Research Article

Perscipience of Nurses towards Pharm D: Pre and Post Interventional Educational Study

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ABSTRACT

To explore the perception of nurses about the roles and responsibilities of Pharm D's and Clinical Pharmacists, a study on perception of nurses was conducted in a tertiary care hospital of Northern Kerala, India. A total of 50 nurses from various nursing stations were selected for the study for duration of one year. A knowledge, attitude and practice questionnaire was prepared pertaining the perception of nurses towards Pharm D's was administered to nurses' as pre and post-intervention phases. The intervention provided was education regarding the roles, responsibilities and activities of a Pharm D's in a hospital. Nurses pleasantly invited us after educating and explaining them about roles, responsibilities and activities of Pharm D's. In assessing knowledge, 15.5% and 67.5% were knowledgeable about the Pharm D course in pre and post-intervention phases respectively. The attitude of nurses towards Pharm D was found to be 40.8% in pre-intervention and 55.4% in post-intervention phases. Practice domain showed an evidence of 34.4% pre-intervention and 60.8% post-intervention with significant results. The overall study results pointed out the essentiality of Pharm D's/clinical pharmacist in pharma care services.

Key words: Clinical Pharmacist, Nurses, Perscipience.

INTRODUCTION

Clinical pharmacy is a branch of health science discipline whereby pharmacists are trained to provide patient care thereby optimizing medication therapy and promoting health, wellness and disease prevention.[1] The hallmark role of clinical pharmacists involves the need to be patient centered, cooperative, and inter-professional as they have to collaborate with physicians, nurses and other health care professionals thereby ensuring appropriate prescription or therapeutic combinations and administration of the right medicine to the right patient in the appropriate dose via the proper route of administration at the right time at an affordable cost.[2,3]

Safe administration of medication is of significant concern to doctors, nurses, pharmacists, administrators, educators, patients, the public at large, and the entire healthcare system and it requires extensive knowledge and skill to perform correctly.[4] According to a report by the World Health Organization (WHO 2003), 50% of patients were failed to have their medicines, as they were unaware about the correct indication of their medicines. This contributes to poor patient outcomes and three hundred million annual wastage of medicines in the United Kingdom (York Health 2010). According to Hawkes *et al.*, healthcare professionals do not always work together effectively which may be the prime reason for various discrepancies that may directly or indirectly affect the patient and the standard of care provided.[5]

Improved teamwork of professionals is an important factor to achieve effective patient friendly health care. Such goal may be accomplished by including inter professional learning (IPL)-learning together to promote collaborative and increasing the competence in the field to render the present needs of the patients.[6,7] The World Health Organization strongly encourages efforts to incorporate IPE (Interprofessional education) into health professional training programs recognizing

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the need of the hour that patient and population outcomes may be improved through multidisciplinary and collaborative care.[8] The sequelae involved in the generation and resolution of a drug therapy problem requires coordination and collaboration between the various health care professionals, usually within an interdisciplinary team that would finally prove of great help to patient drug safety and adherence.[9]

The objective of this study was to investigate the need and level of acceptance of integrating clinical pharmacists into the primary healthcare team and to identify and incorporate them as playing an inevitable role in patient care settings. In addition, we aimed to identify the obstacles that hinder such an integration of pharmaceutical and nursing fields and there by suggest ways to overcome these obstacles in ultimately providing adequate pharmaceutical patient care.[1]

METHODS

The purpose of doing the study was to assess and measure knowledge, attitude and practice approaches of nurses towards Pharm D and clinical pharmacists. Medication adherence is a vital parameter in patient compliance, so it is important to assess the perception of nurses towards Pharm D's who ultimately involves in pharmaceutical care. Pharm D's usually had major role in clinical care which includes detecting adverse events, reporting medication errors and managing all the drug related problems.

The prospective interventional study comprises of Knowledge, Attitude and Practice aspects and the data was gathered for one year duration from November 2014 till November 2015 in a tertiary care referral hospital, Malappuram of North Kerala. 50 nurses from various nursing stations were enrolled in the survey. The inclusion criteria defined was Nurses from wards who were willing to participate in the study and also those who were taking an active role in patient care in inpatient departments. The excluded personalities were nurses working at various Intensive Care Units, Operation theatres, Dialysis unit and Outpatient care. The study methodology can be compared with that of Khalili *et al*.[10] with similar pre and post interventions about adverse drug reactions in health care professionals. The study was categorized as two phases; Phase I comprises of six months, for the Preparation of and validation of the study tool, Knowledge, Attitude and Practice (KAP) questionnaire Table 1. KAP questionnaire contains 6 knowledge, 12 attitude and 5 practice questions which targeted to assess and improve the knowledge, attitude and practice of

Table 1: KNOWLEDGE, ATTITUDE AND PRACTICE QUESTIONNAIRE- KAP values pre-intervention and post-intervention phases of education with percentage and p value.

Sl. no.	QUESTIONS	KAP Pre-intervention (n;%)	KAP Post-intervention (n;%)	p value
	KNOWLEGDE QUESTIONS			
Q1	Have you heard about clinical pharmacy services?	12% Yes 88% No	64%Yes 36% No	0.000
Q2	In your busy schedule, have you heard about course Pharm. D?	24%Yes 76%No	66%Yes 34%No	0.000
Q3	Are you able to catch up the duties of a Pharm.D student?	16%Yes 84%No	70%Yes 30%No	0.000
Q5	Are they eligible to carry out these kinds of activities?	10%Yes 90%No	70%Yes 30%No	0.000
	ATTITUDE QUESTIONS			
Q7	Is there a need for Pharm D's in a hospital setup?	20%Yes 80%No	62%Yes 38%No	0.000
Q8	Do they have the right to set therapeutic decisions?	6%Yes 94%No	68%Yes 32%No	0.000

Continue...

Table 1: Cont'd

Q9	Does Pharm. D's created any disturbances or difficulties to your duties?	46%Yes 54%No	44%Yes 56%No	0.002
Q10	Do they have a role in Indian hospital scenario?	72%Yes 28%No	86%Yes 14%No	0.011
Q11	Do you expect any services from Pharm. D's?	52%Yes 48%No	68%Yes 12%No	0.000
Q13	Have you studied any drug related aspects from Pharm. D's?	58%Yes 42%No	50%Yes 50%No	0.000
Q14	Have you ever reported any drug related problems like adverse reactions, Medication errors etc?	42%Yes 58%No	46%Yes 44%No	0.000
Q15	Have you received any assistance from Pharm. D's in your working schedule?	62% Yes 38%No	64%Yes 36%No	0.012
Q17	Do you think Pharm D have an active role in Community setup?	50%Yes 50%No	46%Yes 54%No	0.008
	PRACTICE QUESTIONS			
Q19	Are you willing to improve your interproffessional skills?	8%Yes 92%No	52%Yes 48%No	0.000
Q20	Are you ready to participate in educational program on drug related aspects?	58%Yes 42%No	64%Yes 32%No	0.000
Q21	Are you willing to participate in awareness classes?	18%Yes 82%No	54%Yes 48%No	0.000
Q22	Are you ready to co-operate with Pharm. D's for patient care?	44%Yes 56%No	60%Yes 40%Yes	0.001
Q23	Do Pharm D students need a posting in nursing stations?	34%Yes 66%No	54%No 46%No	0.011

nurses towards Pharm Ds who had role in clinical care of patients. The pre-validated questionnaire was prepared and distributed among the nurses who were involved in the study.

Phase II consists of educational intervention about the Pharmacy practice department and activities of Pharm D's with illustrations and presentations. Interventions include information about various medications, past medication history interview, adverse drug reactions; medication errors related to all health professionals and patient counseling were described. The intervention was provided for those who had already participated in pre-intervention phases with prior notice to them. The same KAP questionnaire was re-administered to the

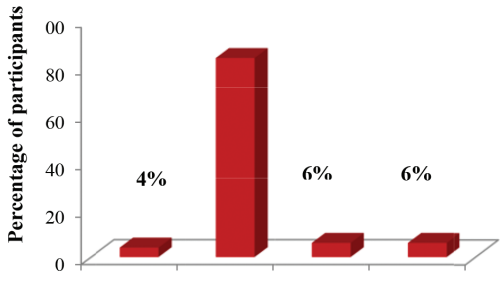

Figure 1: Age wise distribution: The age wise distribution of nurses participated in the study described depicted in Figure 1 with pre-intervention and post-intervention phases of education. It includes age groups of 18-20, 21-30,31-40 and above 40.

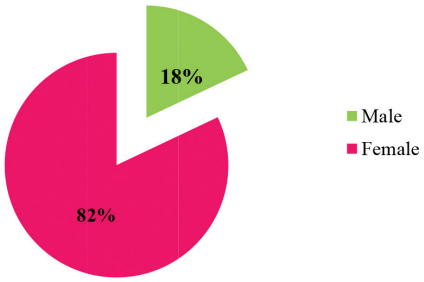

Figure 2: Gender wise distribution: The illustration shows genderwise distribution of nurses participated depicted in below figure 2 with pre-intervention and post-interventionphases of education.

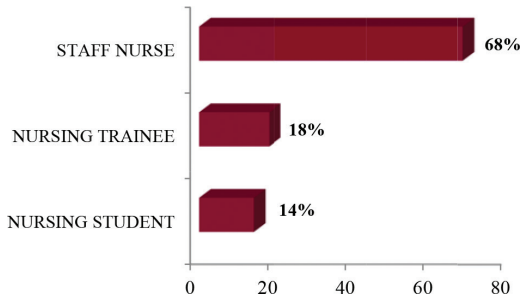

Figure 3: Designation wise distribution: Illustrates the designations such as staff nurse, nursing trainee and nursing students who all participated in study pre-intervention and post-intervention phases of education.

PERCEPTIONS ABOUT ROLE OF PHARM D/ CLINICAL PHARMACIST

Table 2: ACTIVITES OF PHARM D STUDENTS; Depicts about the activities of Pharm D students reported by nurses in pre-intervention and post-interventionphases of education.

Q4. ACTIVITES OF PHARM D STUDENTS				
	PRE-INTERVENTIONPHASE		POST-INTERVENTIONPHASE	
	Frequency	Percentage	Frequency	Percentage
Ward rounds participation	30	60%	43	86%
Adverse reaction monitoring	18	36%	35	70%
Medication error reporting	19	38%	35	70%
Patient counseling	14	28%	31	62%
Patient medication history interview	12	24%	34	68%
Therapeutic decision making	5	10%	15	30%

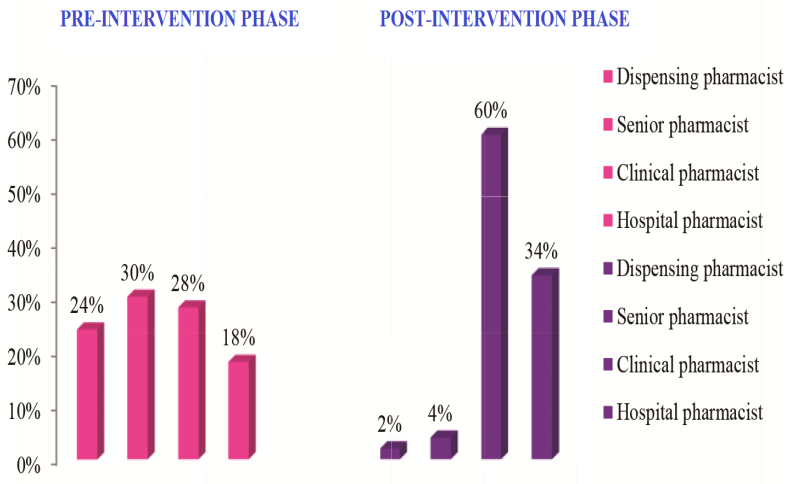

Figure 3: Q12. DESIGNATION OF PHARM D ; Explains about the Designation of Pharm D's in job given by nurses in pre-intervention and post-intervention phases of education.

nurses' post-intervention phase as a feedback system. The results were statistically analyzed using SPSS 17.0 setting the level of significance at 0.05. Paired *t* tests were used for comparing the data pre-intervention and post-intervention educational intervention. Percentage analysis was also used in certain conditions.

RESULTS AND DISCUSSION

The mean age of nurses found to be **25.9 ± 8.28** which showed a significance of 0.000. The most participated age group in the study includes 21-30 (84%), the young and next generation nurses who are going to help and depend on clinical pharmacist in future. Considering the designation, staff nurse were 88%, followed by nursing

Table 4: SERVICES EXPECTING FROM PHARM D; Illustrates about the perception of nurses about services they are expecting from Pharm D students in pre-intervention and post-intervention phases of education.

Q12. SERVICES EXPECTING FROM PHARM D				
	PRE-INTERVENTIONPHASE		POST-INTERVENTIONPHASE	
	Frequency	Percentage	Frequency	Percentage
Drug information	13	26%	36	72%
Identification of brand names	15	30%	32	64%
Identifying medications in prescriptions	18	36%	37	74%
Help in administering medicine	12	24%	28	56%
Help in checking vitals	19	38%	13	26%

Table 5: ASSISTANCE OBTAINED FROM PHARM D; The perceptions of nurses about the assistance obtained from Pharm D's in pre-intervention and post-intervention phases of education.

Q16. ASSISTANCE OBTAINED FROM PHARM D's				
	PRE-INTERVENTIONPHASE		POST-INTERVENTIONPHASE	
	Frequency	Percentage	Frequency	Percentage
Drug information	23	46%	35	70%
Identification of brand names	12	24%	28	56%
Identifying medications in prescriptions	14	28%	27	54%
Help in administering medicine	10	20%	24	48%
Help in checking vitals	10	20%	15	30%

Table 6: ACTIVITIES OF COMMUNITY PHARMACIST; The perception of nurses about activities of a community pharmacist in pre-intervention and post-intervention phases of education.

Q18. ACTIVITIES OF COMMUNITY PHARMACIST				
	PRE-INTERVENTIONPHASE		POST-INTERVENTIONPHASE	
	Frequency	Percentage	Frequency	Percentage
Patient Counseling regarding the disease	21	42%	32	52%
Over the counter drugs counseling	11	22%	21	42%
Awareness program	15	30%	36	72%
Drug information	16	32%	35	70%
All the above	12	24%	27	54%

trainee 18% and nursing students 14%. According to the age, most of them were able to catch up the duties of Pharm D students (p value= 0.000) and also were reported that Pharm D students were able to work up their duties (p value= 0.000) with significant results. The gender wise distribution showed that 82% were Females and 12% were males. The gender wise distribution reported that Pharm D students have the right to set therapeutic decisions which showed significance of p value =0.023. They also states that Pharm D students can create a huge impact on Indian scenario in patient care with a significance of p value =0.011. Nurses became knowledgeable about Pharm D course, their responsibilities, aspects of Adverse reactions, medication errors, drug interactions and patient counseling with extreme significance (p value= 0.000). The designation wise results revealed that most of staff nurses were well heard about the clinical pharmacy services and the course Pharm D (p value=0.042) with significant results. Nurses reported that Pharm D's have an active role in community services with a significance of p value=0.008. Nurses responded that they were ready to improve their interproffessional skills by integrating with Pharm D's which is significant footstep to Pharmaceutical care. (p value=0.000). Nurses were also willing to participate in continuing education programs (p value=0.000) regarding drug aspects to improve compliance towards nursing care and nurses were ready to co-operate with Pharm D's for ultimate patient care showed significant results (p value=0.001).The response revealed that Pharm D postingis essential in various nursing stations, showed a significance of 0.011. The study showed greater

significance in results and there is a valid point that Pharm D's can involve in pharmaceutical care by integrating all the health care professionals in our hospital.

In assessing knowledge, 15.5% pre-intervention and 67.5% post-intervention found to be knowledgeable about the Pharm D course and clinical pharmacy aspects in hospital. The attitudes of nurses towards Pharm D were found to be 40.8% and 55.4% in pre and post-intervention phases of education respectively. In case of practice domain, 34.4% and 60.8% found to practice reporting of adverse events effectively in pre and post intervention phases of education. There is significant difference between the knowledge, attitude and practice of nurses about the clinical pharmacy services in pre-intervention and post-intervention phases of education.

In a study by Keat *et al*.[11] the mean age of the participants was 32.2 ± 6.19 years where as 25.9 ± 8.28 in our study. In Abu-Gharbieh *et al*. study[1] females were the most prominent gender than males reached similar to that of our conclusions. In a study by Khan et al. [3] 62.5% were aware of the Clinical Pharmacist in the hospital, correlating with 64% in post-intervention phase of our study. In a study by Abu-Gharbieh *et al*.[1] 64% participants were aware about the clinical pharmacy programs correlating to 64% in post-intervention phase of our study. In a study by Varela *et al*.[13] only 15.6% professionals had been contacted to participate in pharmaceutical care programs whereas in our study 18% and 72% were ready to participate in health care programs in future in pre and post-intervention phases of education. In the study by Abu Gharbieh *et al*., only 3.8% were aware about the ward rounds activity by clinical pharmacist whereas 60% in pre-intervention and 86% in post-intervention were aware about wards rounds in our study. In Abu Gharbieh study, 30% were aware about drug information services whereas 26% pre-intervention and 72% expect drug information in our study pre-intervention and post-intervention education. In a study by Khalili *et al*.[10] and Palaian *et al*.[12] only 8.5% and 81% were reported different sorts of adverse reactions whereas 36% as pre-intervention and 70% as post-interventionphases reported ADR's in our study. In Al-Youssif *et al*.[4] study nurses perceive low percentages of Medication Administration Errors reaching similar conclusions of our study in pre-intervention phase. In a study by Cufar *et al*.[14] there is significant p value (0.001) that clinical pharmacist had an active role in patient medication history interview similar conclusions in post-intervention phase of our study. In a study by N Al-Arifi *et al*.[15] 70% of participants reported about the role of clinical pharmacist in patient counseling with similar results in post-intervention phase of our study.In a study by Sivadasan *et al*.[16] nearly 78% of them were knowledgeable about ADR's with similar results in post intervention phase of our study. But in a study by Hanafi *et al*.[17] and Chenchu *et al*.[18] 2% and 41% had reported different sort of ADR's respectively where as 46% reported in our study during post intervention phase. In a study by Richardson *et al*.[19] the awareness of nurses about the roles and responsibilities of pharmacists found to be improved in post intervention phase reaching similar conclusions in our study. In a study by Rajesh *et al*.[20] the awareness about pharmacovigilance before and after found to be significant (p value<0.001) with similar results in our study.

The sample size of study is not adequate and also it is impossible to approach each and every nurse in hospital to educate about the role of clinical pharmacist in pharmaceutical care. A gold standard questionnaire/tool to assess the perception of nurses and healthcare professionals towards Pharm D's does not exist.

CONCLUSION

The importance of Pharm D' and Clinical pharmacists were ruled out by an educational intervention. From this study, we concluded that nurses were willing to intervene their responsibilities with utmost pleasure in co-ordination with Pharm D's to plant 'Pharmaceutical care'. Our findings highlighted about the need for our hospital to take the initiative to intervene to develop an environment where nurses and pharmacists can work closely.

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