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IMPACT OF CLINICAL ROUNDS BY ACADEMICIANS ON PHARMACY EDUCATION AND PATIENT CARE IN PAKISTAN

ABSTRACT

Many clinical pharmacists are involved in clinical practice along with teaching and training as clinical faculty or preceptors. The role of academic clinical pharmacist in different setting is well identified in term of patient outcomes, education, training and research in developed countries. The major responsibility of pharmacy practice or clinical pharmacy faculty includes clinical practice, research and teaching.

The concept of clinical faculty is well established in medical and dental education in Pakistan. However, since Doctor of Pharmacy (PharmD) is still in establishing phase in Pakistan and going through various educational experiments, different issues are been faced. The major limitation remains teaching of courses of clinical pharmacy taught by non-clinical faculty. In Pakistan, not many pharmacy colleges have clinical pharmacist in their faculty or collaboration with hospital for clinical training. Many have experienced hospital pharmacists involved in teaching and research only in their institute. To overcome the issue of clinical faculty, a program "Independent Clinical Pharmacists Round (ICPR)" was initiated in collaboration with a teaching hospital. The objective of the program is to involve academician with clinical knowledge in clinical rounds to improve patient care. This is the first paper describing the involvement of academic clinical pharmacist in healthcare system in Pakistan and its impacts.

INTRODUCTION

Clinical pharmacists are specialized in pharmacotherapeutics and provide effective therapeutic plan to patients and physicians. Pharmacists are engaged in various activities which involve enhancement of patients' quality of life, patient satisfaction, and selection of appropriate medicine and to minimize the cost and drug related problems.ⁱ The demand of clinical pharmacist is increasing rapidly in the health care system. Studies have reported that adverse drug events, adverse drug reactions and medication errors are greatly reduced by the interventions of clinical pharmacy practitioners.^{ii,iii}

The credit of development of pharmacy profession from a dispenser into a pharmaceutical care provider largely goes to the pharmacy academia. Providing clinical environment through clinical faculty helped developing clinical pharmacy practice was the major contribution.^{iv} Many clinical pharmacists are involved in clinical practice along with teaching and training as clinical faculty or preceptors. The role of academic clinical pharmacist in different setting is well identified in term of patient outcomes, education, training and research in developed countries. The major responsibility of pharmacy practice or clinical pharmacy faculty includes clinical practice, research and teaching.^v

The concept of clinical faculty is well established in medical and dental education in Pakistan. However, since Doctor of Pharmacy (PharmD) is still in establishing phase in Pakistan and going through various educational experiments, different issues are been faced.^{vi} The major limitation remains teaching of courses of clinical pharmacy taught by non-clinical faculty.^{vii} In Pakistan, not many pharmacy colleges have clinical pharmacist in their faculty or collaboration with hospital for clinical training. Many have experienced hospital pharmacists involved in teaching and research only in their institute.^{viii}

To overcome the issue of clinical faculty, a program "Independent Clinical Pharmacists Round (ICPR)" was initiated in collaboration with a teaching hospital. The objective of the program is to involve academicians with clinical knowledge in clinical rounds to improve patient care. This is the first paper describing the involvement of academic clinical pharmacist in healthcare system in Pakistan and its impacts.

Methodology

Objectives:

The study aims to identify the impact of academic clinical pharmacists on:

1. Health outcomes of the patient
2. Pharmacy education
3. Evaluation of ICPR experience

Selection of academic clinical pharmacist

The selection of academicians was carried out by a committee organized by the dean of college of pharmacy. Selection criteria included three factors that were qualification, past professional experience and courses taken. Qualifications relating pharmaceutical care or clinical pharmacy were preferred. Hospital experience and clinical experience was preferred in term of professional experience. Academicians involved in courses relating hospital pharmacy and clinical pharmacy or clinical clerkship were included for option for selection. The selected academicians are referred as academic clinical pharmacists.

Impact on health outcomes

A 100 bed teaching hospital with all facilities was selected for the program. Clinical round comprises of at least two academic clinical pharmacists amongst which one with greater experience of pharmaceutical care was mandatory. The team reviewed each inpatient medical record and assessed medication therapy for any drug related problem every day. Drug related problems (DRP) as any event or circumstance involving the drug treatment, which interferes actually or potentially interferes with the desired health outcomes.^{ix}Form recommended by Pharmaceutical Care Europe Network (PCEN) was used for recording drug related problem. The identified drug related problems were discussed with the concerned physician which may be a registered medical officer, resident, senior resident or consultant. Response of physician was also noted down. All interventions were recorded on the form suggested by PCEN. An audit of the form was then done by another clinical pharmacist. A record for clinical pharmacist round was also maintained in the pharmacy.

Impact on pharmacy education

The impact of clinical round on teaching was assessed by students' evaluation for a course instructed by one of the academic clinical pharmacist involved. Blinding of academic clinical pharmacist allowed avoiding biasness in the students' evaluation results. The evaluation was based on course, instruction, clinical clerkship and individual experience.

Evaluation of ICPR experience

A group discussion was conducted involving each academic clinical pharmacist to determine their experience with respect to the program.

Result

Selection of academic clinical pharmacists

The committee selected five academicians on the basis of their qualification, professional experience and taught courses. Amongst them three had post-graduates degree relating clinical pharmacy which one had PharmD and other had masters in pharmaceuticals. All participants had hospital experience while two had worked as clinical pharmacist previously.

Impact on health outcome

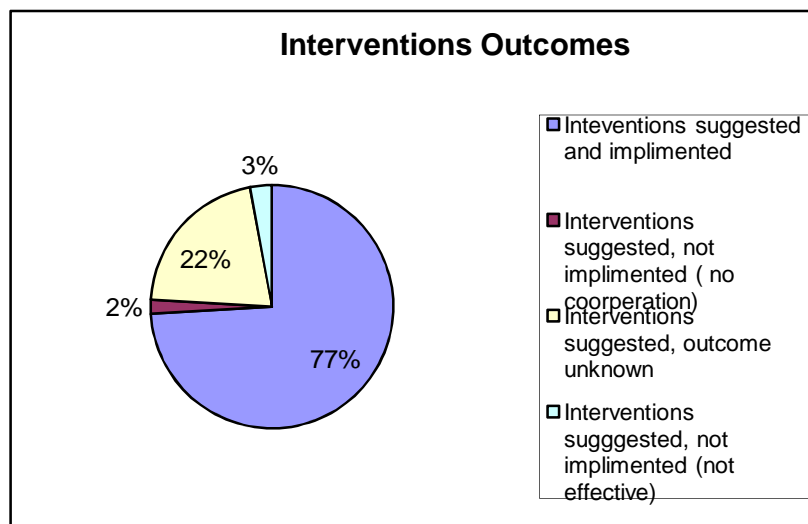
A total of 300 profiles (Male: 41.81%), Female: 58.18%) were reviewed by academic clinical pharmacists during the three months period, out of which 110 profiles had drug related issues. A total of 120 drug related problems were identified and the causes for these problems were 134. Out of 120 DRPs, 46 (41.81%) drug related problems were identified in males and 64 (58.18%) DRPs were related to female.

A total of 120 DRPs were identified in total, of which 41.66% (n=50) was related to adverse reactions followed by 30% (n=36) related to treatment effectiveness, 15% (n=18) belongs to other related problems while the least 13.33% (n=16) were related to treatment cost.

The major causes of these DRPs were due to dosing error 44.02% (n = 59) and inappropriate drug selection 42.53% (n = 57). While drug use process, logistics and error from patient's side contribute 2.23% (n = 3), 8.20% (n =11), 2.98% (n= 4) respectively to make overall 134 causes responsible for DRPs.

116 recommendations were given by academic clinical pharmacists. The majority of these recommendations were given at drug level 62.93% (n=73) followed by 37.06% (n=43) at prescriber level. No recommendations were made at patient level.

Interestingly out of these 116 recommendations 76.72% (n=89) solved the problem completely. Only 4.31% (n=5) of problems remain unsolved due to ineffectiveness of the recommendation and lack of cooperation from prescriber. While outcomes of the 18.96% (n=22) of recommendations remain unknown.



Impact on pharmacy education

At the end of first semester, students of fifth year were asked to filled a simply survey form with respect to clinical course of one of the participants of the program. All of the students participating in survey were aware of ICPR. 80% of the students respondent to increased interest in clinical course and clerkship. 65% confirmed that the instructor provided with new information.

Evaluation of ICPR experience

The group discussion was carried out at the end of semester involving all the academic clinical pharmacists. Most of the participant agreed with increase knowledge, increased confidence to practice and increased understanding of clinical pharmacy. However, the major concerned remained was time allocation, lack of authorities and financial imbursement.

Discussion

Keeping the fact that PharmD is professional degree, training of pharmacist is an integral part pharmacy education. Training pharmacy students in different aspects of pharmacy profession allows them to adjust in professional life with ease. The realization of this fact has allowed practicing pharmacist to be a part of academic faculty. As a result, the faculty of pharmacy colleges of developed counties comprises of both scientists and pharmacy practitioners.^x Pharmacy practitioners are normally known as "clinical educators", the concept of which was adopted from medical colleges.^{xi} Pharmacy faculty can be categorized into two: clinical faculty and non clinical faculty. Non clinical faculty belongs to basic sciences and majorly involved in teaching and research activities, whereas clinical faculty are responsible for clinical practice at a site along with teaching and research.^{xii}

The pharmacy education in Pakistan has always been based on pharmaceutical scientists, who strived more for research than practice. Although before joining academia, most of the faculty has professional experiences relating to industrial pharmacy. Furthermore, the moonlighting phenomenon was also not so pronounced in pharmacy academia than medical education. The conversion of baccalaureate degree to the PharmD resulted in addition of clinical pharmacy related topic in the curriculum. The need of trained clinical pharmacist in the faculty has identified by many.^{xiii,xiv}

Independent Clinical Pharmacist Round was initiated with an intention to allow academicians involved in clinical courses to utilize to increase their professional experience and patient care.

The program was initiated during semester break. Hospital administration and physicians were presented with the program, before the initiation. They showed enthusiasm towards the program, however, there were concerns with respect to conflicts between pharmacist and physicians.

The positive result of ICPR on health outcome was expected as two experienced professional were involved. The involved academic had good pharmacotherapy knowledge and had good hospital experience. Facilitation by the two clinically experienced academicians assisted other to reduce the gaps for others. Training were provided with respect to counseling, prescription review and drug information. The impact of clinical rounds on teaching showed positive results by increased enthusiasm of students towards clinical pharmacy courses and clerkship. Clinical understandings of students were enhanced. Participants were more satisfied in term of their contribution to education and patient care.^{xv}

Limitation

The major limitation of the program remained involvement of experienced clinical pharmacist. However, pharmacist working in hospital and performing clinical rounds can be as effective.

Contribution to pharmacy education in Pakistan

1. It is generally considered in Pakistan that hospital management and physician discourage clinical pharmacy programs. This paper has shown that if a program is lead by professional the rate of success will increase.
2. Clinical courses and clerkship by practicing pharmacist result in greater satisfaction of students in term of understand.

Recommendations

1. Position for clinical faculty should be established in each pharmacy colleges.
2. Collaboration with a local hospital should be made mandatory.

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REFERENCES

1. Ganachari MS, Mahendra Kumar BJ, Wali SC, Fabin M. Assessment of Drug Therapy Interventions by Clinical Pharmacist in a Tertiary Care Hospital. *Indian Journal of Pharmacy Practice* 2010;3(3):22-28.
2. Schumock GT, Meek PD, Ploetz PA, Vermeulen LC. Economic evaluations of clinical pharmacy services 1988-1995. *Pharmacotherapy*. 1996;16: 1188-1208.
3. Willett MS, Bertch KE, Rich DS, Ereshefsky L. Prospectus on the economic value of clinical pharmacy services: a position statement of the American College of Clinical Pharmacology. *Pharmacotherapy*. 1989;9:45-56.
4. DiPiro JT. The next big challenge for pharmacy academia. *Am J Pharm Educ*. 2007 Aug 15; 71(4):72.
5. McNatty D, Cox CD, Seifert CF. Assessment of teaching experiences completed during accredited pharmacy residency programs. *Am J Pharm Educ* 2007;71(5):88.
6. Aslam N, Ahmed KZ. Clinical Pharmacy Clerkship in Pakistan: A leap from paper to practice. *Innov. Pharm*. 2011; 2(39):1-4.
7. Baber Z. Pharmacy education and practice in Pakistan: are they effecting our healthcare system. *Chowk* 2005. <http://www.chowk.com/Views/Education/Pharmacy-Education-and-Practice-in-Pakistan-Are-They-Affecting-our-Healthcare-System>. Accessed on 14 August 2011.
8. Amir M. The aftereffects of implementing the PharmD degree in developing countries. *Am J Pharm Educ* 2011;75(6):124.
9. Pharmaceutical care Europe network. <http://www.pcne.org/DRP.htm>
10. Boyce EG, Burkiewicz JS, Haase MR, MacLaughlin EJ, Segal AR, Chung EP, Chan LN, Rospond RM, Barone JA, Durst SW, Wells BG. ACCP Position Statement. *Clinical Faculty Development. Pharmacotherapy* 2009;29(1):124-126.
11. Draugalis JR, DiPiro JT, Zeolla MM, Schwinghammer TL. A career in academic pharmacy: opportunities, challenges, and rewards. *Am J Pharm Educ* 2006;70(1):1-15.
12. MacKinnon GE. An investigation of pharmacy faculty attitudes toward faculty development. *Am J Pharm Educ*. 2003;67:49-71
13. Jamshed S, Babar ZU, Izhah M, Ibrahim M. PharmD in Pakistan: a tag or a degree? *Am J Pharm Educ* 2009;73(1):13.
14. Khan TM. Challenges to pharmacy and pharmacy practice in Pakistan. *AMJ* 2011; 4(4).
15. Khan MU. A New Paradigm in Clinical Pharmacy Teaching in Pakistan. *Am J Pharm Educ* 2011;75(8): 166.