Perception of Pharmacists about Pharmacy Health Insurances Services in Saudi Arabia

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ABSTRACT

Objectives: To demonstrate the Perception of Pharmacist about Pharmacy Health Insurances Services in Saudi Arabia. **Materials and Methods:** It analyzes a cross-sectional survey discussing Pharmacists' Perceptions of Pharmacy Health Insurances Services in Saudi Arabia. The survey consisted of respondents' demographic information about pharmacists, perception of pharmacists about health insurance, barriers, which factors may Discourage you from implementing health insurance medications, recommendations/suggestions for facilitating the implementation of high-risk medicines, and medications health insurance responsibility. The 5-point Likert response scale system was used with closed-ended questions. The survey was validated through the revision of expert reviewers and pilot testing. Besides, various tests of the reliability of McDonald's ω, Cronbach alpha, Gutmann's λ2, and Gutmann's λ6 were done with the study. Furthermore, the data analysis of the Perception of Pharmacist about Health Insurances in pharmacy practice is done through the survey monkey system. Besides, the statistical package of social sciences (SPSS), Jeffery's Amazing Statistics Program (JASP), and Microsoft Excel sheet version 16. **Results:** A total number of 398 pharmacists responded to the questionnaire. Of them, more than one-third responded from the Central region (137 (34.51%)), and one Quarter responded from the western part (109 (27.46%)), with statistically significant differences between the provinces (p=0.000). Males responded more than females (239 (60.35%)) versus 157 (39.65%)), with statistically significant differences between all levels (p=0.000). Most of the responders were in the age group of 24-30 years (271 (68.26%)) and 31-35 years (56 (14.11%)), with statistically significant differences between all age groups (p=0.000). Most of the pharmacists were staff pharmacists (300 (75.76%)) and pharmacy supervisors (43 (10.86%)), with statistically significant differences between all levels (p=0.000). Almost one-half of pharmacists currently have health insurance coverage (239 ((60.05%)) with equal or less than one year (108 ((42.52%)), or 2-3 years (81 ((31.89%)), have you been associated with your current insurance provider with statistically significant differences between all levels (p=0.000). The average score of perception of pharmacists about health insurance was (3.62). The element "The participation of pharmacists in Heath insurance system should be mandatory " obtained the highest score (3.81). The aspect "The Heath insurance pharmacist can analyze the consumption of the medication at healthcare institutions" was (3.75). The average score for the element "factors may Discourage you from implementing Health insurance at pharmacy practice" was (3.27). The score for the component "The health insurance pharmacist was Not taught properly in pharmacy Schools " was (3.59). The score for the element "Lack of Periodic training of pharmacy staff about the role of health insurance pharmacist " was (3.57). Most staff responsible for medications and health insurance was Heath insurance Pharmacist (3.65) more than Heath insurance Doctors (2.90) or accountant (2.70), with a statistically significant difference between the responses (p<0.001). The recommendations/suggestions for facilitating the implementation of pharmacist health insurance were "Increase number of Heath insurance pharmacist staff " 258 (69.07%) and "Implement of Heath insurance pharmacist at healthcare institutions" 252 (64.95%). **Conclusion:** The Perception of Pharmacists about Health Insurance in pharmacy practice is appropriate. The pharmacy insurance system demands administrative support. Removing the obstacles and increasing pharmacy staff in health insurance organizations are highly recommended in Saudi Arabia.

Keywords: Perception, Pharmacists, about Pharmacy, Health Insurances, Services Saudi Arabia.

INTRODUCTION

Health insurance is well developed at most healthcare organizations.[1-6] Physicians play an active role in health insurance companies and healthcare institutions. The physicians review all diagnoses of diseases, the laboratory analysis for disease, and all drug therapy for medication, including the National and international guidelines. However, the pharmacist's role in health insurance is not well developed like other countries.[7-16] Any new programs or services need to explore the perception or attitudes of related healthcare providers. Thus, pharmacy Heath insurance needs to examine the pharmacist's perception and barriers that prevent to implement the Heath insurance in

pharmacy practice. Besides, to clarify the health insurance responsibilities in pharmacy practice. The authors, unfamiliar with any local publication or Gulf and Arabic countries, discussed the related topic.[9,16] The cross-sectional investigation aims to demonstrate the pharmacist's perception of pharmacy health insurance services in Saudi Arabia.

MATERIALS AND METHODS

It analyzes a cross-sectional survey discussing Pharmacists' perception of pharmacy health insurance in Saudi Arabia. It self-reported an electronic survey of the pharmacist, including pharmacists from internship to consultant, pharmacist specialties, and Saudi Arabia. All non-pharmacist or students, non-completed, non-qualified surveys will be excluded from the study. The survey consisted of respondents' demographic information about pharmacists and perception of pharmacists about health insurance, and barriers, which factors may Discourage you from implementing health insurance medications, and recommendations/ suggestions for facilitating the implementation of health insurance medications, and medications health insurance responsibility.[7-23] The 5-point Likert response scale system was used with closed-ended questions. According to the previous litterateur with an unlimited population size, the sample was calculated as a cross-sectional study, with a confidence level of 95% with a z score of 1.96 and a margin of error of 5%, a population percentage of 50%, and drop-out rate 10%. As a result, the sample size will equal 380-420 with a power of study of 80%.[24-26] The response rate required for the calculated sample size is at least 60-70 % and above.[26,27] The survey was distributed through social media of what›s applications and telegram groups of pharmacists. The reminder message had been sent every 1-2 weeks. The survey was validated through the revision of expert reviewers and pilot testing. Besides, various tests of the reliability of McDonald's ω, Cronbach alpha, Gutmann's λ2, and Gutmann's λ6 were done with the study. The data analysis of the perception of Pharmacists about pharmacy health insurance is done through the survey monkey system. Besides, the statistical package of social sciences (SPSS), Jeffery's Amazing Statistics Program (JASP), and Microsoft excel sheet version 16. It included a description and frequency analysis, good of fitness analysis, correlation analysis. Beside, Beside, inferential analysis of factors affecting perception of pharmacists about health insurance in pharmacy practice, and barriers, which factors may Discourage you to implement pharmacy health insurance, and medications health insurance responsibility with linear regression. The STROBE (Strengthening the reporting of observational studies in epidemiology statement: guidelines for reporting observational studies) guided the reporting of the current study.[28,29]

RESULTS

A total number of 398 pharmacists responded to the questionnaire. Of them, more than one-third responded from the Central region (137 (34.51%)), and one Quarter responded from the western part (109 (27.46%)), with statistically significant differences between the provinces (p=0.000). Most of the responders were from Ministry of Health Hospitals (96 (24.37%)), Pharmaceutical companies (87 (21.86%)), and community pharmacies (69 (17.34%)), with a statistically significant difference between working sites (p=0.000). Males responded more than females (239 (60.35%)) versus 157 (39.65%)), with statistically significant differences between all levels (p=0.000). Most of the responders were in the age group of 24-30 years (271 (68.26%)) and 31-35 years (56 (14.11%)), with statistically significant differences between all age groups (p=0.000). Most of the pharmacists were staff pharmacists (300 (75.76%)) and pharmacy supervisors (43 (10.86%)), with statistically significant differences between all levels (p=0.000). Most of the responders held Bachelor in pharmacy (192 (48.36%)) and Pharm D (146 (36.78%)). Most pharmacists had a work experience of 1-3 years (160 (40.20%)) and >1 year (104 (26.13%)), with a statistically significant difference between years of experience (p=0.000). Most pharmacists work at an outpatient pharmacy (79 ((23.58%)) and inpatient pharmacist (63 ((18.81%)). Almost one-half of pharmacists currently have health insurance coverage (239 ((60.05%)) with equal or less than one year (108 ((42.52%)), or 2-3 years (81 ((31.89%)), have you been associated with your current insurance provider with statistically significant differences between all levels (p=0.000). There was a medium positive correlation between age (years) and years of experience based on Kendall's tau_b (0.686) and Spearman's rho (0.753) correlation coefficients, with a statistically significant difference between the two factors (p<0.000). There was a medium positive correlation between age (years) and length of health insurance coverage based on Kendall's tau_b (0.482) and Spearman's rho (0.526) correlation coefficients, with a statistically significant difference between the two factors (p<0.000). There was a medium positive correlation between years of experience and length of health insurance coverage based on Kendall's tau_b (0.682) and Spearman's rho (0.733) correlation coefficients, with a statistically significant difference between the two factors (p<0.000). There was a medium positive correlation between the site of work and practice area based on Kendall's tau_b (0.514) and Spearman's rho (0.627) correlation coefficients, with a statistically significant difference between the two factors (p<0.000). There was a medium negative correlation between the site of work and who currently have health insurance coverage based on Kendall's tau_b (0.404) and Spearman's rho (0.461) correlation coefficients, with a statistically significant difference between the two factors (p<0.000) (Tables 1 and 2).

The average score of perception of Pharmacists about pharmacy health insurance was (3.62). The element "The participation of pharmacists in Heath insurance system should be mandatory " obtained the highest score (3.81). The aspect "The Heath insurance pharmacist can analyze the consumption of the medication at healthcare institutions" was (3.75). In contrast, the lowest score was obtained for the element "The system in my hospital including Heath insurance pharmacist good to minimize of occurrence of medications errors through not included in the Heath insurance of drug therapy cost " (3.36). The score for the element "I have the opportunity to discuss and receive feedback about my work performance with other staff as Heath insurance pharmacist " was (3.42) with a statistically significant difference between the responses (p<0.000). All aspects of the perception of pharmacists about health insurance were statistically significant between responses (p<0.000) (Table 3). The average score for the element "factors may Discourage you from implementing Health insurance at pharmacy practice" was (3.27). The score for the component "The health insurance pharmacist was Not taught properly in pharmacy Schools " was (3.59). The score for the element "Lack of Periodic training of pharmacy staff about the role of health insurance pharmacist " was (3.57). In contrast, low scores were obtained for the elements "The Heath insurance pharmacist is too trivial to work " (2.52) and "The negative consequences associated with Heath insurance pharmacist " (3.07), with a statistically significant difference between the responses (p<0.001). All responses about aspects of perception of Discourage you from implementing Health insurance at pharmacy practice were statistically significant (p<0.001) (Table 4). The most staff responsible for medications and health insurance was Heath insurance Pharmacist (3.65) more than Heath insurance Doctors (2.90) or accouter (2.70), with a statistically significant difference between the responses (p<0.001). All responses about aspects of perception of responsible for medications and health insurance were

Table 1: Demographic, social information.

Locations	Response Count	Response Percent	*p*-value (X2)
Central area	137	34.51%	0.000
North area	34	8.56%	
South area	59	14.86%	
East area	58	14.61%	
West area	109	27.46%	
Answered question	**397**		
Skipped question	**1**		
Site of work	**Response Count**	**Response Percent**	***p*-value (X2)**
MOH Hospitals	97	24.37%	0.000
Military hospitals	26	6.53%	
National Guard Hospital	18	4.52%	
Security forces hospitals	10	2.51%	
University Hospital	16	4.02%	
MOH primary care centers	6	1.51%	
Private hospitals	40	10.05%	
Private ambulatory care clinics	2	0.50%	
Private primary healthcare center	7	1.76%	
Community pharmacy	69	17.34%	
Pharmaceutical company	87	21.86%	
Heath insurance company	2	0.50%	
King Faisal Specialist Hospital and Research Center	4	1.01%	
Academia	5	1.26%	
SFDA	6	1.51%	
Not Employment	3	0.75%	
Answered question	**398**		
Skipped question	**0**		
Gender	**Response Count**	**Response Percent**	
Male	239	60.35%	0.000
Female	157	39.65%	
Answered question	**396**		
Skipped question	**2**		
Age	**Response Count**	**Response Percent**	
24-30	271	68.26%	0.000
31-35	56	14.11%	
36-40	37	9.32%	
41-45	10	2.52%	
46-50	9	2.27%	
> 50	14	3.53%	
Answered question	**397**		
Skipped question	**1**		

Table 2: Demographic, social information.

Pharmacist Qualifications	Response Count	Response Percent	*p*-value (X2)
Diploma in Pharmacy	25	6.30%	
Bachelor in Pharmacy	192	48.36%	
Master	50	12.59%	
Pharm D	146	36.78%	
Ph. D	16	4.03%	
PGY 1	3	0.76%	
PGY 2	3	0.76%	
PGY 3	2	0.50%	
Fellowship	3	0.76%	
Answered question	**397**		
Skipped question	**1**		
Position Held	**Response Count**	**Response Percent**	
Director of Pharmacy	31	7.83%	0.000
Assistant Director of Pharmacy	22	5.56%	
Supervisor	43	10.86%	
Pharmacy staff	300	75.76%	
Answered question	**396**		
Skipped question	**2**		
Years of experience in a pharmacy career	**Response Count**	**Response Percent**	
Less than one year	104	26.13%	0.000
1-3	160	40.20%	
4-6	48	12.06%	
7-9	28	7.04%	
10-12	22	5.53%	
>12	36	9.05%	
Answered question	**398**		
Skipped question	**0**		
The practice area	**Response Count**	**Response Percent**	
Inpatient Pharmacy	63	18.81%	0.000
Outpatient Pharmacy	79	23.58%	
Satellite Pharmacy	6	1.79%	
Narcotics and Controlled	6	1.79%	
Extemporaneous Preparation	2	0.60%	
Clinical Pharmacy	21	6.27%	
Inventory Control	8	2.39%	
Drug Information	8	2.39%	
IV admixture	5	1.49%	
Community pharmacy	52	15.52%	
Health insurance	0	0.00%	
Medical representatives	57	17.01%	
Education and training	1	0.30%	
Pharmaceutical companies	13	3.88%	
Research and development	5	1.49%	

Continued...

Table 2: Cont'd.

The practice area	Response Count	Response Percent	
Quality management	3	0.90%	
Pharmacy administration	4	1.19%	
community pharmacy	2	0.60%	
Answered question	**335**		
Skipped question	**63**		
Do you currently have health insurance coverage?	**Response Count**	**Response Percent**	
Yes	239	60.05%	0.000
No	159	39.95%	
Answered question	**398**		
Skipped question	**0**		
If Yes, How long have you been associated with your current insurance provider?	**Response Count**	**Response Percent**	
< 1 year	108	42.52%	0.000
2-3	81	31.89%	
4-6	26	10.24%	
7-9	15	5.91%	
9-12	9	3.54%	
> 12	15	5.91%	
Answered question	**254**		
Skipped question	**144**		

statistically significant (p<0.000) (Table 5). The recommendations/ suggestions for facilitating the implementation of pharmacist health insurance were "Increase the number of Heath insurance pharmacist staff " 258 (69.07%) and "Implement of Heath insurance pharmacist at healthcare institutions" 252 (64.95%). Followed by "Implementation of electronic Heath insurance medications" 243 (62.63%) and "Implement Heath insurance pharmacist role at Heath insurance companies> 222 (57.22%)) (Table 6). The score for single-test reliability analysis of McDonald's ω was 0.938, Cronbach's α was 0.937, Gutmann's was λ2, 0.942, Gutmann's λ6 was 0.962, and Greater Lower Bound was 0.978 with statistically significant (p<0.05).

Factors affecting the perception of pharmacists about health insurance in pharmacy practice

Factors affecting the perception were analyzed. We adjusted the significant values using the independent samples Kruskal–Wallis test and the Bonferroni correction for multiple tests. Pharmacists' perception of health insurance in pharmacy practice includes location, worksite, age (years), gender, position held, practice area in a pharmacy career, Health insurance coverage, and Years of Health insurance coverage. Eight factors did not affect the perception of pharmacists about health insurance with non-statistically significant differences between regions (p>0.05). However, one-factor years of experience might have affected the Pharmacists' perception of health insurance with statically significant differences (p=0.027) with non-statically significant differences among all levels of experiences (p>0.05). (Table 6). The relationship between the pharmacist's perception of health insurance and factors such as location, worksite, age (years), gender, position held, years of experience, practice area in a pharmacy career, Health insurance coverage, and Years of Health insurance coverage. The multiple regression analysis considered perception as the dependent variable and factors affecting it as an expletory variable. There was a weak relationship (R=0.284 with p=0.047) between the advanced knowledge of pharmacists of health insurance and its factors. Eight out of nine were non-significant differences (p>0.05). However, multiple regression analysis confirmed that one factor (i.e., working site) explained 26.4 % of the negative relationship to the variation in knowledge, with a statistically significant difference (p=0.012). The bootstrap model was also confirmed. Furthermore, the relationship was verified by the non-existence of multicollinearity with a variance inflation factor (VIF) of 2.357, less than three or five as a sufficient number of VIF (Table 7).[30-32]

Factors affecting the Factors barriers may Discourage the implementation of pharmacy health insurance

Factors affecting the barriers that may Discourage the implementation of health insurance in pharmacy practice were analyzed. We adjusted the significant values using the independent samples Kruskal–Wallis test and the Bonferroni correction for multiple tests. The factors that might affect barriers that may Discourage the implementation of high-risk medications include location, worksite, age (years), gender, years of experience, position held, practice area in a pharmacy career, and Health insurance coverage. Eight factors did not affect the perception of pharmacists about barriers that may Discourage the implementation of health insurance with non-statistically significant differences between regions (p>0.05) (Table 6). However, one factor, Years of Health insurance coverage, might have affected the Pharmacists' perception of health insurance with statically significant differences (p=0.014) with the highest score (3.7778) of > 12 years' coverage and lowest scores (3.1842) of < on year coverage statistically significant differences (p< 0.028). The relationship between the pharmacist's perception of *barriers may Discourage the implementation of health insurance* and factors such as location, worksite, age (years), gender, position held, years of experience, practice area in a pharmacy career, Health insurance coverage, and Years of Health insurance coverage. The multiple regression analysis considered perception as the dependent variable and factors affecting it as an expletory variable. There was a weak relationship (R=0.284 with p=0.098) between pharmacists' perceptions of barriers that may Discourage the implementation *of health insurance* and its factors. Seven out of nine were non-significant differences (p>0.05). However, multiple regression analysis confirmed that one factor (i.e., position held and Years of Health insurance coverage) explained 22.4 % and 25.8%, respectively, of the positive relationship to the variation in *barriers* perceptions, with a statistically significant difference (p=0.004) and (p=0.013) Bootstrap model was also confirmed. Furthermore, the relationship was verified by the non-existence of multicollinearity with a variance inflation factor (VIF) of 1.247 and 2.278, respectively less than three or five as a sufficient number of VIF (Table 8).[31-33]

Factors affecting the Factors pharmacist's perception of health insurance medications responsibility

Factors affecting the pharmacist's perception of medication's health insurance responsibility were analyzed. We adjusted the significant values using the independent samples Kruskal–Wallis test and the Bonferroni correction for multiple tests. These factors might affect pharmacist's perception of medication's health insurance

Table 3: The Perception of pharmacist about Health Insurance in pharmacy practice.

No	Item	Strongly disagree		Disagree		Uncertain		Agree		Strongly agree		Total	Weighted Average	*p*-value (X2)
1	The system in my hospital, including Heath insurance pharmacist good to minimize of occurrence of medications errors by not including in the Heath insurance of drug therapy cost	5.90%	23	12.56%	49	36.15%	141	30.51%	119	14.87%	58	390	3.36	0.000
2	Presenting of health insurance pharmacists has led to positive changes	4.87%	19	6.67%	26	42.31%	165	30.51%	119	15.64%	61	390	3.45	0.000
3	I think there is under-working in Heath insurance in the healthcare institutions	3.85%	15	8.97%	35	33.85%	132	26.92%	105	26.41%	103	390	3.63	0.000
4	I feel comfortable asking for help or support from my colleagues or peers involving Heath insurance pharmacists	4.38%	17	7.22%	28	39.43%	153	30.93%	120	18.04%	70	388	3.51	0.000
5	I have the opportunity to discuss and receive feedback about my work performance with other staff as Heath insurance pharmacist	4.10%	16	10.26%	40	41.28%	161	28.21%	110	16.15%	63	390	3.42	0.000
6	The participation of pharmacists in Heath insurance system should be mandatory	3.33%	13	5.38%	21	27.95%	109	33.59%	131	29.74%	116	390	3.81	0.000
7	The Heath insurance pharmacist can categorize the Heath insurance based on patent or generic manufacturing	3.08%	12	9.74%	38	30.26%	118	33.85%	132	23.08%	90	390	3.64	0.000
8	The Heath insurance pharmacist measure adherence to international drug therapy management	3.59%	14	7.95%	31	31.79%	124	32.56%	127	24.10%	94	390	3.66	0.000
9	The Heath insurance pharmacist follows whether the medications were included in the drug formulary or not	2.56%	10	7.95%	31	31.03%	121	35.13%	137	23.33%	91	390	3.69	0.000
10	The Heath insurance pharmacist estimates the cost coverage of adverse drug reactions according to the severity	3.87%	15	5.67%	22	31.96%	124	35.05%	136	23.45%	91	388	3.69	0.000
11	The Heath insurance pharmacist estimates the cost coverage of medication error according to the severity	4.12%	16	6.19%	24	32.47%	126	35.57%	138	21.65%	84	388	3.64	0.000
12	The Heath insurance pharmacist can specify the top-cost medications at healthcare institutions	1.80%	7	5.93%	23	34.28%	133	32.99%	128	25.00%	97	388	3.73	0.000
13	The Heath insurance pharmacist can analyze the consumption of the medication at healthcare institutions	2.07%	8	6.98%	27	31.01%	120	34.11%	132	25.84%	100	387	3.75	0.000
14	The Heath insurance pharmacist can calculate the cost of drug therapy for each disease	2.59%	10	8.29%	32	32.12%	124	35.23%	136	21.76%	84	386	3.65	0.000
15	The Heath insurance pharmacist reduce the economic burden of drug therapy cost by preventing unnecessary prescribing of medications and unapproved indications	3.36%	13	9.30%	36	29.20%	113	33.59%	130	24.55%	95	387	3.67	0.000
	Answered											**391**		
	Skipped											7		

Table 4: The barriers discourage Health insurance implementations in the pharmacy practice.

No	Item	Strongly disagree		Disagree		Uncertain		Agree		Strongly agree	Total	Weighted Average	*p*-value (X2)
1	Level of clinical knowledge of Heath insurance pharmacist	6.67%	26	9.74%	38	31.28%	122	34.36%	134	17.95%	70	390	3.47	0.000
2	The Heath insurance pharmacist is too trivial to work	24.94%	97	24.94%	97	28.79%	112	15.94%	62	5.40%	21	389	2.52	0.000
3	Concern that a Heath insurance pharmacist will generate extra work.	7.93%	31	16.11%	63	38.62%	151	27.11%	106	10.23%	40	391	3.16	0.000
4	The Heath insurance pharmacist is not available when needed	10.26%	40	13.85%	54	42.82%	167	25.38%	99	7.69%	30	390	3.06	0.000
5	Lack of confidence in discussing the medications and Heath insurance with the physician.	7.95%	31	15.64%	61	42.82%	167	23.85%	93	9.74%	38	390	3.12	0.000
6	Lack of time to implement Heath insurance pharmacist.	6.92%	27	15.38%	60	40.51%	158	28.72%	112	8.46%	33	390	3.16	0.000
7	Unaware of the existence of a national health insurance pharmacist system.	5.67%	22	7.73%	30	35.82%	139	31.96%	124	18.81%	73	388	3.51	0.000
8	Did not know how to practice health insurance pharmacist.	3.59%	14	10.77%	42	33.08%	129	33.33%	130	19.23%	75	390	3.54	0.000
9	Fear of legal liability.	5.67%	22	12.63%	49	38.40%	149	29.12%	113	14.18%	55	388	3.34	0.000
10	Unaware of the need for Heath insurance pharmacists	5.94%	23	10.08%	39	34.63%	134	28.68%	111	20.67%	80	387	3.48	0.000
11	Lack of financial reimbursement.	5.91%	23	9.51%	37	40.36%	157	26.74%	104	17.48%	68	389	3.40	0.000
12	Consider it the doctor's responsibility	8.81%	34	18.65%	72	38.86%	150	22.80%	88	10.88%	42	386	3.08	0.000
13	The negative consequences associated with Heath insurance pharmacist	8.23%	32	15.42%	60	46.27%	180	21.59%	84	8.48%	33	389	3.07	0.000
14	Lack of Periodic training of pharmacy staff about the role of health insurance pharmacist	4.88%	19	9.51%	37	32.65%	127	29.31%	114	23.65%	92	389	3.57	0.000
15	The health insurance pharmacist was Not taught properly in pharmacy Schools	5.38%	21	11.03%	43	29.74%	116	26.67%	104	27.18%	106	390	3.59	0.000
	Answered										**391**			
	Skipped										**7**			

responsibility. That includes location, worksite, age (years), gender, years of experience, position held, practice area in a pharmacy career, Health insurance coverage, and Years of Health insurance coverage. Eight factors did not affect the pharmacist's perception of health insurance medications responsibility with non-statistically significant differences between regions ($p>0.05$) (Table 9). However, one factor (practice area) might have affected pharmacist's perception of medications health insurance responsibility statistically significant differences ($p=0.039$) with non-statically significant differences among all practice areas ($p>0.05$). The relationship between the pharmacist's perception of health insurance medications responsibility and factors such as location, worksite, age (years), gender, position held, years of experience, practice area in a pharmacy career, Health insurance coverage, and Years of Health insurance coverage. The multiple regression analysis considered perception as the dependent variable and factors affecting it as an expletory variable. There was a weak relationship (R=0.248 with $p=0.148$) between pharmacists' perception of health insurance medication responsibility and its factors. Seven out of nine were non-significant differences ($p>0.05$). However, multiple regression analysis confirmed that two factors (i.e., age and position held) explained 25.0 % and 17.4%, respectively, of the positive relationship to the variation in health insurance medications with responsibility perceptions, with a statistically significant difference ($p=0.036$) and ($p=0.022$) Bootstrap model was also confirmed. Furthermore, the relationship was verified by the non-existence of multicollinearity with a variance inflation factor (VIF) of 3.079 and 1.244, respectively less than three or five as a sufficient number of VIF (Table 9).[30-32]

DISCUSSION

The Council of Cooperative Health Insurance is the higher administrative health insurance in Saudi Arabia.[1] The council was founded with various responsibilities such setup regulations and guidelines of health insurance, accrediting the health insurance companies, the follow up of health care organizations provides, receive any problems or complaints from all patients.[1-5] The council released various regulations and clinical practice guidelines, including Heath insurance cost of healthcare performance and facilities. In addition, the council released a drug formulary covered by Heath insurance.[1-5] Any pharmacist can search for medication through the insurance drug formulary (IDF). However, various pharmaceutical care services were not included

Table 5: The medications health insurance (to authorities) currently is the responsibility of the following.

NO		Strongly disagree		Disagree		Uncertain		Agree		Strongly agree		Total	Weighted Average	*p*-value (X2)
1.	Heath insurance Doctors	13.07%	52	19.85%	79	37.19%	148	23.62%	94	6.28%	25	398	2.9	0.000
2.	Heath insurance Pharmacist	6.05%	24	7.05%	28	26.95%	107	35.77%	142	24.18%	96	397	3.65	0.000
3.	Heath insurance Nurses	20.25%	80	21.27%	84	37.97%	150	15.70%	62	4.81%	19	395	2.64	0.000
4.	A counter	22.86%	91	17.84%	71	31.41%	125	21.86%	87	6.03%	24	398	2.70	0.000
	Answered											**398**		
	Skipped											**0**		

Table 6: The recommendations/suggestions for facilitating the implementation of pharmacy health insurance.

NO		Responses	
1.	Implementation of an electronic Heath insurance medications	243	62.63%
2.	Increase the number of Heath insurance pharmacist staff	268	69.07%
3.	Applied the Quality Management standards	192	49.48%
4.	Implement of Heath insurance pharmacists at healthcare institutions	252	64.95%
5.	Setup up the therapeutic protocol or guidelines for Heath insurance	188	48.45%
6.	Standardized the Heath insurance Pharmacist	201	51.80%
7.	Standardized policy and procedures for Health insurance pharmacists	187	48.20%
8.	Implement Heath insurance pharmacist role at Heath insurance companies	222	57.22%
9.	Implement Heath insurance pharmacist role at pharmaceutical companies	215	55.41%
	Answered	**388**	
	Skipped	**10**	

in the health insurance or cost of health insurance facilities, such cost of medication errors, the cost of adverse drug reactions, therapeutic interchange, and non-approved or approved indications of the medication in registered agencies such as Saudi Food and Drug Authority (SFDA).[16] Moreover, there is no difference between patents and generic medicines in health insurance coverage. However, the differences in cost are high, and some parenteral medications need to prepare by the pharmacist, and the pharmacy reimbursement of performance was not included.[13,14,33-36] Thus, pharmacy Heath insurance needs to illustrate the perception of pharmacists and barriers preventing the pharmacist's role in Heath insurance system implementations and the responsibility of insurance drug therapy in healthcare services. Besides, to clarify the health insurance responsibilities in pharmacy practice.

The average score for pharmacist perception of health insurance was acceptable, with responders agreeing that pharmacists should be involved in the Heath insurance system and that pharmacists can monitor the health insurance medication and related discrepancies at healthcare organizations.[7-16] The pharmacist should have a role in the health insurance companies and be involved in the business center to monitor all medication-related issues covered by health insurance. Each health insurance company had different policies and procedures for medication consumption coverage by Heath insurance. The responders agree that health insurance pharmacists are suitable to be involved in a healthcare organization to minimize the drug-related problems that have affected health insurance expenditures, which was not implemented for some hospitals.[8,18,19,37] The pharmacist's role in preventing drug-related issues, including medication errors, is well-established locally and internationally.[38-42] Besides, the pharmacist might avoid a high unnecessary cost burden on healthcare institutions.[38-42] The pharmacist agreed that it provides various benefits such as measures the drug therapy adherence to the health insurance system, analysis of medications whether insurance drug formulary or not, monitor Drug prescriptions for non-indicated or not approved indications. All previous tools utilized if a health insurance pharmacist existed in a healthcare organization. Most demographic factors did affect the pharmacist's perception of health insurance. However, the pharmacist experience might be if you gave a young pharm D graduated and implemented clinical pharmacy in the health insurance system. The only dependable factor was the working site with weak negative relationships. That's related to healthcare insurance and their experience of health insurance implementation. Thus, there is no previous investigation to compare with the current findings.

The average score of barriers that might prevent health insurance in pharmacy practice was acceptable. Most respondents agreed that the common barrier was health insurance not being taught during pharmacy schools and a lack of education and training in the practice post-graduation.[9] The exploring of pharmacy curriculum for pharmacy should the Heath insurance courses not be found. The pharmacist disagrees that health insurance is not essential to work, extra work might occur, or lack of time for performance or negative feedback from pharmacists in the health insurance system. We highly recommend involving the pharmacist in the health insurance system. Most demographic factors did not affect the perception of barriers preventing health insurance pharmacy. However, the length of health insurance coverage might affect the obstacles; with more than 12 years, the pharmacist can explore the barriers very well. The most dependable factors affecting the perception of obstacles were position and length of Heath insurance coverage. The higher position in pharmacy can find and solve most barriers. Besides, by the time of implementation of health insurance, the pharmacist can clarify most of the obstacles preventing the pharmacy health insurance implementation. Thus, there is no previous investigation to compare with the current findings.

The findings showed that the Heath insurance pharmacy is responsible for the pharmacist, not the physician or nurses, which is sometimes

Table 7: Multiple regression of Factors with the pharmacist perception of health insurance in pharmacy practice.

Model		R	R Square	F	Sig.	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
						B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.284 [b]	.080	1.952	.047[b]	3.793	.529		7.173	.000	2.750	4.835		
	Location					-.034	.034	-.070	-.996	.321	-.100	.033	.936	1.068
	Site of work					.058	.023	.264	2.538	.012	.013	.103	.424	2.357
	Age (years)					-.100	.096	-.124	-1.044	.298	-.289	.089	.324	3.086
	Pharmacist gender					-.136	.116	-.083	-1.169	.244	-.365	.093	.914	1.094
	Years of experience in a pharmacy career					-.034	.092	-.052	-.369	.713	-.215	.147	.231	4.325
	Position Held					.018	.062	.023	.300	.764	-.103	.140	.802	1.246
	Practice area					-.022	.016	-.137	-1.372	.172	-.055	.010	.456	2.192
	The presence of Health insurance coverage					-.162	.313	-.038	-.518	.605	-.779	.455	.834	1.199
	Years of Health insurance coverage					.084	.059	.147	1.433	.153	-.032	.200	.437	2.289

a. Dependent Variable: perception of health insurance in pharmacy practice, Predictors: (Constant), Location, Age (years), Pharmacist gender, Position Held, Years of experience in a pharmacy career, practice area, The presence of Health insurance coverage, Years of Health insurance coverage.

Bootstrap for Coefficients							
Model		B	Bias	Bootstrap[a]			
				Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	3.793	.051	.545	.001	2.814	4.963
	Location	-.034	-.001	.035	.338	-.101	.032
	Site of work	.058	-.001	.023	.016	.013	.103
	Age (years)	-.100	-.003	.080	.193	-.258	.060
	Pharmacist gender	-.136	-.011	.125	.291	-.378	.103
	Years of experience in a pharmacy career	-.034	-.001	.078	.668	-.194	.124
	Position Held	.018	.002	.065	.793	-.108	.155
	Practice area	-.022	-5.719E-05	.016	.162	-.054	.010
	Health insurance coverage	-.162	-.019	.229	.448	-.647	.246
	Years of Health insurance coverage	.084	-.004	.049	.060	-.014	.178

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table 8: Multiple regression of Factors with *barriers may Discourage the implementation of pharmacy health insurance*.

Model		R	R Square	F	Sig.	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
						B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.284 [b]	.070	1.671	.098[b]	2.374	.458		5.179	.000	1.470	3.278		
	Location					.006	.028	.014	.203	.840	-.050	.061	.939	1.065
	Site of work					.006	.019	.033	.313	.755	-.032	.044	.422	2.370
	Age (years)					.045	.081	.067	.561	.576	-.114	.205	.322	3.103
	Pharmacist gender					.035	.098	.025	.357	.721	-.158	.229	.913	1.095
	Years of experience in a pharmacy career					-.084	.077	-.154	-1.092	.276	-.236	.068	.232	4.318
	Position Held					.153	.052	.224	2.949	.004	.051	.255	.802	1.247
	Practice area					-.006	.014	-.047	-.466	.642	-.034	.021	.446	2.242
	Presence of Health insurance coverage					.092	.276	.024	.333	.739	-.453	.637	.859	1.164
	Years of Health insurance coverage					.124	.049	.258	2.515	.013	.027	.221	.439	2.278

a. Dependent Variable: *barriers may Discourage the implementation of pharmacy health insurance*. Predictors: (Constant), Location, Age (years), Pharmacist gender, Position Held, Years of experience in a pharmacy career, practice area, The presence of Health insurance coverage, and Years of Health insurance coverage.

Bootstrap for Coefficients							
Model		B	Bias	Bootstrap[a]			
				Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	2.374	-.007	.532	.001	1.267	3.424
	Location	.006	.000	.031	.859	-.051	.064
	Site of work	.006	.000	.020	.758	-.036	.045
	Age (years)	.045	.001	.073	.492	-.097	.195
	Pharmacist gender	.035	.001	.103	.714	-.178	.237
	Years of experience in a pharmacy career	-.084	-.004	.070	.222	-.236	.044
	Position Held	.153	-.003	.072	.034	.015	.288
	Practice area	-.006	.001	.015	.639	-.033	.025
	Health insurance coverage	.092	.014	.194	.631	-.245	.506
	Years of Health insurance coverage	.124	.002	.051	.012	.025	.223

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table 9: Multiple regression of Factors with health insurance medications responsibility.

Model		R	R Square	F	Sig.	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
						B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.248 [b]	.062	1.504	.148[b]	2.114	.507		4.170	.000	1.115	3.114		
	Location					-.012	.032	-.026	-.381	.704	-.075	.051	.942	1.062
	Site of work					.022	.022	.105	1.008	.315	-.021	.066	.417	2.398
	Age (years)					.194	.092	.250	2.112	.036	.013	.375	.325	3.079
	Pharmacist gender					.134	.110	.085	1.217	.225	-.083	.352	.924	1.082
	Years of experience in a pharmacy career					-.079	.088	-.125	-.895	.372	-.252	.095	.233	4.299
	Position Held					.136	.059	.174	2.309	.022	.020	.253	.804	1.244
	Practice area					-.021	.016	-.138	-1.366	.174	-.052	.010	.447	2.238
	Presence of Health insurance coverage					.115	.301	.028	.383	.702	-.478	.709	.834	1.198
	Years of Health insurance coverage					-.009	.056	-.017	-.163	.871	-.120	.101	.441	2.267

a. Dependent Variable: health insurance medications responsibility, Predictors: (Constant), Location, Age (years), Pharmacist gender, Position Held, Years of experience in a pharmacy career, practice area, The presence of Health insurance coverage, Years of Health insurance coverage.

Bootstrap for Coefficients							
Model		B	Bias	Bootstrap[a]			
				Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	2.114	.011[b]	.587[b]	.001[b]	1.000[b]	3.256[b]
	Location	-.012	.000[b]	.035[b]	.733[b]	-.080-[b]	.057[b]
	Site of work	.022	.000[b]	.022[b]	.328[b]	-.021-[b]	.068[b]
	Age (years)	.194	.006[b]	.088[b]	.030[b]	.015[b]	.367[b]
	Pharmacist gender	.134	-.011-[b]	.119[b]	.257[b]	-.109-[b]	.360[b]
	Years of experience in a pharmacy career	-.079	-.006-[b]	.093[b]	.387[b]	-.271-[b]	.106[b]
	Position Held	.136	-.001-[b]	.054[b]	.011[b]	.027[b]	.237[b]
	Practice area	-.021	6.595E-006[b]	.016[b]	.197[b]	-.053-[b]	.009[b]
	Health insurance coverage	.115	.012[b]	.454[b]	.810[b]	-.793-[b]	.987[b]
	Years of Health insurance coverage	-.009	.000[b]	.055[b]	.867[b]	-.116-[b]	.097[b]

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

found with health insurance companies.[16] There are various pharmaceutical aspects highly demanded by pharmacists in health insurance. For instance, monitoring drug therapy and pharmacokinetics. Besides, the pharmacogenomics to improve a patient's clinical outcome.[7-16,36] Most of the demographic factors did not affect the medication health insurance responsibilities. The most dependable factors were age and position with positive relationships. Suppose a pharmacist with high age and higher position can take off the burden of health insurance. That's expected because the older generation, more experts became of taking care of much responsibility, including pharmacy health insurance. Thus, there is no previous investigation to compare with the current findings.

Most pharmacists recommend involving the pharmacist in health insurance procedures, increasing the number of health insurance pharmacists at healthcare organizations, and implementing electronic health insurance medication. Those suggestions are highly appreciated and recommended to implement soon to make big revelations in pharmacy health insurance. Thus, there is no previous investigation to compare with the current findings.

Limitations

The current cross-sectional investigation contains a lot of information about perceptions and barriers prevent of Heath insurance in pharmacy practice. Besides, it has high reliability of survey with an appropriate number of subjects. However, the study included various limitations. Such as, sampling techniques were not randomized, which a Future investigation with appropriate randomized sampling methods is highly suggested, and periodic research to determine the health insurance system in pharmacy practice in Saudi Arabia

CONCLUSION

The perception of pharmacists about pharmacy health insurance services was appropriate. The pharmacist believed that pharmacist involvement in Heath insurance should be mandatory and pharmacists should have an active role in drug Heath insurance services. However, the pharmacist faced several obstacles that prevented implementation, such lack of education and training for undergraduates and postgraduate scholarships. The responders believe that pharmacists should be responsible for pharmacy Health insurance. Besides, the pharmacist should take an active role in Heath insurance services, implement health insurance pharmacist policies, and involve drug Heath insurance within an electronic prescribing system in Saudi Arabia. Various factors might affect pharmacists' perception of Heath insurance in pharmacy practice, such as work sites, positions of pharmacists, and length of health insurance coverage. The health insurance pharmacist should be unified and standardized in pharmacy practice at all Healthcare organizations and Heath insurance companies.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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Consent for Publications

Informed consent was obtained from all the participants

Ethical Approval

This research was exempted from research and ethical committee or an institutional review board (IRB) approval.

https://www.hhs.gov/ohrp/regulations-and-policy/decision-charts-2018/index.html

ABBREVIATIONS

CCHI: Council of Cooperative Health Insurance; **IDF:** Insurance Drug Formulary; **MOH:** Ministry of Health; **KSA:** Kingdom of Saudi Arabia; **SPSS:** Statistical Package of Social Sciences; **JASP:** Jeffery's Amazing Statistics Program; **STROBE:** Strengthening the reporting of observational studies in epidemiology statement; **VIF:** Variance Inflation Factor; **SFDA:** Saudi Food and Drug Authority.

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