Privileges of Pharmacists in Saudi Arabia: Drug Monitoring and Providing Education to Healthcare Professionals

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ABSTRACT

Objectives: To explore the privileges of pharmacists with regard to the drug monitoring and providing education to healthcare professionals in Saudi Arabia. Methods: This is a 4-month cross-sectional survey regarding drug monitoring and providing education to healthcare professionals in Saudi Arabia. The study consisted of two parts: the first part collected demographic information and the second part comprised a questionnaire with 28 questions divided into 4 domains. The questions were derived from previous literature and from the regulatory standards of the American Society of Health-System Pharmacists (ASHP). The four domains were as follows: management and resources, pharmacist prescribing and therapeutic interchange, clinical and administration privilege and drug monitoring and healthcare education. The responses were obtained using a 5-point Likert response scale system with close- and open-ended questions. The survey questionnaire was distributed in an electronic format to the director of pharmacy. In this study, we analyzed pharmacist’s privilege with regard to drug monitoring and the education of healthcare providers. All data were obtained through the Survey Monkey system. Results: The survey was distributed to 36 hospitals. Most of the pharmacist’s privilege in drug monitoring and documentation of the clinical impact and cost avoidance was related to patient counseling (90.63%), adverse drug reactions (88.24%) and drug quality reporting (87.50%). Most of the candidates were students from Diploma in Pharmacy (50.00%) followed by (47.22%) pharmacy student and (44.44%) pharmacy technician. Majority of the pharmacists having privileges in providing education and training was available for pharmacists and clinical pharmacists. Finally, pharmacy technicians delivered most of the education and training to general physicians, nurses and specialist physicians. Conclusion: In Saudi Arabia, privileges of a pharmacist with regard to drug monitoring do not exist in various departments of hospitals such as neonatal, pediatrics and geriatrics patients. Regular and clinical pharmacists had most of the privileges in providing education and training to the healthcare professionals and few of the healthcare professionals received education and training by the pharmacists. Therefore, there is an increasing demand of a comprehensive awareness program about privileges of a pharmacist in the Kingdom of Saudi Arabia.

Key words: Privileges, Pharmacists, Drug Monitoring, Education, Healthcare, Professionals, Saudi Arabia.

INTRODUCTION

The role of pharmacists has been expanding in the last few years, which involves different areas that define patient-centered care as the primary objective.¹ The pharmacist’s presence in the hospital ensures the safe and effective use of medicines. Furthermore, the participation of pharmacists in drug therapy management improves outcomes of drug therapy, facilitates patient adherence to therapy and increases the effectiveness of treatment.² Providing patient education and counseling improves therapeutic outcomes, patient compliance and quality of life as well as increases patient’s perception about medication and lifestyle modifications in chronic diseases.³ Due to the increase in wages, most Saudi pharmacists end up practicing in hospital settings rather than in retail pharmacies. The role of hospital staff pharmacists includes the management of medication storage and supplies, medication verification and dispensing, provision of drug information to other healthcare providers and training of students and residents.⁴ In addition, they participate in sterile preparation of chemotherapy or medications and are involved in the identification and reporting of adverse drug events (ADEs).⁵ Most of the hospitals have an ADR reporting program, a medication error reporting program and a multidisciplinary medication safety committee.⁶⁷ The committee’s tasks are to analyze the reported ADRs and medication errors and create a modified system or policies to avoid further errors in the pharmacy department.⁸ Many hospitals in Saudi Arabia are accredited by the Joint Commission International, where the hospitals are aware of the importance of quality for improving healthcare. Quality indicators such as the number of prescriptions filled, patient satisfaction, patient’s waiting time, number of dispensing errors and others are measured, where the services are modified based on their outcomes.⁹ The pharmacists play a critical role in developing the healthcare system through their involvement in the successful use of pharmacological therapies, medication safety activities, enhancing therapeutic plans along with patient counseling, increased patient adherence and practical cooperation within the medical team.¹⁰ ASHP national survey (2015) divided drug monitoring and patient counseling into a wide variety of activities such as handling of cases of

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privileges of a pharmacist in providing education and training was for pharmacist (111) followed by clinical pharmacists (77) and pharmacy technician (63) periodically, whereas most of the education and training was delivered to the following healthcare professionals by the pharmacy staff: general physician (71), nurses (52) and specialist physicians (46) periodically (Tables 5 and 6). The Cronbach’s alpha test results was 0.983.

**DISCUSSION**

The General Administration of Pharmaceutical Care at MOH in KSA released the updated pharmacy strategic plan with an emphasis on essential pharmaceutical care services and advanced clinical pharmacy services including patient medication counseling and drug therapy monitoring.

The strategic plan consisted of several phases, which also included the implementation phase. During this phase, the task force committee is responsible for establishing more than 30 pharmacy practice programs that are patient-centric. For instance, medications safety program takes care of the detection and prevention of medication errors by taking care of ADRs. Furthermore, the programs include all elements of Institution of Safe Medication Practice and all requirements of medication safety standards of the CBAHI. In this study, we aimed to explore privileges of a pharmacist related to the drug monitoring and in providing education and training to the healthcare providers. Our results showed that most of the privileges related to the drug monitoring and documentation of the clinical impact and cost avoidance was recorded for patient counseling and ADRs. The results of drug monitoring was better than those that has been reported by Alomi et al. and lower than those that was reported by Pedersen et al. This result is expected because of the good implementation of medications safety program; however, our results were lower than that reported in the USA because the program was started recently.

More than half of the pharmacy programs ensure that the clinical effectiveness of cost avoidance of drug monitoring activities is measured. This is expected because the pharmacy administration began to measure the effectiveness of pharmacy services through clinical and economic outcomes. The implementation of pharmacy research is insufficient, which is due to the poor knowledge and inadequate experience related to scientific research, which is reported by Alomi et al.

Bachelor of Science in Pharmacy or Diploma in Pharmacy students are sent for training to most hospital pharmacies; therefore, it is normal to find an increased number of trainees every year. However, there were few pharmacy programs because most of the hospitals need the accreditation by Saudi Commission for Healthcare Specialties for pharmacy residency program. However, the pharmacy residency programs were found to be better than previous study because of the expansion of the pharmacy training services in KSA. Pharmacist and clinical pharmacist had most of the privileges in providing education and training on a weekly basis; however, our results were lower than those that were reported by Alomi et al.

This is because hospitals have more number of Diploma students and difficult to apply for clinical pharmacy programs.
Most of the education and training programs were delivered by the pharmacist to general physicians, nurses and specialized physicians and most of the educational courses were delivered weekly for CME, orientation program and short educational courses (1–5 days). This is because of the requirements of the MOH or local or international accreditation organizations. These investigations are not done previously with these details to compare the finding with either local or international studies in term of pharmacist privilege of education and training activities and the privi-

Table 1: Demographic information regarding responder’s qualifications.

| Nationality       | Response Count | Response Percent | No. of hospital Licensed Beds | Response Count | Response Percent |
|-------------------|----------------|------------------|------------------------------|----------------|------------------|
| Saudi             | 32             | 88.89%           | < 50                         | 7              | 19.44%           |
| Non-Saudi         | 4              | 11.11%           | 50-99                        | 5              | 13.89%           |
| Answered question | 36             |                  | 100-199                      | 7              | 19.44%           |
| Skipped question  | 0              |                  | 200-299                      | 1              | 2.78%            |

| Age               | Response Count | Response Percent | No. of hospital Licensed Beds | Response Count | Response Percent |
|-------------------|----------------|------------------|------------------------------|----------------|------------------|
| 20-30 years       | 2              | 5.56%            | 400-499                      | 3              | 8.33%            |
| 31 - 40 years     | 16             | 44.44%           | = or > 600                   | 5              | 13.89%           |
| 41 - 65 years     | 17             | 47.22%           | Medical City                 | 3              | 8.33%            |
| more than 65 years| 1              | 2.78%            | Answered question            | 36             |                  |
| Answered question | 36             |                  | Skipped question             | 0              |                  |
| Skipped question  | 0              |                  |                              |                |                  |

| Table 2: Information about responder’s experiences. |

| Years of experience | Pharmacy Practice | Percent | Clinical Pharmacy | Percent | Pharmacy Administration | Percent | Response Count |
|---------------------|-------------------|---------|-------------------|---------|-------------------------|---------|----------------|
| 0                   | 4                 | 30.77%  | 4                 | 30.77%  | 5                       | 38.46%  | 13             |
| < 1 year            | 7                 | 46.67%  | 4                 | 26.67%  | 4                       | 26.67%  | 15             |
| 1-3                 | 9                 | 39.13%  | 6                 | 26.09%  | 8                       | 34.78%  | 23             |
| 4-6                 | 7                 | 26.92%  | 8                 | 30.77%  | 11                      | 42.31%  | 26             |
| > 6 years           | 14                | 43.75%  | 4                 | 12.50%  | 14                      | 43.75%  | 32             |
| Answered question   |                   |         |                   |         |                         |         | 36             |
| Skipped question    |                   |         |                   |         |                         |         | 0              |
Table 3: Pharmacist’s privilege of drug monitoring and documentation of the clinical impact and cost avoidance.

| Answer Options                                | Neonates | Pediatrics | Adults | Geriatrics | We do not have it | Response Count | Number of existed services | Percentage of existed services |
|------------------------------------------------|----------|------------|--------|------------|-------------------|----------------|---------------------------|--------------------------------|
| Medication errors                              | 29.41%   | 44.12%     | 67.65% | 38.24%     | 23.53%            | 34             | 26                        | 76.47%                         |
| Adverse drug reactions                         | 41.18%   | 50.00%     | 73.53% | 44.12%     | 11.76%            | 34             | 30                        | 88.24%                         |
| Drug quality reporting                         | 34.38%   | 56.25%     | 75.00% | 40.63%     | 12.50%            | 32             | 28                        | 87.50%                         |
| Patient counseling                             | 34.38%   | 59.38%     | 84.38% | 46.88%     | 9.38%             | 32             | 29                        | 90.63%                         |
| Pharmacist intervention                        | 33.33%   | 48.48%     | 75.76% | 45.45%     | 18.18%            | 33             | 27                        | 81.82%                         |
| Drug information inquiries                     | 35.29%   | 41.18%     | 73.53% | 44.12%     | 17.65%            | 34             | 28                        | 82.35%                         |
| Poisoning information inquiries                | 29.03%   | 32.26%     | 58.06% | 32.26%     | 32.26%            | 31             | 21                        | 67.74%                         |
| Drug Utilitarian Evaluation activities         | 30.30%   | 39.39%     | 60.61% | 33.33%     | 27.27%            | 33             | 24                        | 72.73%                         |
| Home healthcare activities                     | 19.35%   | 19.35%     | 48.39% | 32.26%     | 35.48%            | 31             | 20                        | 64.52%                         |
| Therapeutic Interchange activities             | 31.25%   | 43.75%     | 53.13% | 43.75%     | 31.25%            | 32             | 22                        | 68.75%                         |
| Pharmacy Research                              | 19.35%   | 12.90%     | 41.94% | 19.35%     | 45.16%            | 31             | 17                        | 54.84%                         |
| Non formulary requests                         | 39.39%   | 42.42%     | 69.70% | 45.45%     | 15.15%            | 33             | 28                        | 84.85%                         |

Answered question: 35
Skipped question: 1

Table 4: The hospital pharmacist’s privilege in education and training for students and hospital staff.

| Answer Options                                      | Response Count | Response Percentages |
|-----------------------------------------------------|----------------|----------------------|
| Pharmacy Technician students                        | 12             | 33.33%               |
| Pharmacy Technician                                 | 16             | 44.44%               |
| Pharmacist Student                                  | 17             | 47.22%               |
| Pharm. D degree students                            | 18             | 50.00%               |
| Bsc. Pharm. (New Employee)                          | 10             | 27.78%               |
| Bsc Residency                                       | 5              | 13.89%               |
| Post Pharm D or Master Residency                    | 9              | 25.00%               |
| Post Pharmacy Technician Residency                  | 2              | 5.56%                |
| Nursing school                                       | 2              | 5.56%                |
| Medical school                                       | 5              | 13.89%               |
| Non                                                 | 1              | 2.78%                |
| Answered                                            | 36             |                      |
| Skipped                                             | 0              |                      |

Table 5: The pharmacist’s privilege in education and training available for pharmacy staff.

| Answer Options                                      | Pharmacy Technician | Pharmacist | Clinical Pharmacist | Pharmacist supervisor | Assistant director of pharmacy | Director of Pharmacy | Total | Response Count |
|-----------------------------------------------------|---------------------|------------|--------------------|-----------------------|-------------------------------|--------------------|-------|----------------|
| Weekly lecture CME                                  | 15                  | 28         | 20                 | 13                    | 8                             | 9                  | 93    | 34             |
| Short education course 1-5 days                     | 12                  | 20         | 16                 | 6                     | 6                             | 4                  | 64    | 30             |
| Long training session 4-5 weeks                     | 9                   | 19         | 15                 | 6                     | 5                             | 4                  | 58    | 29             |
| General Pharmacist residency program                | 6                   | 16         | 9                  | 6                     | 4                             | 4                  | 45    | 26             |
| Specialized pharmacist residency program            | 8                   | 11         | 11                 | 3                     | 3                             | 4                  | 40    | 25             |
| Distance learning pharmacy education                | 13                  | 17         | 6                  | 7                     | 5                             | 2                  | 50    | 25             |
| Total                                               | 63                  | 111        | 77                 | 41                    | 31                            | 27                 | 350   |                |

Answered question: 35
Skipped question: 1
lege of pharmacy education and training programs at MOH hospitals. Further studies should focus on monitoring this information every year in order to improve the services at hospital pharmacies.

**CONCLUSION**

Two-thirds of the privileges of the pharmacist is given to monitoring drug therapy and one-third on education and training in the KSA. Majority of the privilege related to drug therapy monitoring activities were common with few improvements. Further studies should target a comprehensive review of pharmacist’s privilege with regard to drug therapy monitoring and education and training in KSA.

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**CONFLICT OF INTEREST**

The authors declare no conflict of interest.

**ABBREVIATIONS**

ADRs: adverse drug reactions; CME: continuing medical education; MOH: Ministry of Health; KSA: Kingdom of Saudi Arabia; CBAHI: Saudi Central Board for Healthcare Accreditation; ASHP: American Society of Health-System Pharmacists; SPSS: Statistical Package of Social Sciences.

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