents was not possible. Moreover, the study might have some bias during this type of convenience sampling, which we were unable to avoid.

### **CONCLUSION**

Clinical pharmacists are definitely going to be a value addition in the Indian hospitals with physicians, patients, and other stakeholders of health will get a lot of benefit from clinical pharmacy services, but there is an urgent need for revising the curriculum of Pharm D to meet up the demands of the community and to equalize the curriculum with the international level. Moreover, there is also a need of revamping the badge of clinical pharmacists that the Indian healthcare professionals has in

their minds and also to improve the liaison between healthcare professionals to meet the demands of the community and country as a whole. Further direction of this research is to survey whole India to generalize the results and to reduce the bias that can occur with convenience sampling.

### **LIST OF ABBREVIATIONS**

ADRs: Adverse Drug Reactions; B. Pharm: Bachelor in Pharmacy; CPs: Clinical Pharmacists; D. Pharm: Diploma in Pharmacy; M. Pharm: Master of Pharmacy; Pharm D: Doctor of Pharmacy; PG: Postgraduate; Ph.D: Doctor of Philosophy.

### **DECLARATIONS**

#### **Funding**

Not Applicable.

#### **Competing Interests**

No potential conflict of interest relevant to this article was reported.

#### **Consent to Participate**

Prior to data collection, the purpose of the study was explained to the study participants. Verbal consent was obtained from the participants who showed willingness to participate.

#### **Consent for Publication**

The authors do not have any conflict of interest in publishing this article.

#### **Availability of Data and Materials**

The datasets analyzed during the current study will be available from the corresponding author on reasonable request.

#### **Code Availability**

Not Applicable.

#### **Author's Contribution**

JGK participated in data collection, data analysis and write up of this article. CJ participated in data collection and data analysis. SJUC participated in conception of the study, study design, data collection, data analysis, and write up of this article. All authors read and approved the final manuscript.

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