

Pharmacist Intervention Documentation in Saudi Arabia

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ABSTRACT

Objectives: To explore the pharmacist intervention documentation in the Kingdom of Saudi Arabia.

Methods: This is a 4-month cross-sectional self-administrated survey on documentation of pharmacist intervention. The study consisted of two parts: the first part collected demographic information and the second part comprised of a questionnaire with 18 questions. The second part included policy and procedure, type of data through pharmacist intervention, reporting workload of pharmacist intervention documentation. All types of pharmacist professionals were included in this survey. We used a 5-point Likert response scale system to obtain the responses. There were open- and close-ended questions. The survey was distributed through the social media (WhatsApp) and other social media to more than 1000 pharmacist professionals in the Kingdom of Saudi Arabia. The survey was distributed in an electronic format and the data were analyzed through Survey Monkey system. **Results:** A total of 128 pharmacists responded to the survey. Of them, 106 (82.81%) were Saudi and 22 (17.19%) were non-Saudi professionals. The majority of the responders were in the age group of 25–34 years and 35–44 years (44.53% and 25.00%, respectively). Most of the responders had obtained Bachelor of Pharmacy (40 (31.25%)) and Doctor of Pharmacy degree (33 (25.78%)) and the majority of the pharmacists (112 (87.50%)) were not accredited by the Board of Pharmaceutical Specialty. The average score of the administration element of pharmacist intervention documentation was 3.68 (73.66%). Policies and procedures of pharmacist intervention documentation obtained the highest score (4.13 (82.6%)) followed by the quality management (3.78 (75.60%)) and education with training (3.76 (75.20%)). Adverse drug reactions (92.86%) and medication errors (91.19%) were most of the recorded type of documentation and poisoning information inquiries (65.62%) and medication reconciliation (80.31%) were the least type of documentation, with an average 54.66% documented electronically. **Conclusion:** The pharmacist intervention documentation was found to be acceptable in the Kingdom of Saudi Arabia. The half of pharmacist intervention documentations was an electronic only. In the future, we recommend to improve the system and correct barriers related issues. This will enhance the process of documentation and explore the impact and role of the pharmacist in the Kingdom of Saudi Arabia.

Key words: Pharmacist, Intervention, Documentation, Pharmacy, Workload, Saudi Arabia.

INTRODUCTION

Patient safety is of utmost importance to a health-care provider, which they aim to achieve through minimization of adverse drug reactions and optimizing therapy management.^{1,2} To achieve this goal, a multi-disciplinary team is usually involved. Pharmacist is one of the healthcare providers who has the tremendous knowledge about medications.³⁻⁵ Moreover, pharmacists have diverse responsibilities such as monitoring medication for people with acute and chronic diseases, operating repeat prescription services, reviewing medication for long-term users, prescribing under protocols, advising on the management of common conditions and participating in local and national health promotion or disease prevention activities.^{6,7} Furthermore, the pharmacists ensure the rational and cost-effective use of medicines.⁸ In addition, they provide interventions that are considered as beneficial by the healthcare systems across various wards in the hospital.^{9,10} Moreover, the implementation of pharmacist intervention documentations demand to declare the clinical and economic outcome of pharmacist's role toward patient care. Various studies have been conducted to evaluate pharmacist's intervention in preventing or reducing drug-related problems and reduced the potential economic burden. A cost avoidance study was conducted to identify

pharmacist intervention in the emergency department through, dosage adjustment, responses to inquiries from nursing staff, therapeutic interchanges and suggestions of initiation of drug therapy. Moreover, The potential cost avoidance resulting of the pharmacist interventions was more than 1 million dollars.¹¹ Abdulsalim *et al.* (2019) showed that medication adherence significantly increased after obtaining pharmacist intervention (from 49% to 80% after 2 years) ($P < 0.001$). Moreover, documentation also increased medication adherence in patients with COPD.¹² To enhance the productivity of their work, pharmacists should document the interventions provided to the patients. The documentation system should be a permanent medication record with rationale for providing the medication. The pharmacist's documentation helps to ensure continuity of care via communication among healthcare providers as subsequent team members are often not aware of the discussion. As the documentation system will create a permanent record, we can consider the documentation as an essential element during medico-legal cases. Therefore, for all these reasons, documentation of pharmacist intervention is a useful tool in improving the quality of the healthcare system; it not just benefits the patient but also the healthcare system.¹³ In

addition, it is also an essential element to justify the salaries of the pharmacists and cost of clinical pharmacist activities, providing information to healthcare providers.¹⁴ Previous studies have focused on pharmacist intervention at governmental or private healthcare organization in Saudi Arabia.^{9,10,15,16} Moreover, several international studies have focused on methods and policies of pharmacist documentation.¹⁷⁻²³ However, only a few studies have discussed the methods or types of pharmacist intervention documentation.^{24,25} Therefore, in this study, we aimed to explore the pharmacist intervention documentation system with an emphasis on planning of policies and procedures in the kingdom of Saudi Arabia (KSA).

METHODS

This is a 4-month cross-sectional self-administrated survey on documentation of pharmacist intervention. The study consisted of two parts: the first collected demographic information and the second part comprised a questionnaire with 18 questions. The questionnaire had domains on policies and procedures, type of data through pharmacist intervention, documentation of clinical impact and cost avoidance, analysis of pharmacist intervention and the barrier of pharmacist intervention documentation. All kinds of pharmacist professionals were included in this survey. We used 5-point Likert response scale system to obtain responses. There were open- and close-ended questions. The survey was distributed through social media (WhatsApp) in an electronic format and other social media to more than 1000 pharmacist professionals in the Kingdom of Saudi Arabia (KSA). The data were analyzed through the Survey Monkey system. The data were validated with the help of three methods. More than two authors reviewed the survey independently and the pilot study was conducted. The survey data were corrected accordingly. Cronbach's alpha test value for internal validity was calculated. This survey was exempted from the international guidelines of institutional review boards (IRB).²⁶

RESULTS

A total of 128 pharmacists responded to the questionnaire. Of them, 106 (82.81%) were Saudi and 22 (17.19%) were non-Saudi professionals. The majority of the responders were in the age group of 25–34 years (44.53%) and 35–44 years (25.00%). Most of the responders had obtained Bachelor of Pharmacy (40 (31.25%)) and Doctor of Pharmacy degree (33 (25.78%)) and the majority of pharmacists (112 (87.50%)) were not certified by the Board of Pharmaceutical Specialties. The majority of the responders had more than 6 years of experience in pharmacy, clinical pharmacy and pharmacy administration (77 (60.16%), 44 (20.47%) and 39 (31.20%), respectively) (Tables 1 and 2). The most of pharmacists were working at = or > 600 beds hospital 23 (17.97%) and Medical City 22 (17.19%) with the majority of the hospital had been accredited by Saudi Central Board for Healthcare Accreditation (CBAHI 84 (73.04%) and by the US Joint Commotion (68 (59.13%)) (Table 1). The average score of the administration element of pharmacist intervention documentation was 3.68 (73.66%). Policies and procedures of pharmacist intervention documentation showed highest score (4.13 (82.6%)) followed by the quality management (3.78 (75.60%)) and education with training 3.76 (75.20%) (Table 3). The most type of documentation was for adverse drug reaction (92.86%), medication errors (91.19%) and pharmacist intervention (90.62%), whereas the least type of documentation was for poisoning information inquiries (65.62%) and medication reconciliation (80.31%). The average score of manual documentation was 45.64%, whereas the highest score was obtained for patient counseling (52.76%), adverse drug reactions (50.00%) and drug quality reporting (47.66%). The average score on electronic documentation was 54.66%, whereas the highest score on electronic documentation was obtained for

medication errors (64.06%), pharmacist intervention (63.28%) and adverse drug reactions (61.11%) (Table 4). In the case of adult patients, the most reported workload of pharmacist intervention documentation was for number of medication errors (74.22%) and number of prescriptions (74.02%), whereas in the case of pediatrics, it was for number of prescriptions (63.28%) and number of patients (63.28%). The most reported workload documented in the case of neonates was for number of prescriptions (45.31%) number of patients (45.31%), number of medication errors (45.31%) and number of adverse drug reactions (45.31%) (Table 5). The Cronbach's alpha test value was 0.925.

DISCUSSION

In Saudi Arabia, the pharmacist intervention documentation system had been started in mid-1990.²⁵ This system allows the pharmacist to discuss any discrepancies with the physician regarding any prescriptions. As a result, from the past few years, the pharmacist is having an active role in the intervention and documentation of their rational activities and in designing a pharmacy intervention form for the purposes of documentation. A previous study has been conducted about 20 years ago regarding the pattern of documentation of pharmacist intervention and therefore an updated information about the pharmacist intervention is highly warranted.²⁴ This study investigated the pharmacist intervention system related to the policies and methods of the documentation system. Our findings showed that in Saudi Arabia, the pharmacist intervention documentation related to the policies and procedures was acceptable. The most of recorded elements were policies and procedures, quality management and education and training of pharmacist. That previous barriers of pharmacist intervention were required for pharmacy and hospital services local and international accreditation.^{27,28} While the least recorded section was the competency of the pharmacy technician, which is related to the documentation of the intervention. The job of a clinical pharmacy technician is a new one for them to assess the documentation. The updated system is required to meet the updated things. There were various types of interventions that need to be documented. The three common type of documentation was for adverse drug reactions, medication errors and general pharmacist intervention.^{25,29,30} they were documented manually or electronically. This is related to the requirements of quality management and accreditation by healthcare organization^{27,28} Moreover, the system of three type of pharmacist interventions are well established at the all healthcare services in the KSA.^{25,29,30} While drug poisoning documentation and medication reconciliation the least-recorded elements of documentation by either manual or electronic method, which might be related to the system or policy that does not exist. The updated version should have revised content for those elements. Drug information inquiry was the least-recorded electronic documentation because there is not a single electronic documentation system at most hospitals (they used Microsoft Excel to document).³¹ Half of the elements were documented electronically only. The electronic updated documentation is highly recommended with new Saudi Vision 2030.^{32,33} Based on the number of reporting of documentation, the highest documentation was recorded for prescriptions, number of patients and number of medication errors and pharmacist intervention. The documentation of patients and prescriptions was considered for workload documentation analysis, whereas medication errors of pharmacist intervention were required to prevent drug-related problems. Our findings showed that most of the type of patients documented their clinical activities were for adults followed by pediatrics and neonates. This might be because the documentation of adult patients already existed prior to pediatrics and neonates.³⁴ The documentation of pharmacist intervention is a critical value in pharmacy practice. Regular future research about pharmacist intervention documentation is highly recommended in the KSA.

Table 1: Demographic information regarding responder qualification.

Nationality	Response Count	Response Percent	No. of hospital Licensed Beds	Response Count	Response Percent
Saudi	106	82.81%	Board Certified Ambulatory Care Pharmacist (BCACP)	3	2.34%
Non-Saudi	22	17.19%	Board Certified Critical Care Pharmacist (BCCCP)	6	4.69%
Answered question	128		Board Certified Nuclear Pharmacist (BCNP)	1	0.78%
Skipped question	0		Board Certified Nutrition Support Pharmacist (BCNSP)	2	1.56%
Age	Response Count	Response Percent	No. of hospital Licensed Beds	Response Count	Response Percent
18 to 24	10	7.81%	Board Certified Oncology Pharmacist (BCOP)	1	0.78%
25 to 34	57	44.53%	Board Certified Pediatric Pharmacy Specialist (BCPPS)	1	0.78%
35 to 44	32	25.00%	Board Certified Pharmacotherapy Specialists (BCPS)	7	5.47%
45 to 54	22	17.19%	Board Certified Psychiatric Pharmacist (BCPP)	0	0.00%
55 to 64	6	4.69%	None	112	87.50%
65 to 74	0	0.00%	Answered question	128	
75 or older	1	0.78%	Skipped question	0	
Academic qualifications	Response Count	Response Percent	No. of hospital Licensed Beds	Response Count	Response Percent
Diploma. Pharmacy	12	9.38%	< 50	11	8.59%
Bsc. Pharmacy	40	31.25%	50-99	8	6.25%
Master of Science	27	21.09%	100-199	10	7.81%
Doctor of Pharmacy	33	25.78%	200-299	18	14.06%
Two years Residency (R1)	4	3.13%	300-399	16	12.50%
Three years Residency (R2)	9	7.03%	400-499	20	15.63%
Ph. D	14	10.94%	= or > 600	23	17.97%
M.B.A.	8	6.25%	Medical City	22	17.19%
Other (please specify)	5	3.91%	Answered question	128	
Answered question	128		Skipped question	0	
Skipped question	0		The hospital accreditation	Response Count	Response Percent
			CBAHI	84	73.04%
			Joint Commotion USA	68	59.13%
			Canada	12	10.43%
			Saudi Council	40	34.78%
			None	5	4.35%
Answered question				115	
Skipped question				13	

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None.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

ABBREVIATIONS

MOH: Ministry of Health; **KSA:** Kingdom of Saudi Arabia; **CBAHI:** Saudi Central Board for Healthcare Accreditation; **COPD:** Chronic Obstructive Pulmonary Disease; **IRB:** Institutional Review Board.

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Table 2: The responder experiences of pharmacy practice.

Years of Experiences in Pharmacy	Response Count	Response Percent
< 1 year	15	11.72%
1 – 3 years.	19	14.84%
4-6 years.	17	13.28%
> 6 year	77	60.16%
Answered question	36	
Skipped question	0	
Years of Experiences in Clinical Pharmacy	Response Count	Response Percent
< 1 year	21	16.54%
1 – 3 years.	19	14.96%
4-6 years.	15	11.81%
> 6 year	26	20.47%
Non	46	36.22%
Answered question	127	
Skipped question	1	
Years of Experiences in Pharmacy Administration	Response Count	Response Percent
< 1 year	19	15.20%
1 – 3 years.	17	13.60%
4-6 years.	13	10.40%
> 6 year	39	31.20%
Non	37	29.60%
Answered question	125	
Skipped question	3	

Table 3: Administration of pharmacist intervention documentation system elements.

Answer Options	75-100 % completed	50-74%	25-49%	1-24%	We do not have it	Rating Average	Percent Average	Response Count
Strategic plan	53	27	14	9	24	3.6	72.00	127
Annual plan	51	27	15	10	24	3.56	71.20	127
Policy and procedure	79	20	7	7	14	4.13	82.60	127
Pharmacist intervention competency	49	32	18	9	20	3.63	72.60	128
Pharmacy intervention technician competency	40	33	12	9	32	3.32	66.40	126
Pharmacist intervention quality management	50	35	20	8	14	3.78	75.60	127
Pharmacist intervention Education and training	51	33	19	10	14	3.76	75.20	127
Average						3.68	73.66	
answered question								128
skipped question								0

Table 4: Type of pharmacist intervention documentation.

Answer Options	Yes manually		Yes electronically		No		Response Count
Medication errors	57	44.53%	82	64.06%	10	7.81%	128
Adverse drug reactions	63	50.00%	77	61.11%	9	7.14%	126
Drug quality reporting	61	47.66%	71	55.47%	17	13.28%	128
Patient counseling	67	52.76%	59	46.46%	20	15.75%	127
Pharmacist intervention	59	46.09%	81	63.28%	12	9.38%	128
Drug information inquiries	60	47.24%	68	53.54%	21	16.54%	127
Poisoning information inquiries	48	37.50%	50	39.06%	44	34.38%	128
Medication Reconciliation	50	39.37%	69	54.33%	25	19.69%	127
answered question							128
skipped question							0

Table 5: The reporting of workload of pharmacist intervention documentation.

Answer Options	Adults		Pediatrics		Neonates		Never		Response Count
No of Medication errors	95	74.22%	80	62.50%	58	45.31%	29	22.66%	128
No of Adverse drug reactions	90	70.87%	78	61.42%	58	45.67%	30	23.62%	127
No of Drug quality reporting	89	70.63%	75	59.52%	53	42.06%	34	26.98%	126
No of Patient counseling	88	69.29%	68	53.54%	49	38.58%	33	25.98%	127
No of Medication reconciliation	81	63.78%	62	48.82%	50	39.37%	40	31.50%	127
No of Pharmacist Intervention	89	70.08%	75	59.06%	61	48.03%	29	22.83%	127
No of Drug information inquiries	88	69.84%	66	52.38%	55	43.65%	34	26.98%	126
No of Poisoning information inquiries	68	53.54%	54	42.52%	50	39.37%	51	40.16%	127
No of patients	93	72.66%	81	63.28%	58	45.31%	26	20.31%	128
No of prescriptions	94	74.02%	81	63.78%	60	47.24%	26	20.47%	127
Clinical outcomes impact	75	60.00%	62	49.60%	48	38.40%	41	32.80%	125
Cost avoidance impact	55	43.31%	47	37.01%	42	33.07%	60	47.24%	127
answered question									128
skipped question									0

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