Continuing Pharmacy Education: Effect on Knowledge, Attitude and Practice of Community Pharmacists in South India

Raja Durai, Krishna Kumar Swaminathan, Alam Krishnamoorthy, Salomi Stephen, Nivetha Chellapathy Babu, Adarsh Pandey, Keerthana Chandrashekar, Ponnusankar Sivasankaran*

Department of Pharmacy Practice, JSS College of Pharmacy, PB No: 20, Rocklands, Udhagamandalam, JSS University, Mysore, India.

ABSTRACT

Background: Community pharmacists are healthcare professionals who play a major role in providing health care services. Continuing pharmacy education modules are designed to update the pharmacists' knowledge and skill to improve their practice. Objectives: This study was performed to evaluate the influence of continuing pharmacy education on pharmacist knowledge, attitude and practice towards 3 diseases viz diabetes mellitus, hypertension and peptic ulcer disease in selected districts of Kerala and Tamilnadu in South India. Method: A prospective open label study was performed among the community pharmacists in selected; 6 districts of Kerala and 4 districts in Tamilnadu over a period of 18 months from July 2013 to December 2014. The prepared course content for the diseases was provided to community pharmacist. The Knowledge, Attitude and Practice (KAP) were assessed by a questionnaire at baseline and post CPE follow up. The feedback for the lecture modules was taken. Statistical analysis was done by using GraphPad Prism Statistical Software version 6.02 and SPSS version 22 for windows. Results: Among 156 from Kerala and 157 community pharmacists from Tamilnadu, as per the protocol only 60 (38.46%) community pharmacists and 53 (33.76%) completed the study in Kerala and Tamilnadu respectively. Among them 62.83% (n=71) were male, 69.02% (n=78) were B. Pharm degree holders and 30.97% (n= 35) were diploma in pharmacy holders respectively. The baseline score for Knowledge, Attitude and Practice (KAP) were 33.78 (Kerala), and 32.25 (Tamilnadu) respectively. Statistically significant improvement in Knowledge, Attitude and Practice scores were found at the end of the study. Conclusion: The specified continuing pharmacy education program made a significant change (P<0.0001) in pharmacist’s knowledge, attitude and practice. The Community pharmacist gave a satisfactory score in feedback for the lectures delivered.

Key words: Continuing pharmacy education, community pharmacist, knowledge, attitude, practice, lectures

INTRODUCTION

Community pharmacists (CP) are the health professional who ensure accurate supply of medicine in accordance with the prescription to the public. Community pharmacy setting is unique in that there is a constant interaction of pharmacist with the general public and others in health care team. They are the essential, easily accessible and final link between physicians and the patients. Thus can provide counseling to patients in addition they can provide drug information to health professionals, patients and general public. They do participate in health promotion programs. The expanding role demands the community pharmacist to be updated with their knowledge. In countries like India where the true community pharmacist concepts are not yet developed, they are not being recognized as patient care provider. The reason can be multiple like, lack of knowledge and attitude followed by failure in their practice. Other few reasons can be business focus, lack of time, lack of interest or may be unawareness about their role. The one solution to overcome
the problem can be implementing continuing education programs to community pharmacist.

The principal aim of continuing pharmacy education (CPE) is to update the pharmacist’s knowledge and skills, to improve professional competencies, and to maximize the impact of interventions on the patients’ health. CPE program not only help the pharmacist but also indirectly protect the public by improving the quality of pharmaceutical care and services provided to the population and by promoting the appropriate use of medications in society. These CPE activities for pharmacist must be designed to help them acquire, master knowledge, skills and attitudes with a view to enhancing the quality of care provided to the population. We aimed at developing a CPE module for the community pharmacist and evaluating its influence on the Knowledge, Attitude and Practice of community pharmacist in South India.

METHOD

A prospective open label study was performed among the community pharmacists in selected; 6 districts of Kerala and 4 districts of Tamilnadu over a period of 18 months from July 2013 to December 2014. The lectures in PowerPoint presentation, its handouts and leaflets for the diseases such as diabetes mellitus, hypertension and peptic ulcer, KAP assessment questionnaire and lecture feedback form were prepared. The community pharmacists need to comply all the three conditions like participation in the CPE lecture, undertake one week refreshing lecture after CPE lecture and provide CPE lecture feedback; to be consider as completed the study. Community Pharmacists who are enrolled but unable to cope up with the requirement of the study were excluded. Earlier the Institutional Review board approval (JSSCP/DPP/IRB/002/2013-14 & JSSCP/DPP/IRB/011/2013-14) was obtained from JSS College of Pharmacy, Ooty, India. The lectures and course content for the diseases were provided to the community pharmacist by trained pharmacist, revision of the course work after one week of the baseline class was done. The Knowledge, Attitude and Practice were assessed by KAP questionnaire at baseline and post CPE follow up. Paired t test was used to measure the difference between baseline and follow-up measures. The feedback for the lecture modules was also taken. Statistical analysis was done by using GraphPad Prism Statistical Software version 6.02 and SPSS version 22 for windows.

RESULTS

The community pharmacists from 6 districts of the Kerala state such as Palakkad, Kozhikode, Kotayam, Trissur, Malapuram and Ernakulam, and from 4 districts of Tamilnadu state such as Vellore, Kanyakumari, Chennai South and the Nilgiris were included in the study. A total of 156 community pharmacists and 90 community pharmacists were initially approached for conducting the CPE program in Kerala and Tamilnadu states respectively. Among them 60 and 53 community pharmacists completed the study. Out of 60 community pharmacists from Kerala, 40% (n=24) were men and 60% (n=36) were women, 61.67% (n=37) were Bachelor of Pharmacy (B. Pharm) degree holders and 38.33% (n=23) were Diploma in Pharmacy (D. Pharm). Out of 53 community pharmacists from Tamilnadu state, 88.68% (n=47) were men and 11.32% (n=6) were women, 77.36% (n=41) were B. Pharm degree holders and 22.64% (n=12) were D. Pharm holders. The district wise participation of the community pharmacists are shown in Figure 1.

The provided continuing pharmacy education significantly increased the knowledge score of CP belonging to Kerala for diabetes by 2.75 (p value <0.0001) and the same for Tamilnadu increased by 2.83 (p value<0.0001). The baseline score for the knowledge regarding hypertension were found to 5.47 (± 1.64) & 3.91 (± 2.03) for Kerala and Tamilnadu respectively. The follow-up score were 6.57 (± 0.85) & 5.15 (± 1.83) with mean difference of 1.10 & 1.25 (p values <0.0001) for Kerala and Tamilnadu respectively. The mean difference in follow-up of CP’s knowledge pertaining to the disease peptic ulcer

![Figure 1: District wise community pharmacist participation in Continuing Pharmacy Education (CPE)](image)

![Figure 2: Effect of Continuing Pharmacy Education on Knowledge](image)
Effect of CPE on KAP among community pharmacist

This study was performed to measure how effective was the CPE provided in knowledge enhancement, improvement in attitude and practice to the community pharmacist belonging to selected districts of Kerala and Tamilnadu. There are different ways of incorporating continuing education to the pharmacist, Budzinski et.al reported that reading highlight excerpts and completing Web-based questionnaires was found to be effective mode of continuing education and another study published by Conte shown that even though pharmacists are interested to participate positively in web lectures, lack of technological and internet skills among community pharmacist would direct them more towards live sessions. In India, every pharmacy yet to even hold an internet connection, we adopted this method of delivery of live lectures, issue of leaflets and revision after one week as the effective method of providing continuing education.

In Kerala state more number of women pharmacist are working at community setup comparing Tamilnadu. This can be due to Kerala being educationally upront state in India. In Tamilnadu more pharmacists are Bachelor of Pharmacy graduates. As large number of privately funded colleges and Universities are located in Tamilnadu than Kerala number of Bachelors in Pharmacy degree working in Community setup is high. The maximum participation was observed in Palakkad (23.89%) district followed by Kanyakumari (19.47%). The baseline score for knowledge in diabetes mellitus, hypertension, peptic ulcer disease and baseline score for attitude were higher in Kerala state than Tamilnadu, while practice score at baseline was higher in Tamilnadu comparing Kerala. The pre and post CPE shown that the knowledge, attitude and practice of the community pharmacist positively improved in both the states.

Although direct measurement in quality of care to patient could not be established, it is expected that increment in community pharmacist’s knowledge, attitude and practice can involve in delivering better patient care. The pharmacist involvement in providing community based pharmaceutical care can lead to improvement in disease management without even altering the pharmacotherapy. Further community pharmacist should evolve from dispenser to medication therapy adherence clinic manager for which his knowledge update, change in attitude and practice are the key components so that he can work along with physician to significantly improve the health of the patients. A research study conducted by Lim & Lim proved that such a collaboration shown significant improvements in HbA1c, glucose and LDL cholesterol levels as well as medication adherence in patients with diabetes. Providing continuing pharmacy education can be a milestone in preparation of the pharmacist to

DISCUSSION
meet the increasing expectations of regulatory authorities.\textsuperscript{13} Comparing baseline score for KAP, the follow-up for both the states increased to larger extent indicating CPE positively affected the Community pharmacist establishing the evidence for implementing the CPE for lifelong learning and professional development.\textsuperscript{14} The majority of the community pharmacist (94\%) said that the lecture fulfilled the expectations of them. The findings serve as a reference for the future planning, design, and improvement in continuing pharmacy education for India.\textsuperscript{15, 16}

**CONCLUSION**

The specified CPE program made a significant change (P<0.0001) in pharmacist’s knowledge, attitude and practice (KAP). The Community Pharmacist gave satisfactory score in feedback for the lectures delivered. Further Continuing pharmacy education modules for other diseases can be prepared and used for lifelong learning and professional development.

**CONFLICT OF INTEREST:**

Nil

**ACKNOWLEDGEMENT:**

Nil

**REFERENCES**