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ORIGINAL RESEARCH

Emergency Medicine Physicians' Views on Providing Unnecessary Management in the Emergency Department

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Purpose: To assess the views of emergency medicine physicians (EMPs) on the practice of providing unnecessary medical management in the emergency department.

Methods: All EMPs in Saudi Arabia were approached to participate in this cross-sectional study. A self-administered online survey that collected the participants' demographic information and opinions regarding the unnecessary management provided by EMPs in Saudi Arabia was conducted between December 2020 and February 2021. SPSS 22.0 was used to analyze the data.

Results: A total of 181 EMPs returned the questionnaire. More than 80% of the participants believed that EMPs order unnecessary tests or procedures at least a few times per week. The major reasons for ordering unnecessary medical tests or procedures were "concern about malpractice issues" (60.8%), "not having enough time with a patient for meaningful discussion" (47%), and "just to be safe" (46.4%). More than 55% of the respondents also believed that EMPs are in the best position to address the problem of unnecessary testing.

Conclusion: Most of the EMPs who participated in this study recognized that ordering unnecessary tests is a serious problem that happens on a daily basis. Many factors and reasons were described by the participants, and multiple possible solutions were suggested to help overcome the issue. Evaluating physicians' perspectives on the issue is a key step in addressing the problem and implementing appropriate interventions.

Keywords: emergency medicine physician, unnecessary investigation, Saudi Arabia, overdiagnosis, over-testing

Introduction

A considerable proportion of the care provided to patients is not clinically indicated and may possibly cause harm.[1] For emergency medicine physicians (EMPs), malpractice concerns and diagnostic uncertainty are the most common reasons for ordering unnecessary imaging or treatment.[2] Unnecessary services cost the United States health care system approximately 200 billion dollars annually.[3] Lyu et al showed that 20.6% of overall medical care was unnecessary, including 22.0% of prescribed medications, 24.9% of tests, and 11.1% of procedures.[4] Ordering unnecessary tests is the most common form of defensive medicine reported by 59% of physicians.[5] Unnecessary advanced imaging studies seem to be particularly problematic in the emergency department (ED). In one study, 97% of the EMPs evaluated felt that at least some of the advanced imaging studies they requested were not medically indicated.[6]

A National Survey of Physicians conducted by American Board of Internal Medicine (ABIM), Part of Choosing Wisely campaign, investigated the reasons behind over-testing. Surveyed physicians believed that the reasons include defensive medical practices (52%) and uncertainty in making a clinical diagnosis (36%). The need for more information for reassurance (30%), patient insistence (28%), the need to keep the patient happy (23%), and not having enough time

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with the patients (13%) were other reasons mentioned.[2] Moreover, such factors as unfamiliarity with costs by the health care giver, overdependence on protocols and algorithms, inexperience, as well as gaps in training and education can be part of the problem.[7] Kanzaria et al surveyed EMPs in the United States on their perceptions toward ordering unnecessary advanced diagnostic imaging and its contributing factors. Fear of missing a diagnosis and avoidance of malpractice-related consequences were the most common reasons cited for ordering unnecessary tests. However, 39.7% of the participants felt that patient or family expectations were almost always a reason, and 23% indicated that doing so saves time.[8]

Although overuse of investigations and treatments might satisfy patients who seek them, some studies have shown that overutilization of health care services is not associated with better outcomes.[9] In addition, the introduction of electronic health records may lead to the liberal use of investigations and imaging.[10] Interestingly, overdiagnosis might put patients at greater risk by exposing those with low risk to invasive procedures, unnecessary radiation, or medically unjustified treatments, such as catheterization and revascularization in chest pain patients after cardiac workup.[11] Other examples of overdiagnosis include the inappropriate use of d-dimer as a screening test for pulmonary embolism, treating asymptomatic patients with positive urinalysis results, and requesting computed tomography scans of the brain in patients who present to the ED after minor head injury.[12–15] In spite of the wealth of data on the matter, few studies have assessed EMPs' perceptions on providing unnecessary medical services to patients globally and in Saudi Arabia particularly. This study was conducted to assess the views of EMPs in Saudi Arabia on the practice of ordering unnecessary investigations and treatments.

Methods

Study Design, Setting, and Participants

This was a cross-sectional study that targeted all EMPs who were registered with the Saudi Commission for Health Specialties (SCFHS), which is the regulatory body for health professions, with no restriction on the exact number of their years of practice, age, and sex. Physicians working in other departments or outside Saudi Arabia were excluded. A self-administered online survey questionnaire using Google forms was prepared and sent to the target population via email through several sources, including the SCFHS. The exact number of EMPs approached was unknown to us because the invitation was also sent out by the SCFHS, not only by the research team.

Study Tools

We used a validated survey (Unnecessary Tests and Procedures in the Health Care System) with permission from the ABIM Foundation, which is a copyright-holding foundation.[2] The survey questionnaire was piloted on 10 EMPs who were excluded from the actual sample. It collected the participants' demographic information (eg, sex, age, compensation, and primary workplace) and included questions about the magnitude of the problem as well as possible solutions. The typical time spent to fill the questionnaire was 10 minutes.

We briefed the participants regarding the objectives of the study and their right to withdraw at any time without any obligation toward the study team, and we obtained their informed consent before administering the survey. Participant anonymity was maintained at all times. This study required a minimum sample size of 148 participants to achieve a 95% confidence interval of ±5% width as well as based on assumptions of statistical significance at <0.05 and a 20% non-response rate. It was approved by the institutional review board of King Saud University Medical City (Riyadh, Kingdom of Saudi Arabia) on December 24, 2020. We targeted all EMPs in Saudi Arabia whom we could reach and collected data over 14 days (through January and February 2021).

Statistical Analysis

Data were analyzed using SPSS 22.0 (IBM, New York, NY, USA). Categorical variables were assessed using χ^2 analysis and expressed as percentages. $P < 0.05$ was considered statistically significant.

Results

A total of 181 EMPs returned the questionnaire; their demographic data and responses to our survey are reported in Table 1. Of the respondents, 158 (87.3%) were male, 62.4% were <40 years old, 40.9% were consultants, and 38.7% were residents. More than one-fifth of the participants reported working >20 clinical shifts per month in the ED. Only 15% of the participants had a fee-for-service payment system as one, or their only, source of compensation.

With regard to the magnitude of the problem, >80% of the participants believed that EMPs order unnecessary tests or procedures at least a few times per week, as shown in Table 2. More than 55% also believed that physicians are in the best position to address the problem of unnecessary testing. Almost half of the participants said that they will refuse to order unnecessary tests even if the patient insisted, and 37% said that they will order the test but will give reasons to convince the patient that it is unnecessary.

As shown in Table 3, the major reasons for ordering unnecessary medical tests or procedures were "concern about malpractice issues" (60.8%), "not having enough time with a patient for meaningful discussion" (47%), and "just to be

Table 1 Characteristics of the Survey Participants (N = 181)

		n	%
Age	20–30 years	37	20.4
	31–40 years	76	42.0
	41–50 years	48	26.5
	51–60 years	15	8.3
	>60 years	5	2.8
Sex	Male	158	87.3
	Female	23	12.7
Years you have been practicing emergency medicine (including residency):	1–5 years	43	23.8
	6–10 years	32	17.7
	11–15 years	62	34.3
	16–20 years	25	13.8
	>20 years	19	10.5
What is your position now?	Resident	70	38.7
	Fellow	37	20.4
	Consultant	74	40.9
The average number of shifts per month spent working clinically in the ED:	1–10 shifts	23	12.7
	11–20 shifts	118	65.2
	>20 shifts	40	22.1
Primary workplace?	Governmental hospital	123	68.0
	Academic hospital	23	12.7
	Private hospital	35	19.3
Type of compensation?	Salary only	154	85.1
	Fee for service	4	2.2
	Both	23	12.7

Table 2 Responses of the Survey Participants (N = 181) Regarding the Amplitude of Providing Unnecessary Management in Emergency Departments

		n	%
Think about the average emergency physician in the health care system today. How often do you think he or she orders a test or procedure that is not necessary?	Every day	96	53.0
	Several times a week	49	27.1
	About once a week	5	2.8
	A couple of times a month	14	7.7
	Less often than once a month	6	3.3
	Do not know	3	1.7
	Prefer not to answer	8	4.4
Do you think the frequency of unnecessary tests and procedures in the health care system is a	Very serious problem	58	32.0
	Somewhat serious problem	87	48.1
	Not too serious problem	25	13.8
	Not a problem at all	2	1.1
	Do not know	5	2.8
	Prefer not to answer	4	2.2
Who do you think is in the best position to help address the problem of unnecessary tests and procedures?	Physicians	100	55.2
	Patients	8	4.4
	Insurance company	10	5.5
	The government	11	6.1
	Trial lawyers	2	1.1
	Hospitals	34	18.8
	Other	2	1.1
	Do not know	6	3.3
	Prefer not to answer	8	4.4
How much responsibility do you feel you have for making sure your patients avoid unnecessary tests and procedures?	A great deal of responsibility	102	56.4
	Some responsibility	53	29.3
	Not much responsibility	15	8.3
	Do not know	4	2.2
	Prefer not to answer	7	3.9
Let us say a patient came to you convinced he or she needed a specific test. You knew the test is unnecessary, but the patient is quite insistent. Would you?	Order the test	13	7.2
	Order the test, but give reasons why you advice against it	68	37.5
	Refuse to order the test	89	49.2
	Do not know	4	2.2
	Prefer not to answer	7	3.9

Notes: Adapted from ABIM Foundation https://www.choosingwisely.org/wp-content/uploads/2015/04/Final-Choosing-Wisely-Survey-Report.pdf.[2]

Table 3 Reasons of the Survey Participants (N = 181) for Ordering Unnecessary Tests

		n	%
Not having enough time with a patient for meaningful discussion	Major reason	85	47.0
	Minor reason	37	20.4
	Not a reason	48	26.5
	Do not know	7	3.9
	Prefer not to answer	4	2.2
Concern about malpractice issues	Major reason	110	60.8
	Minor reason	34	18.8
	Not a reason	25	13.8
	Do not know	8	4.4
	Refuse to answer	4	2.2
Wanting to keep your patients happy	Major reason	65	35.9
	Minor reason	55	30.4
	Not a reason	51	28.2
	Do not know	3	1.7
	Refuse to answer	7	3.9
Patients insisting on getting the test or procedure	Major reason	68	37.6
	Minor reason	71	39.2
	Not a reason	36	19.9
	Do not know	2	1.1
	Refuse to answer	4	2.2
Having new technology in your practice	Major reason	36	19.9
	Minor reason	55	30.4
	Not a reason	75	41.4
	Do not know	12	6.6
	Refuse to answer	3	1.7
Feeling patients should be able to make the final decision	Major reason	42	23.2
	Minor reason	61	33.7
	Not a reason	65	35.9
	Do not know	8	4.4
	Refuse to answer	5	2.8

(*Continued*)

Table 3 (Continued).

		n	%
The fee-for-service system of payment	Major reason	45	24.9
	Minor reason	41	22.7
	Not a reason	72	39.8
	Do not know	17	9.4
	Refuse to answer	6	3.3
Wanting more information to reassure yourself	Major reason	60	33.1
	Minor reason	75	41.4
	Not a reason	33	18.2
	Do not know	9	5.0
	Refuse to answer	4	2.2
Just to be safe	Major reason	83	45.9
	Minor reason	58	32.0
	Not a reason	33	18.2
	Do not know	2	1.1
	Refuse to answer	5	2.8

Notes: Adapted from ABIM Foundation https://www.choosingwisely.org/wp-content/uploads/2015/04/Final-Choosing-Wisely-Survey-Report.pdf.[2]

safe" (46.4%). Meanwhile, the fee-for-service payment system was selected the least as a reason for ordering unnecessary tests or procedures by the respondents, followed by having new technology in their field of practice.

Physicians with >10 years of experience were significantly more interested than physicians with less than five years of experience (84% vs 60.5%, $P < 0.016$) in learning about evidence-based recommendations that address when certain tests and procedures may be unnecessary (Table 4). A higher percentage of EMPs who worked <10 shifts per month were

Table 4 Relationship Between the Survey Participants' Interest in Learning and Years of Experience

		Years of Experience										*P* value
		1–5 Years		6–10 Years		11–15 Years		16–20 Years		>20 Years		
		n	%	n	%	n	%	n	%	n	%	
Are you interested or uninterested in learning more about evidence-based recommendations that address when certain tests and procedures may be unnecessary? Would you say you are very or somewhat interested/uninterested?	Very interested	26	60.5	27	84.4	52	83.9	23	92.0	15	78.9	0.016*
	Somewhat interested	11	25.6	5	15.6	7	11.3	1	4.0	3	15.8	
	Somewhat uninterested	0	0	0	0	1	1.6	0	0	0	0	
	Very uninterested	2	4.7	0	0	2	3.2	0	0	0	0	
	Do not know	0	0	0	0	0	0	1	4.0	1	5.3	
	Refuse to answer	4	9.3	0	0	0	0	0	0	0	0	

Notes: *Statistically significant.

more likely to order unnecessary tests without counseling the patient compared with those who worked 11 to 20 shifts per month (30.4% vs 4.2%).

When asked about the proposed solutions, 51% of the participants believe that malpractice reform would be very effective. In addition, 48% think that having patient-targeted evidence-based recommendations discussing unnecessary management would be another very effective solution. The great majority of our participants (79%) are interested in learning evidence-based recommendations addressing this issue (Table 5).

Table 5 Possible Solutions Suggested by the Survey Participants (N = 181) to Address the Issue of Providing Unnecessary Management

		n	%
Having specific, evidence-based recommendations in a format designed for patients that physicians can use to discuss why some care may be unnecessary	Very effective	88	48.6
	Somewhat effective	57	31.5
	Not too effective	20	11.0
	Not at all effective	2	1.1
	Do not know	7	3.9
	Refuse to answer	7	3.9
Having more time with patients to discuss alternatives to a test or procedure	Very effective	78	43.1
	Somewhat effective	71	39.2
	Not too effective	21	11.6
	Not at all effective	1	0.6
	Do not know	4	2.2
	Refuse to answer	6	3.3
Changing the system of financial rewards some physicians receive for ordering tests and procedures	Very effective	71	39.2
	Somewhat effective	45	24.9
	Not too effective	21	11.6
	Not at all effective	13	7.2
	Do not know	22	12.2
	Refuse to answer	9	5.0
Malpractice reform	Very effective	93	51.4
	Somewhat effective	39	21.5
	Not too effective	19	10.5
	Not at all effective	7	3.9
	Do not know	16	8.8
	Refuse to answer	7	3.9

(*Continued*)

Table 5 (Continued).

		n	%
In the past 12 months, have you read or heard about evidence that addresses when to order and when not to order a test or procedure?	Yes	113	62.4
	No	42	23.2
	Do not know	19	10.5
	Refuse to answer	7	3.9
In the past 12 months, have you reduced the number of times you recommended a test or procedure because you learned it was unnecessary, or has this not happened?	Yes, have reduced	118	65.2
	No, has not happened	40	22.1
	Do not know	17	9.4
	Refuse to answer	6	3.3
Think about the next 12 months. Do you think you will be talking to patients more often, less often, or about the same amount about avoiding unnecessary tests and procedures?	More often	96	53.0
	Less often	21	11.6
	About the same amount	51	28.2
	I am not sure	11	6.1
	Refuse to answer	2	1.1
Are you interested or uninterested in learning more about evidence-based recommendations that address when certain tests and procedures may be unnecessary? Would you say you are very or somewhat interested/ uninterested?	Very interested	143	79.0
	Somewhat interested	26	14.4
	Somewhat uninterested	2	1.1
	Very uninterested	4	2.2
	Do not know	2	1.1
	Refuse to answer	4	2.2
How often do you talk with your patients about the costs of tests and procedures?	Always or almost always	35	19.3
	Often	41	22.7
	About half the time	10	5.5
	Not too often	36	19.9
	Rarely or never	51	28.2
	Refuse to answer	8	4.4

Discussion

The main objective of this study was to evaluate EMPs' perceptions on the issue of providing unnecessary management to patients in the ED. We found that most of our participants identified providing unnecessary management to patients in the ED as a very serious or somewhat serious problem (80%) and believed that physicians are in the best position to address the issue (55%), which are consistent with the findings of the Choosing Wisely Campaign.[2] Notably, however, 80.1% of the respondents thought that they or their colleagues ordered unnecessary tests or procedures every day or at least several times per week, which is higher than the rates reported for the Choosing Wisely Campaign (30%) and by Lyu et al (15–30%).[2,4] On the other hand, in the study by Kanzaria et al 85% of the EMPs believed that a superabundant number of tests were ordered in their ED.[8]

Most EMPs reported that concerns of malpractice were their main reason for ordering unnecessary medical services. This finding is similar to that reported in previous studies.[2,4,8] The fear of legal threat and malpractice suits can impact physicians' practice and may lead them to engage in defensive medicine. Compared to the United Kingdom, the culture of litigation and compensation in Saudi Arabia is still developing, with most procedures of mediation and conciliation of potential medical errors being conducted in an informal way. This may explain the lower cost of medical claims and awarded compensations in Saudi Arabia compared with many parts of the world.[16]

Almost 50% of our respondents considered "not having enough time with a patient for meaningful discussion" as a major reason for ordering unnecessary management, which is higher than the rates reported for the Choosing Wisely Campaign (13%) and by Lyu et al (37.4%).[2,4] Spending more time with patients as well as having enough time to explain their condition and the management they need may contribute to solving the issue. Approximately half of the participants stated they would refuse to order unnecessary medical services even if the patient insisted. This finding contradicts our hypothesis that most EMPs would order unnecessary services to seek patient satisfaction, because studies have found a positive correlation between the number of health care services provided and patient satisfaction.[17,18] However, this observation could be related to most of our respondents' sense of great responsibility to make sure that patients avoid unnecessary management.

Interestingly, we found that physicians with more than ten years of experience are significantly more interested than those with five or less years of experience in learning about evidence-based recommendations addressing unnecessary tests or procedures. This could be because physicians with less than five years of experience had recently graduated and are more updated than their older colleagues. Another interesting finding is that EMPs who work less than 10 shifts per month are more likely to order unnecessary tests than those who work 11 to 20 shifts per month. Possibly, those who work more shifts are more confident with their clinical skills and do not need tests to confirm their diagnosis. On the other hand, EMPs who work fewer shifts order tests instead of spending more time with patients to improve their department flow.

In this study, the participants agreed that having more time with patients and having evidence-based recommendations that they can use to convince patients why some services may be unnecessary would be very effective solutions to the issue of providing unnecessary management. Clinical practice guidelines should not encourage increased screening or diagnostic testing without taking the consequences of over-testing and overtreating into account.[4] Addressing the impact of providing unnecessary medical health services on both the patient care level and the health care system can help not only facilitate a better quality of care but also reduce the cost of health care. In addition, educating and involving the patient in the clinical decision-making process have been recommended to avoid resorting to the overuse of medical services and overtreatment.[4,6–8]

This study has several limitations. First, it focused on the views of physicians from Saudi Arabia only; however, the prevalence of the issue of providing unnecessary management in the ED and its financial burden in Saudi Arabia are unknown. Second, although we met our target population size, the possibility of sampling bias cannot be ruled out. Third, this study is limited by its cross-sectional design, which typically limits the confirmation of the temporality and causality of the factors explored. Finally, we were not aware of the exact number of EMPs who were invited to participate in the survey and hence did not calculate the response rate.

Conclusion

In conclusion, we found that most of the EMPs who participated in this study recognized that ordering unnecessary tests is a serious problem that happens on a daily basis. The respondents described many factors and reasons for its incidence, and they suggested multiple possible solutions to help overcome it. Evaluating physicians' perspectives on the issue is a key step in addressing it and implementing appropriate interventions.

Abbreviations

EMP, emergency medicine physician; ED, emergency department; SCFHS, Saudi Commission for Health Specialties.

Data Sharing Statement

Data related to this study are presented in the Results section. Raw data can be obtained from the corresponding author Abdulaziz Alalshaikh (aalalshaikh@ksu.edu.sa) upon reasonable request.

Ethics Approval and Consent to Participate

Approval for this study was obtained from the ethics committee of the King Saud University College of Medicine (Riyadh, Kingdom of Saudi Arabia) on December 24, 2021. The emergency medicine physicians' informed consent to participate was obtained before the survey was administered, and the participants were given the right to withdraw at any time without any obligation toward the study team. Participant anonymity was guaranteed and maintained.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests in this work.

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