

# Safety Culture of Physicians' Medication in Saudi Arabia

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## Abstract

**Objective:** The study aims to demonstrate the Physicians' Medication Safety Culture in Saudi Arabia.

**Methods:** It examines a cross-sectional survey of physicians' medication safety practices in Saudi Arabia. It self-reported an electronic survey of physicians in Saudi Arabia, ranging from intern to consultant level, and physician specialties. The survey included respondents' demographic information about physicians who reported medication safety items in medical care, as well as medications who executed medication safety. With closed-ended questions, the 5-point Likert response scale system was used. The survey monkey system was used to collect data on the Physicians' Medication Safety Culture. In this study, the statistical package for social sciences (SPSS), Jeffery's Amazing Statistics Program (JASP), and Microsoft Excel sheet version 16 were used for data analysis.

**Results:** The total number of responding physicians was 253, with the majority 73 (54.07 %) coming from the central region, which was statistically significant among the areas ( $p < 0.01$ ). The majority of those who responded were from private hospitals 48 (18.97%), MOH hospitals 41 (16.21%), and University hospitals 40 (15.81%). Furthermore, 72 (60.50%) were female, while 47 (39.50%) were male, with a statistically significant difference ( $p < 0.01$ ). The average frequency of medications safety items reported monthly in medical care was (5.97), with the highest score element being Medication's wastage services system (6.42), followed by Medications labelling before use (6.31), Medical drug information resources (6.15) and Medication's safety committee for medical care (6.11). Anticoagulants 33 (33.33 %) and NSAIDs 32 (32.32 %) were the medications used in medication error reporting. Sedation medications 38 (38.78%) and muscle relaxant medications 36 (36.73%) were the drugs used in ADR reporting. Antineoplastic 40 (40.00%) and Anti-seizure drug 39 (39.39%) were the most commonly used medicines in the looks like sound-alike system (38.24 %). Anti-arrhythmic 43 (43.88 %) and anti-psychotic medication 40 (40.40%) were the drugs used in the high alert medication system.

**Conclusion:** The Physicians' Medication Safety Cultures were inadequate and contradictory. Consequently, the physicians instituted non-serious aspects of medication safety culture. Hence, reviewing aspect medications safety cultures in medical practice with a focus on education and training is strongly advised in Saudi Arabia.

**Keywords:** Medication Safety, Culture, Physicians, Saudi Arabia.

## INTRODUCTION

Medication orders are processed in several steps, including prescribing, preparation, dispensing, administration, and monitoring [1,2]. All healthcare personnel are involved in the medication order steps. The responsibility of the physician is to prescribe medications to patients. Writing a prescription necessitates skill and expert practice [1,2]. To avoid mistakes during prescribing procedures, physicians must implement medication safety cultures [1,2]. Medication safety should be practiced in various aspects of medication safety. This includes writing complete prescriptions, clearly handwritten drugs, not abbreviating letters, providing clear instructions, and precise medication frequency [1,2]. But not limited to generic medication names, using

electronic prescriptions, if possible, documentation of medication errors, high alert medication system, medication safety climate, medication safety policy and procedures, and documentation of adverse drug reactions if they occur [1-4]. The use of medications safety cultures and implementation were not studied in a single study or systematic review [5-13]. Some studies on medication safety were conducted in hospitals, primary care centers, or community pharmacies using ISMP guidelines [14-23]. Those studies were carried out either during the Hajj or on regular days. The authors are not familiar with the physicians using medications safety cultures elements and related documentation. The current study seeks to identify physician medication safety culture elements in the Kingdom of Saudi Arabia.

## Methods

A cross-sectional study was conducted to investigate the Physicians' Medication Safety Culture in Saudi Arabia. It was a self-reported electronic survey of physicians. It included all physicians from intern to consultant, as well as all physician specialties located in Saudi Arabia. Non-physicians and students, as well as uncompleted surveys, were excluded from the study. The survey consisted of the physicians' demographic information, frequency of the medication's safety items reported in medical care, and medications executed at the medication's safety at a healthcare facility. Closed-ended questions and a 5-point Likert response scale system were used for this study. According to the previous literature with unlimited population size, the sample was calculated as a cross-sectional study, with a population percentage of 50%, a confidence level of 95%, a z score of 1.96, a margin of error of 5-6.5 %, and a drop-out rate of 10%. Therefore, the sample size ranged from 251 to 432, with an 80% power of the study [24-26]. The calculated sample size required a response rate of at least 60-70 % or higher [26,27]. The survey was distributed through social media sites via WhatsApp and telegram groups of various physicians. Every 2-3 weeks, a reminder message was sent. The survey was validated through expert reviewers and pilot testing. The study also included the reliability tests Gutmann's 6, Gutmann's 2, McDonald's, and Cronbach alpha. The survey monkey system is used to analyze data from the Physicians' Medication Safety Culture. The statistical package for social sciences (SPSS), Jeffery's Amazing Statistics Program (JASP), and Microsoft Excel sheet version 16 with description and frequency analysis, good fitness analysis, correlation analysis, and inferential analysis of factors influencing physicians' medication safety practice were used. The current study's reporting was guided by the STROBE (Strengthening the reporting of observational studies in epidemiology statement: guidelines for reporting observational studies) [28,29].

## Ethical Approval

The research protocol was approved by research ethics committee, Pharmacy College, Shaqra University, Saudi Arabia.

## Results

The total number of responding physicians were 253, with the majority 73 (54.07 %) coming from the central region, which was statistically significant among the areas ( $p < 0.01$ ). The majority of those who responded were from private hospitals 48 (18.97%), MOH hospitals 41 (16.21%), and University hospitals 40 (15.81%). Furthermore, 72 (60.50%) were female, while 47 (39.50%) were male, with a statistically significant difference between them ( $p < 0.01$ ). Most respondents 72 (59.02%) were between the ages of 24 and 35, with a statistically significant difference between all ages ( $p < 0.01$ ). Most of the physicians were General Practitioners 32 (27.59%), Residents 31 (26.72%), and Specialists 22 (18.97%), with statistically significant differences between all qualification levels ( $p < 0.05$ ). Most respondents were physicians 34 (31.78%) and supervisors 27 (25.23%), with no statistically significant difference between them ( $p = 0.389$ ). Most physicians 26 (23.42%) had less than one year of experience, with no statistically significant difference between experience levels. Almost one-fifth of the medical physicians were 23 (20.35%), with statistically significant differences between them ( $p = 0.025$ ). (Table 1 and 2).

Table 1: Demographic, social information

Locations	Response Count	Response Percent	p-value (X2)
Central area	73	54.07%	0.000
North area	25	18.52%	
South area	14	10.37%	
East area	13	9.63%	
West area	10	7.41%	
Answered question	<b>135</b>		

Site of work	Response Count	Response Percent	p-value (X2)
Skipped question	<b>118</b>		
MOH Hospitals	41	16.21%	0.000
Military hospitals	31	12.25%	
National Guard Hospital	25	9.88%	
Security forces hospitals	25	9.88%	
University hospital	40	15.81%	
MOH primary care centers	12	4.74%	
Private hospitals	48	18.97%	
Private ambulatory care clinics	16	6.32%	
Private primary healthcare center	15	5.93%	
Answered question	<b>253</b>		
Skipped question	<b>0</b>		
Gender	Response Count	Response Percent	
Male	47	39.50%	0.022
Female	72	60.50%	
Answered question	<b>119</b>		
Skipped question	<b>134</b>		
Age	Response Count	Response Percent	
24–35	72	59.02%	0.000
36–45	28	22.95%	
46–55	13	10.66%	
> 55	9	7.38%	
Answered question	<b>122</b>		
Skipped question	<b>131</b>		

Table 2: Demographic, social information

Physician Qualifications	Response Count	Response Percent	p-value (X2)
Intern	15	12.93%	0.025
Resident	31	26.72%	
General Practitioner	32	27.59%	
Specialist	22	18.97%	
Consultant	16	13.79%	
Answered question	<b>116</b>		
Skipped question	<b>137</b>		
Position Held	Response Count	Response Percent	
Director of medical departments	23	21.50%	0.389
Assistant director of the medical department	23	21.50%	
Supervisor	27	25.23%	
Physician staff	34	31.78%	
Answered question	<b>107</b>		
Skipped question	<b>146</b>		
Years of experience	Response Count	Response Percent	
> 1	26	23.42%	0.141

1-3	20	18.02%	
4-6	20	18.02%	
7-9	13	11.71%	
10-12	11	9.91%	
> 12	21	18.92%	
Answered question	<b>111</b>		
Skipped question	<b>142</b>		
Physician Specialties	Response Count	Response Percent	
Critical Care	11	9.73%	0.025
Emergency	9	7.96%	
Medical	23	20.35%	
Surgical	17	15.04%	
Pediatrics	16	14.16%	
Anesthesia	8	7.08%	
Psychiatry	6	5.31%	
Obstetrics and Gynecology	5	4.42%	
Family medicine	11	9.73%	
Ambulatory care	7	6.19%	
Answered question	<b>113</b>		
Skipped question	<b>140</b>		

Table 3: How frequently of the medication's safety items reported monthly in medical care

	0		1-3		4-6		7-9		10-12		>12		Total	Average No.	p-value
Medications errors reporting system	5.05%	5	28.28%	28	23.23%	23	19.19%	19	13.13%	13	11.11%	11	99	5.86	0.001
ADR reporting system	7.14%	7	24.49%	24	21.43%	21	23.47%	23	15.31%	15	8.16%	8	98	5.86	0.004
Drug quality reporting system	6.25%	6	22.92%	22	25.00%	24	27.08%	26	14.58%	14	4.17%	4	96	5.77	0.000
Looks alike sound like	9.28%	9	20.62%	20	21.65%	21	19.59%	19	21.65%	21	7.22%	7	97	6.11	0.027
Drug allergy	5.21%	5	18.75%	18	31.25%	30	18.75%	18	16.67%	16	9.38%	9	96	6.23	0.000
Prohibited abbreviations	6.06%	6	24.24%	24	21.21%	21	24.24%	24	17.17%	17	7.07%	7	99	5.93	0.001
High alert medications	10.31%	10	21.65%	21	19.59%	19	21.65%	21	17.53%	17	9.28%	9	97	5.88	<b>0.111</b>
Medications reconciliation	7.22%	7	18.56%	18	29.90%	29	23.71%	23	12.37%	12	8.25%	8	97	5.83	0.000
Medications errors disclosure	8.16%	8	22.45%	22	27.55%	27	14.29%	14	21.43%	21	6.12%	6	98	5.82	0.001
Medications safety committee for medical care	7.22%	7	19.59%	19	26.80%	26	18.56%	18	17.53%	17	10.31%	10	97	6.11	0.014

Basic medications safety course	4.08%	4	27.55%	27	25.51%	25	21.43%	21	13.27%	13	8.16%	8	98	5.74	0.000
Medical Drug information resources	5.05%	5	23.23%	23	25.25%	25	19.19%	19	16.16%	16	11.11%	11	99	6.15	0.004
Medical therapeutic guidelines	6.19%	6	23.71%	23	22.68%	22	23.71%	23	16.49%	16	7.22%	7	97	5.93	0.002
Medications storage system	7.14%	7	16.33%	16	27.55%	27	28.57%	28	11.22%	11	9.18%	9	98	5.98	0.000
Medications wastage services	7.14%	7	13.27%	13	27.55%	27	25.51%	25	17.35%	17	9.18%	9	98	6.42	0.001
Medications labeling before use	7.07%	7	20.20%	20	24.24%	24	17.17%	17	24.24%	24	7.07%	7	99	6.31	0.002
Patients' education of dental medications	6.25%	6	20.83%	20	26.04%	25	19.79%	19	17.71%	17	9.38%	9	96	6.14	0.007
Off-labeling prescribing in dental care	10.42%	10	18.75%	18	26.04%	25	20.83%	20	13.54%	13	10.42%	10	96	5.87	<b>0.044</b>
Drug-interaction altering system	8.25%	8	18.56%	18	27.84%	27	17.53%	17	19.59%	19	8.25%	8	97	6.10	0.006
Pregnancy and lactation altering system	8.16%	8	17.35%	17	33.67%	33	20.41%	20	13.27%	13	7.14%	7	98	5.71	0.000
Electronic prescribing	9.28%	9	20.62%	20	27.84%	27	18.56%	18	13.40%	13	10.31%	10	97	5.74	0.013
Answered													<b>99</b>		
Skipped													<b>154</b>		

Table 4. Which of the medications implemented the medication's safety?

	Medication Errors Reporting		ADR reporting		Drug Quality reporting		Looks like sound alike		Drug allergy		High alert medications		Medications reconciliation		Basic medications safety course	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Antibiotics	28.71%	29	25.74%	26	36.63%	37	26.73%	27	36.63%	37	23.76%	24	18.81%	19	17.82%	18
Antifungal	21.00%	21	26.00%	26	29.00%	29	34.00%	34	31.00%	31	34.00%	34	28.00%	28	20.00%	20
Narcotics medications	27.55%	27	27.55%	27	33.67%	33	37.76%	37	25.51%	25	37.76%	37	24.49%	24	20.41%	20
Medications for sedation	23.47%	23	38.78%	38	38.78%	38	28.57%	28	37.76%	37	35.71%	35	20.41%	20	20.41%	20
Antiplatelets	27.55%	27	34.69%	34	39.80%	39	32.65%	32	37.76%	37	33.67%	33	29.59%	29	27.55%	27
Anti-seizure	24.24%	24	30.30%	30	36.36%	36	39.39%	39	39.39%	39	36.36%	36	31.31%	31	20.20%	20
Anticoagulant	33.33%	33	33.33%	33	29.29%	29	37.37%	37	36.36%	36	34.34%	34	31.31%	31	23.23%	23
NSAIDs	32.32%	32	29.29%	29	33.33%	33	37.37%	37	33.33%	33	26.26%	26	36.36%	36	19.19%	19
Anti-emetics	30.61%	30	23.47%	23	32.65%	32	33.67%	33	35.71%	35	26.53%	26	23.47%	23	26.53%	26

Antineoplastic medications	24.00%	24	22.00%	22	39.00%	39	40.00%	40	39.00%	39	40.00%	40	22.00%	22	22.00%	22
Anti-HIV medication	27.27%	27	35.35%	35	38.38%	38	33.33%	33	37.37%	37	37.37%	37	25.25%	25	18.18%	18
Anesthesia medications	28.28%	28	27.27%	27	30.30%	30	31.31%	31	37.37%	37	28.28%	28	27.27%	27	25.25%	25
Anti-thrombosis	29.59%	29	27.55%	27	35.71%	35	34.69%	34	33.67%	33	40.82%	40	24.49%	24	21.43%	21
Anti-Depressant	31.96%	31	28.87%	28	38.14%	37	29.90%	29	40.21%	39	31.96%	31	32.99%	32	28.87%	28
Anti-viral	28.57%	28	28.57%	28	31.63%	31	31.63%	31	27.55%	27	37.76%	37	30.61%	30	30.61%	30
Anti-Psychotics	29.29%	29	26.26%	26	31.31%	31	35.35%	35	36.36%	36	40.40%	40	28.28%	28	20.20%	20
Total Parenteral Nutrition	21.43%	21	29.59%	29	28.57%	28	29.59%	29	37.76%	37	26.53%	26	35.71%	35	24.49%	24
Muscle relaxant medications	26.53%	26	36.73%	36	32.65%	32	36.73%	36	33.67%	33	26.53%	26	32.65%	32	22.45%	22
Anti-arrhythmic medications	21.43%	21	27.55%	27	30.61%	30	35.71%	35	31.63%	31	43.88%	43	29.59%	29	26.53%	26
Isotropic agents (Digoxin, Milrinone)	26.80%	26	32.99%	32	30.93%	30	36.08%	35	37.11%	36	37.11%	36	32.99%	32	20.62%	20
epidural and intrathecal medications	25.51%	25	33.67%	33	27.55%	27	34.69%	34	34.69%	34	32.65%	32	24.49%	24	27.55%	27
Electrolytes	27.84%	27	29.90%	29	28.87%	28	28.87%	28	31.96%	31	25.77%	25	22.68%	22	23.71%	23
Answered																
Skipped																

Table 5. Which of the medications implemented the medication's safety?

	Drug information resources		Therapeutic guidelines		Medications wastage services		Medications labeling before and after use		Patients' education of medications		Drug interactions alerting system in electronic prescribing		Pregnancy and lactation alerting system in electronic prescribing		Electronic prescribing		
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	
Antibiotics	15.84%	16	12.87%	13	17.82%	18	15.84%	16	12.87%	13	7.92%	8	10.89%	11	4.95%	5	101
Antifungal	19.00%	19	10.00%	10	7.00%	7	18.00%	18	9.00%	9	3.00%	3	13.00%	13	5.00%	5	100
Narcotics medications	16.33%	16	8.16%	8	11.22%	11	11.22%	11	12.24%	12	6.12%	6	13.27%	13	7.14%	7	98
Medications for sedation	16.33%	16	17.35%	17	9.18%	9	9.18%	9	10.20%	10	10.20%	10	17.35%	17	2.04%	2	98
Antiplatelets	17.35%	17	10.20%	10	9.18%	9	12.24%	12	10.20%	10	7.14%	7	10.20%	10	2.04%	2	98
Anti-seizure	21.21%	21	6.06%	6	12.12%	12	13.13%	13	8.08%	8	12.12%	12	15.15%	15	4.04%	4	99
Anticoagulant	19.19%	19	8.08%	8	10.10%	10	12.12%	12	10.10%	10	15.15%	15	17.17%	17	3.03%	3	99
NSAIDs	21.21%	21	14.14%	14	7.07%	7	10.10%	10	10.10%	10	9.09%	9	17.17%	17	3.03%	3	99
Anti-emetics	12.24%	12	9.18%	9	7.14%	7	9.18%	9	10.20%	10	12.24%	12	14.29%	14	10.20%	10	98
Antineoplastic medications	19.00%	19	10.00%	10	15.00%	15	15.00%	15	11.00%	11	15.00%	15	18.00%	18	8.00%	8	100
Anti-HIV medication	21.21%	21	16.16%	16	14.14%	14	8.08%	8	4.04%	4	10.10%	10	13.13%	13	6.06%	6	99
Anesthesia medications	21.21%	21	24.24%	24	12.12%	12	11.11%	11	10.10%	10	14.14%	14	14.14%	14	6.06%	6	99
Anti-thrombosis	14.29%	14	15.31%	15	12.24%	12	11.22%	11	11.22%	11	8.16%	8	13.27%	13	6.12%	6	98
Anti-	17.53%	17	16.49%	16	13.40%	13	15.46%	15	6.19%	6	16.49%	16	8.25%	8	4.12%	4	97

Depressant																	
Anti-viral	18.37%	18	15.31%	15	11.22%	11	9.18%	9	7.14%	7	9.18%	9	13.27%	13	2.04%	2	98
Anti-Psychotics	22.22%	22	13.13%	13	10.10%	10	15.15%	15	7.07%	7	9.09%	9	16.16%	16	8.08%	8	99
Total Parenteral Nutrition	18.37%	18	16.33%	16	14.29%	14	12.24%	12	5.10%	5	12.24%	12	12.24%	12	5.10%	5	98
Muscle relaxant medications	17.35%	17	9.18%	9	5.10%	5	9.18%	9	13.27%	13	12.24%	12	15.31%	15	8.16%	8	98
Anti-arrhythmic medications	22.45%	22	15.31%	15	15.31%	15	12.24%	12	8.16%	8	6.12%	6	9.18%	9	3.06%	3	98
Isotropic agents (Digoxin, Milrinone)	13.40%	13	15.46%	15	9.28%	9	14.43%	14	11.34%	11	12.37%	12	17.53%	17	5.15%	5	97
epidural and intrathecal medications	19.39%	19	13.27%	13	11.22%	11	8.16%	8	7.14%	7	12.24%	12	12.24%	12	5.10%	5	98
Electrolytes	14.43%	14	14.43%	14	7.22%	7	15.46%	15	8.25%	8	10.31%	10	7.22%	7	5.15%	5	97
Answered																	<b>101</b>
Skipped																	<b>152</b>

The average frequency of medications safety items reported monthly in medical care was (5.97), with the highest score element being Medication's wastage services system (6.42), followed by Medications labelling before use (6.31) and Medication's safety committee for medical care (6.11) (Table 3). As shown in Table 3, the Pregnancy and lactation altering system received the fewest reports (5.71), followed by electronic prescribing (5.74) and Basic medications safety course (5.74). Anticoagulant 33(33.33 %) and NSAIDs 32 (32.32 %) were the most commonly used medications in medication error reporting, while Total parenteral nutrition 21(21.43 %) and Anti-arrhythmic medication 21(21.43 %) were the least commonly used medications. The drugs implemented in the ADR reporting were medications for sedation 38 (38.78%) and muscle relaxant medications 36 (36.73%). The minor groups of drugs were antineoplastic medications 22 (22.00%) and Anti-emetic medications 23 (23.47%). Antiplatelet 39 (38.80%) and sedation drugs 38 (38.78%) were the most medicine implemented in the drug quality reporting while the minor groups of drugs were epidural and intrathecal medications 27 (27.55%). The most common types of medication that had been implemented in the looks like sound-alike system were Antineoplastic 40 (40.00%) and Anti-seizure drug 39 (39.39%), while the last group of medication was Antibiotics 27 (26.73%) and medication sedation 28 (28.57%). The most medication that had been implemented in the Drug allergy system were Anti-depressant 39 (40.21%), and Anti-seizure 39 (39.39%) and Antineoplastic 39 (39.00%). The last medication group was Narcotics medication 25 (25.51%) and Anti-viral medication 27 (27.55%). The drug implemented in the high alert medication system was Anti-arrhythmic 43 (43.88%) and Anti-psychotic medication 40 (40.40%). In comparison, the last group of the medicine was antibiotics 24 (23.76%) and Electrolyte 25 (25.77%). The most medication implemented in the medications reconciliation system was NSAIDs 36 (36.36%) and Total parenteral nutrition 35 (35.71%). In comparison, the last medication group was antibiotics 19 (18.81%) and Medications for sedation 20 (20.41%). The most drug that had been implemented in the basic medication safety course was Anti-viral 30 (30.61%), Antidepressants 28 (28.87%), Antiplatelet 27 (27.55%) and Epidural and intrathecal medications 27 (27.55%). In comparison, the last group of the medication was antibiotics 18 (17.82%) and Anti-HIV drugs 18(18.18%), as explored in (Table 4,5).

## Discussion

Physicians provide medical care to patients by assessing their needs and then prescribing medications daily. Physicians deal with a wide range of medications from different pharmacological classes. The routine daily work may expose you to errors, with a focus on medication errors. They'll need a few things to avoid making those mistakes. Those preventive elements should be a part of a Physicians' life, knowledge, practice, or perception [5,30,31]. They must establish medication-safety cultures. The current study used a self-administered questionnaire to investigate the safety cultures of physicians and medications. The medication's safety cultures included a variety of preventive measures that were implemented daily. They must implement and practice all medications daily, with a focus on documentation and reporting of occurrences. This means that the preventive

measures cultures must be updated on a regular basis, as well as the medication safety guidelines. Young physicians, limited experience, little difference in gender distribution, private and government hospitals, and various specialties were revealed in the study, with an equal number of physician positions distributed. This is reflected in various cultures' drug safety cultures. However, due to varying demographic characteristics and small sample sizes, it is unable to generalize them. But it's a starting point for more research into medication safety cultures using similar criteria. The doctors follow a variety of daily medication safety procedures, such as documenting medication waste, labelling medications, and forming a medication safety committee, which differs from previous dental studies [5]. Which reflected the basic medical safety procedures that were put in place or living with the habits of a physician. On the contrary, some medication safety elements did not match the Physicians' daily behavior, such as pregnancy and lactation safety alerting. Furthermore, while physicians may require these elements daily, the changing system has not existed in their culture's practice. Aside from the low prevalence of electronic prescribing, most healthcare organizations collaborated with them, but they were never implemented. The medications safety cultures elements include a variety of medications. The findings revealed that anticoagulants and nonsteroidal anti-inflammatory drugs (NSAIDs) were the most commonly used medications in medication errors, which was consistent with previous research [32]. This is due to the frequent use of medications in both the inpatient and ambulatory care settings. TPN errors and antiarrhythmic medications received the least reporting, which has been reported in previous studies as under-reporting [33]. Due to the high workload of nutrition support therapy and cardiology services, both medications were under-reported in medical care. Alternatively, the physicians may not have been involved in TPN services, allowing them to avoid antiarrhythmic medication errors. The two medications were mostly used in the adverse drug reaction elements. The most commonly involved medications were sedatives and muscle relaxants, both of which had a high rate of reported adverse events. It was similar to previous research [34]. Antineoplastic and emetic drugs, on the other hand, were the minor medications used in the ADR. That has to do with severe side effects that have occurred and are well known to the physician, even if they don't have to be involved [35]. Antiplatelet and sedation drugs were the most used drugs in the drug quality reporting system. That's why it's possible the doctor noticed the medications' poor efficacy and wanted to report it [36]. While the majority of the education was minor, an inotropic agent and intrathecal drugs were used. It's difficult to measure effectiveness in practice without including it in the safety drug quality elements [36]. Because there may be generic medications available in the market or at healthcare organizations that resemble the patent component, the majority of medications were antineoplastic agents and anti-seizure medications. While minor medications included antibiotics and sedatives, it's possible that physicians aren't familiar with all pharmaceutical companies that make generic medications, or that they haven't met anyone who looks like those classes of medications [37,38]. In terms of the drug allergy alerting system, the most used medications were antineoplastics and antidepressants, as well as total parenteral nutrition, which is used by the majority of patients. It appears that the doctors were confused about the difference between drug allergies and non-allergies adverse drug reactions. Those drugs are more likely to have non-allergic side effects [34,35]. Although Drug allergy systems were likely to be implemented for narcotics and antiviral agents, which had been expected due to minor documentation of adverse drug reactions for those medications. Antiarrhythmics and antipsychotic drugs were the most used high-risk medications. Antibiotics and electrolytes were included in the minor, according to international guidelines. It appears that the doctors were unfamiliar with high-risk or high-alert medications [39]. Antibiotics and antipsychotics were not previously thought to be high-risk medications (39). In terms of medication reconciliation and basic medication safety training. TPN and NSAIDs were among the medications prescribed by the doctors. Other medications, such as antiviral and antidepressant agents, were not used. Physicians have a poor understanding of medication safety culture elements in medical care, with a focus on the medication reconciliation system because all medications should be included [40].

## Limitations

The study revealed some images of elements of Physicians' Medication Safety Cultures. It did, however, have some limitations. Most responders, for example, are young doctors with limited experience and knowledge. Furthermore, the sample size was sufficient to extrapolate the findings to all doctors.

## Conclusion

The elements of the Physicians' medications safety cultures were insufficient. The doctors concentrated on unimportant aspects, while serious types were excluded from the medication's safety procedures. In various scenarios, some medicines performed as expected, while others performed incorrectly. It is strongly recommended that medication safety culture guidelines be revised, as well as education and training to improve medication safety knowledge and practice.

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