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Research Article

Attitudes and Perceptions About the Role of a Clinical Pharmacist in In-Patient Management among Nurses at a Tertiary Government Hospital, Sri Lanka

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ABSTRACT

Background: In many countries, clinical pharmacy services are accepted and implemented for safe use of medications. The main function of a clinical pharmacist is to identify and prevent drug related problems. Clinical pharmacy services in Sri Lanka are yet to be accepted. Positive attitudes of healthcare professionals including nurses are important determinants for implementation of clinical pharmacy services. **Objectives:** To assess attitudes and perceptions about the role of a clinical pharmacist in in-patient management and the influence of socio demographic, work-related and personal factors among nurses at a selected teaching hospital, Sri Lanka. **Method:** A descriptive cross-sectional study was conducted among 278 nurses working at a selected teaching hospital, Sri Lanka. A pre-tested, validated, self-administered questionnaire was used to collect data and were analyzed using Statistical Package of Social Science (SPSS) version 23. Descriptive and bivariate analysis was used to analyze data. **Result:** The respondent rate was (N=278) 68.4%. Most of the participants (79.9%) were females and mean age was 31.24±5.93 years. The majority of the participants had positive (N=234, 84.2%) attitudes and perceptions on the role of a clinical pharmacist in in-patient management. However, low acceptance was observed on clinical pharmacists, providing drug knowledge to nurses (25.9%), instructing nurses on incompatibilities in drug admixtures (63.3%), involvement in drug utilization review (61.9%), and developing individualized dosage regimes (71.2%). Age (p=0.046), practicing in special units (p=0.019), views on clinical pharmacists (p=0.003), need for drug information (p=0.007), and methods used to search drug information (p=0.015) were significantly associated with attitudes and perceptions on the role of clinical pharmacist in in-patient management. **Conclusion:** The current study revealed that there was positive attitudes and perceptions among nurses of the study hospital towards the role of a clinical pharmacist in in-patient management.

Key words: Pharmacist; Attitudes; Perceptions; Role of clinical pharmacist; In-patient management

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INTRODUCTION

With the growth and development of the profession of pharmacy over the years, a new approach and a new concept called clinical pharmacy evolved. It was defined by the American Collage of Clinical Pharmacy as the "area of pharmacy concerned with the science and practice of rational medication use".(1) Medications are the most common healthcare intervention used to improve health outcomes of patients and needs to be provided safely and appropriately.(2) However, they are also the major source of patient safety incidents. The issue of medication safety has increased in developing countries including Sri Lanka.(3) WHO has initiated the third global patient safety challenge on medication safety in 2017 which is aimed to improve medication safety among patients by reducing medication errors and avoidable medication related harm.(1)

As per the traditional view, a pharmacist is a person involved in dispensing and compounding activities in hospitals and may occasionally help in providing drug information. However, European, American, and Australian pharmacists extended their role by participation in ward rounds with the healthcare team. Therefore, the responsibilities of the pharmacist in medication therapy has increased and the need for clinical exposure and education further raised.

Clinical pharmacy is defined as "The responsible provision of drug therapy for the purposes of achieving definite outcomes that improve a patient's quality of life".(4) Patient care includes pharmacists' input in the design, implementation and monitoring of a therapeutic plan, in collaboration with the patient and other healthcare professionals. This practice was first developed in the United Kingdom by two pharmacists, Graham Cadler and John Baker. So, the hospital pharmacist, whose main job was limited to traditional pharmaceutical activities such as dispensing and manufacturing, was integrated with interacting with patients and other healthcare professionals, in directly intervening in the patient care process.(5) This enabled some pharmacy practitioners to become an active part of the clinical team.

The role and responsibilities of a clinical pharmacist is aimed at optimizing patient's medication regimen by detecting and correcting any drug related problem, and collaborating with physicians and nurses to ensure that the medication regimen is appropriate, safe, efficacious, and cost effective. The technical term used for this is called "Medication review". As defined by the Pharmaceutical Care Network Europe, "medication review is a structured evaluation of a patient's medicines with the aim of optimizing usage of medicine, improving health outcomes, and evaluating the safety, efficacy, cost effectiveness, and affordability of each medication.(6,7) This is a collaborative team-based practice privileging professionalism and ethics.(8)

The number of patients that a physician is responsible for in Sri Lanka is high as the doctor to population ratio was 1:671 in 2017. Therefore, the time dedicated for a patient by the physician is limited(9). Introduction of clinical pharmacists could help to overcome this problem and reduce the workload of medical practitioners and nurses in providing optimum medication therapy to patients. A randomized clinical trial is evidence that in Sri Lanka, non-communicable healthcare can be further improved by ward-based pharmacy services. Therefore there is much room for the adaption of clinical pharmacy service in Sri Lanka.(2)

Here in Sri Lanka, the concept of clinical pharmacy and the term pharmaceutical care is

new. So, it's perceived as a completely new innovation in pharmacy practice. Healthcare professionals may not fully understand the services of clinical pharmacy. Therefore, it is important to understand the views and opinions of other health workers in order to address foreseeable issues related to clinical pharmacy services prior to its introduction.

The aim of this study was to determine the attitudes and perceptions of nurses towards clinical pharmacy services, and the association of socio demographic, work related, and personal factors of nurses which may substantially be helpful to strengthen and improve acceptance of clinical pharmacy services.

METHODOLOY

Study design and study setting: This was an institution based, descriptive, cross-sectional study among the nurses working at a selected State owned teaching hospital. The study was conducted from July 2018 to July 2019.

Study instrument: A self-administered questionnaire was used to collect data. A questionnaire was developed in English after review of the literature and with the help of supervisors, and was then translated to Tamil and Sinhala. Back translation was done. Four sections of the questionnaire consisted of: Section A: Socio demographics; Section B: Work related factors; Section C: Personal factors; and Section D: Fifteen statements on role of clinical pharmacist with a five-point Likert scale including strongly agree, agree, neutral, disagree, and strongly disagree.

Tool validity and reliability: Content and face validity were assessed by experts in community medicine, nursing, and pharmacy disciplines. Four senior medical staff members content validated the questionnaire. Based on their recommendations, the scoring system and cut-off score were adjusted. Then the pre-test was carried out at a separate base hospital to face validate the tool.

Data analysis: The data were entered to SPSS (Statistical Package for Social Sciences version 23). Among the responses, strongly disagree, disagree, and neutral were categorized as poor attitudes while the remaining were categorized as positive. Chi-square test was used to find the level of association. 95% confidence level was set for the test whereby the result was significant if p value <0.05.

Ethical considerations: Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Jaffna and the approval was obtained from relevant authorities to collect data from the study hospitals (pilot and main study). Written consent from the participants were obtained prior to participation.

RESULTS

The respondent rate of the present study was (N=278) 68.4%. Socio-demographic characteristics of the 278 participants is depicted in Table 1. The majority of the participants were, within the age category 29-34 years [N=126, (45.3%)], females [N=222, (79.9%)], married [N=149, (54.4%)] and having a Diploma in Nursing [N=243, (87.7%)]. Regarding work-related factors, most participants, were Grade III nursing officers [N=265, (95.7%)], had less than 10 years of work experience [N=215, (77.3%)], practicing in wards, [N=178, (64%)], had not-participated in workshops, [N=236, (85.8%)], and were interested in the nursing profession [N=221, (79.5%)]. Considering personal factors, the majority had a view that clinical pharmacist had a single role in wards [N=209, (75.2%)], and accepted that there is a need for drug information during in-patient management [N=262, (95.6%)]. The majority also accepted that they use more than two methods to search drug information, [N=215, (77.6%)] and searched for more than

Table 1 : Distribution of factors of participants (N=278)

	Factor		Frequency	Percentage
Socio-Demographic	Age category	<28	96	34.5
		29-34	126	45.3
		34<	56	20.1
	Gender	Male	56	20.1
		Female	222	79.9
	Marital status	Married	149	54.4
		Unmarried	123	44.9
		Divorced	1	0.4
		Widowed	1	0.4
	Highest level of education	Diploma	243	87.7
		Bachelor's Degree	33	11.9
		Master's Degree	1	0.4
Work-Related	Years of experience category	<10 years	215	22.7
		≥10 years	63	77.3
	Professional position	Grade III	245	88.4
		Grade II	20	7.2
		Grade I	10	3.6
		Matron	2	0.7
	Present area of practice	Wards	178	64.0
		Special units	100	36.0
	Participation in workshops, seminars and conferences	Yes	39	14.2
		No	236	85.8
	Interest in nursing profession	Not interested	57	20.5
		Interested	221	79.5
Personal	Views on clinical pharmacist	Single role in ward	209	75.2
		Multiple roles in ward	69	24.8
	Need for drug information	No	12	4.4
		Yes	262	95.6
	Methods used to search drug information	<2 methods	63	22.7
		≥2 methods	215	77.3
	Number of searched drug information	<2 Information	65	23.3
		≥2 Information	214	76.7
	Level of inter personal communication skills	Very Good	60	21.6
		Good	150	54.0
		Average	68	24.5

one type of drug information [N=213, (76.9%)]. Around half said that they had good interpersonal communicational skills [N=150, (54.0%)].

Regarding the role of a clinical pharmacist, more than 98% participants (N=273) accepted that clinical pharmacists have a vital role like physicians and nurses in inpatient management and accepted that their involvement will reduce drug related problems in wards (Table 2). They also accepted that clinical pharmacists are a good resource to get drug related information. The majority of the participants accepted clinical pharmacist as a trusted resource [N=239, (86.0%)] to warn on drug related problems [N=238, (85.6%)], and to facilitate counselling on safe drug usage to patients [N=239, (86.0%)] (Table 2). A slightly lower percentage of agreement was observed for attitudes related to instructing nurses on incompatibilities in drug mixtures [N=176, (63.3%)], and involvement in drug utilization review [N=172, (61.9%)]. The majority disagreed to get drug knowledge from clinical pharmacist [N=206, (74.1%)] (Table 2).

Table 2 : Distribution of attitudes on the role of clinical pharmacists in patient management

Attitudes	Agree N (%)	Disagree N (%)
1. An integral part as physicians and nurses	273 (98.2%)	5 (1.8%)
2. Reduce drug related problems in wards	254 (91.4%)	24 (8.6%)
3. A trustful source of drug information	239 (86.0%)	39 (14.0%)
4. An expert on accessing sources for drug related knowledge	216 (77.7%)	62 (22.3%)
5. Important in inpatient management	229 (82.4%)	49 (17.6%)
6. Provides information on medicine usage and warns on drug related problems	238 (85.6%)	40 (14.4%)
7. Supervising all drug distribution activities and drug utilization in wards	218 (78.4%)	60 (21.6%)
8. Record patient medication history at patient admission	208 (74.8%)	70 (25.2%)
9. Improving the accuracy of any drug related information	223 (80.2%)	55 (19.8%)
10. Facilitate counseling to patients on safe use of medicines	239 (86.0%)	39 (14.0%)
11. Participation in adverse drug reaction monitoring and adverse drug reaction reporting	222 (79.9%)	56 (20.1%)
12. Develop individualized dosage regimen	198 (71.2%)	80 (28.8%)
13. Instruct nurses on incompatibilities in drug mixtures	176 (63.3%)	102 (36.7%)
14. Involvement in drug utilization review	172 (61.9%)	106 (38.1%)
15. Providing drug knowledge to nurses	72 (25.9%)	206 (74.1%)

This study found that participants, who were over 34 years of age (91.1%), were interested in the nursing profession (86.9%), practicing in special units (91.0%), had more than two images of a clinical pharmacist (95.7%), needed additional drug information less than five times (89.0%) in the past month, and used more than one method (87.0%) to search drug information had significantly higher positive attitudes and perceptions which were statistically significant at $p<0.05$.

Table 3 : Influence of factors on attitudes and perceptions

	Factors		Attitudes and perceptions				
			Positive		Negative		
			N	(%)	N	(%)	
Socio-Demographic	Age	<28 years	74	77.1	22	22.9	$X^2 = 6.138$, Df =2 P = 0.046*
		29-34 years	109	86.5	17	13.5	
		34< years	51	91.1	5	8.9	
	Gender	Male	43	76.8	13	23.2	$X^2 = 2.872$, Df =1 P = 0.090
		Female	191	86.0	31	14.0	
	Marital status	Married	130	87.2	19	12.8	$X^2 = 3.252$, Df =1 P = 0.354
		Unmarried	98	79.7	25	20.3	
	Educational qualification	Diploma	204	84.0	39	16.0	$X^2 = 0.040$, Df =1 P = 0.841
		Degree	29	85.3	5	14.7	
Work Related	Experience	<10 years	179	83.3	36	16.7	$X^2 = 0.599$, Df =1 P = 0.439
		≥10 years	55	87.3	8	12.7	
	Professional position	Staff nurses	224	84.5	41	15.5	$X^2 = 0.780$, Df =1 P = 0.377
		Administrative	9	75.0	3	25.0	
	Present area of practice	Wards	143	80.3	35	19.7	$X^2 = 5.464$, Df =1 P = 0.019*
		Special units	91	91.0	9	9.0	
	Participation in workshops, seminars and conferences	Yes	35	89.7	4	10.3	$X^2 = 1.115$, Df =1 P = 0.291
		No	196	83.1	40	16.9	
	Personal interested in nursing	Not interested	42	73.7	15	26.3	$X^2 = 5.921$, Df =1 P = 0.015*
		Interested	192	86.9	29	13.1	
Personal	Views on clinical pharmacist	Single role in ward	168	80.4	41	19.6	$X^2 = 9.079$, Df =1 P = 0.003*
		Multiple roles in ward	66	95.7	3	4.3	
	Do you need information on drugs?	No	9	75.0	3	25.0	$X^2 = 0.822$, Df =1 P = 0.365b
		Yes	222	84.7	40	15.3	
	Need for drug information in the past month	<5 times	136	89.5	16	10.5	$X^2 = 7.016$, Df =1 P = 0.007*
		≥5 or more	86	77.5	26	22.5	
	Methods used to search drug information	<2 methods	46	74.2	16	25.8	$X^2 = 5.885$, Df =1 P = 0.015*
		≥2 methods	187	87.0	28	13.0	
	Whether searched for more than one information or not	<2 information	53	82.8	11	17.2	$X^2 = 0.106$, Df =1 P = 0.745
		≥2 information	180	84.5	33	15.5	
	Interpersonal communicational skill	Very good	55	91.7	5	8.3	$X^2 = 3.443$, Df =2 P = 0.179
		Good	122	81.3	28	18.7	
		Average	57	83.8	11	16.2	

DISCUSSION

Positive attitudes and perceptions towards clinical pharmacists can substantially improve the acceptance of clinical pharmacy services in Sri Lanka. Since Sri Lankan government hospitals had not adopted clinical pharmacy service, there was no routine visits of any pharmacists to the wards nor any clinical pharmacy service available at wards of the hospital in which the study was undertaken. Specially the term clinical pharmacy was perceived entirely as a new face of pharmacy practice. Thus, attitudes and perceptions towards the role of clinical pharmacy is a major concern towards its implementation in the government health sector.

The respondent rate of the present study was 68.4% (N=278). The Sri Lankan Government employs only Sri Lankan nationals as nursing staff in government hospitals, but in other studies employed nurses were of different nationals. In one study, only 20.4% were of Saudi origin(3) and in another study, only 36.6% were UAE citizens(4), the majority of participants being from different nations. Most studies on attitudes and perceptions towards the role of clinical pharmacist, compared attitudes between healthcare professionals and students.(3–10) Some of the studies only considered physicians perceptions towards the role of the clinical pharmacist in in-patient management.(8,9,11–16) However this study only included nurses.

As a process of finding limitations and solutions in developing clinical pharmacy services in Sri Lanka, one study reported (17) that a large proportion of the current workforce requires further education, training, and feedback in order to upskill and enhance clinical competencies of Sri Lankan government hospital pharmacists.

This study is evidence that nurses of the study hospital showed a positive perception and attitude towards the role of a clinical pharmacist in in-patient management. A research carried out in UAE also reported of healthcare providers who had positive attitudes toward clinical pharmacy services.(18) One Ethiopian study reported that, although healthcare providers had a positive attitude towards clinical pharmacy services, and they believed that this service would improve overall patient outcomes, they were still unable to extend their support for implementation of this service (15) because of management issues. Similar findings were reported from Nigeria and as well from Belgium. (19,15)

Negative attitudes and perceptions towards clinical pharmacy service were found in a Pakistani study where nurses had negative perceptions towards the role of the pharmacist (20,21,22) and nurses disagreed with some of the roles of a clinical pharmacist. The reason behind such disagreement was observed to be conflict of roles between the ward round team members.(20,23) Even though the nurses of the study hospital had an overall positive attitude towards the role of the clinical pharmacist in in-patient management, only a very small percentage showed positive attitudes towards roles such as, to develop individualized dosage regimens, instruct on incompatibilities in drug mixtures, involvement in utilization review, and providing healthcare education to nurses.

According to our study, among the socio demographic factors, age, gender, marital status and educational qualification, only age had a significant influence on the overall attitudes and perceptions of the role of clinical pharmacist in in-patient management. Experienced nurses accepted more roles of a clinical pharmacist.

Among the work-related factors, only personal interest in the nursing profession, and working in special units were associated with good

perception of the role of clinical pharmacist in in-patient management.

A statistically significant association with the role of clinical pharmacist was also observed with views on the role of clinical pharmacist in the ward, need for drug information, and methods used to search drug information.

Resistance among healthcare professionals towards the role of clinical pharmacists was observed in a few studies (24,25) and it was suggested that incorporating courses related to inter-professional relationship education into healthcare curriculums would help alleviate this problem. A study emphasized that improvisation of awareness regarding clinical pharmacy services is necessary to improve awareness as well as build trust and relationship with nursing staff to demonstrate benefits as well to promote, establish, and implement clinical pharmacy services.(4) The same idea was discussed in a study conducted in Sri Lanka.(26)

In this study, only four open questions were asked to obtain nurses opinion about clinical pharmacy, but out of 278 participants only 73.4% managed to answer three, or more than three questions in the opinion section, and 26.6% answered less than three out of four questions. Among the answers to the first question on "Opinion about Clinical Pharmacy Service", 86.7% gave positive response while a small proportion believed clinical pharmacy service are not really needed in the Sri Lankan health setup despite this service being a well-accepted service around the world. Such disagreements were also observed in some other studies (20,23) because of conflict of roles between wards round team members. Similar responses were observed for second and third questions where most of their expectations of a clinical pharmacist was on assistance for drug administration, ensuring drug doses and regimens are correct, and on minimizing medication errors. Very specific answers were observed for the fourth question. As per the view of participants, the current ward setup needs to be modified to utilize the services of a clinical pharmacist. Most nurses recommended that seminars and workshops were necessary to improve the acceptance and attitudes. Health policies of government healthcare settings need to be revised to create opportunities to implement clinical pharmacy services as some of them agreed that good team work could improvise proper patient healthcare outcomes. However, the roles of different healthcare professionals need to be clearly defined.

Results of this study emphasized that the there is a positive attitude towards the role of the clinical pharmacist and that clinical pharmacy services are well accepted by nurses of the study hospital. As in other countries it is reasonable to expect that this will result in improved health outcomes for patients, reduced drug related problems in wards, and reduced cost of healthcare. Thus, this study provides evidence to support a health policy change to introduce clinical pharmacy service to the healthcare system in Sri Lanka.

Limitations

We did not ask whether nurses had worked with clinical pharmacists or a pharmacist other than in a supply capacity in Sri Lanka. None of the participants were exposed to clinical pharmacy services in wards at government hospitals in Sri Lanka. These limitations must be acknowledged.

CONCLUSION

The current study is evidence that attitudes and perceptions towards the role of the clinical pharmacist were adequately positive. Participants who were more than 34 years of age, interested in the nursing profession, practicing in special units, having different views on clinical pharmacists, needed less than five drug

information in the past month, and used more than one method to search drug information, had a significantly higher positive attitude and perception towards clinical pharmacy services. Awareness regarding the importance of clinical pharmacy services and the role of the clinical pharmacist need to be emphasized to nurses. The current ward setup and government healthcare policies and legislations need to be revised in order to utilize and implement clinical pharmacy services in Sri Lanka. In addition, roles of each healthcare professional in the ward round team needs to be clearly defined and documented.

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