



Attitudes toward cost-conscious care among Iranian physicians

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Abstract

Background and objective: The growing healthcare costs are one of the most important concerns of health systems around the world. The role of physicians in managing diagnostic and therapeutic costs has always been prominent. The present study aims to assess the attitude of physicians towards cost-conscious prescription services in Iranian West Azerbaijan province.

Methods: This study is a cross-sectional, descriptive-analytical survey conducted in 2018 in West Azerbaijan Province. The study sample included 306 general practitioners from the private sector, family physicians and specialists from both public and private sectors, in contract with Iran health insurance organization. A researcher-developed questionnaire was used to collect data, which were analyzed using SPSS version 25.

Results: The overall mean score of attitude toward cost-conscious care was 73.32% with a standard deviation 7.71. There was a significant difference between the physicians' attitudes in terms of gender, medical group, geographical location of workplace, and interest in participating in the seminars related to health economics. The family physicians had a higher positive attitude towards cost-consciousness.

Conclusion: The results were promising in terms of the physicians' attitude towards cost awareness; the real hope should be nonetheless relied mostly on how they practice. Efforts should be adopted by health authorities to sustain such attitudes and grow them into practice.

Keywords: Physicians, Cost-consciousness, Attitude, Iran

Background and objective

Nowadays, healthcare is one of the most important service sectors, deemed as a key indicator reflecting development, social welfare, and economic status in any country. Growth in healthcare costs rises at an unsustainable rate as they account for a high percentage of gross domestic product (GDP) in most countries, and still continually increase due to such various reasons as ageing, growing population, and changing people's expectations. New technologies have been constantly evolving and changing the pattern of health illness towards chronic and uncontrollable diseases among the people^{1,2}.

This growth in healthcare spending around the world has spurred economists to contemplate of new ways to reduce these costs. Considered among the highest worldwide, consumption of medicines in Iran is equivalent to the amount used in whole Europe, moreover, the use of injectable drugs per Iranian individual is four times more than same rate in developing countries³.

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Likewise, those unnecessary diagnostics and treatment services stand for 5% of dissipated health resources. Physicians tend to provide expensive care such as novel drugs, multiple diagnostic tests, and newly established guidelines which are often unnecessary or inconvenient. Such physicians' behavior accounts for more than 80% of all health care expenditures⁴⁻⁶.

Previous studies show that expensive tests and sophisticated imaging should be typically requested based on clear medical history accompanied by full and written physical examination. More than half of high-tech imaging requests in the country have been written according to patients' desires without any documented or scientific justification⁷⁻⁹. Therefore, the better understanding of physicians' attitude towards healthcare costs, including prescriptions, lab tests, and imaging, is important in demonstrating the extent to which these issues are embraced and endorsed by those physicians. Accordingly, raising awareness of physicians about healthcare expenditures and related information should be a priority, otherwise, profound adverse consequences may influence health financial resources in the country¹⁰.

Physicians and medical students, in principle, are usually unaware of the costs of medications overuse as well as overutilization of other healthcare services. Consequently, reliance on evidence-based systems and cost-effective indicators, and sharing the results with other stakeholders can be helpful. One study suggests that most physicians prescribe -at least- one unnecessary test or diagnostic weekly¹¹. In another study, less than one third of physicians can accurately estimate the cost of their drug prescriptions¹²⁻¹⁴. Some systematic reviews also revealed that physicians do not have a clear idea about

costs of pharmaceuticals and other healthcare services¹⁵⁻²¹, or the expenses of unnecessary imaging and medical interventions, which mostly result from misdiagnosis²²⁻²⁷. Further studies stated that physicians have played a key role in reducing medical costs in less than 35% of cases, while other factors such as insurance companies, patients, the health system, or the government per se, were responsible for the remnant²⁸⁻³¹.

Two main public insurance organizations provide insurance services for the over 90 percent of the population in the country; Iran Health Insurance Organization (IHIO) and Social Security Organization (SSO). These two act as purchasing bodies, buying health services for their insured people from the public and private individual or organizational healthcare providers. The IHIO is unique at the sense that all the governmental employees are required to register with this organization and it is directly supported by Ministry of Health and Medical Education (MOHME). Unlike the SSO which assumes both payer and service provider role, the former is a single payer organization and only provide basic insurance services for more than 45 percent of the population^{32,33}.

Attitude is shaped based on different factors. KAP (knowledge, attitude and practice), ABC (affection, behavior and cognitive) of attitude and theory of planned behavior (TPB) all in some way have sought to elucidate the key factors underlying the attitudes³⁴⁻³⁶. Drawing on these models, the overall belief, awareness and feelings of physicians are considered as their attitude toward cost, and cost containment. As there are massive efforts attempting to control and managing healthcare costs in the country, thereby, it is worthwhile to elicit the attitude of physicians towards their role in supporting these efforts to accomplish the

desired goals. Given the growing status of health care cost and the crucial role of physicians in optimizing health resources, and the small number of similar studies conducted in the country³⁷, this study seeks to assess the attitudes of physicians in contract with the IHIO towards the cost-conscious care in Iran.

Methods

This study was conducted in the late 2018 in the Iranian northwest province, West Azerbaijan (WA) province. There are currently 31 provinces in the country, of which WA is an important one and could be a typical case representing the other provinces in terms of including the various groups of physicians. A number of 306 IHIO contracted private GPs, public family physicians, and private and public specialists were sampled to participate.

The data was gathered using a researcher-developed questionnaire, considering Bovier et al³⁸, Wilf-Miron et al³⁹ and Hunderfund et al³⁰ studies. The questionnaire comprised of two sections; demographic information including the occupation and level (general practitioner, family physician, or specialist at private or public sector), geographical location of workplace, age, sex, medical experience, duration of contract with the IHIO, average number of weekly scheduled patient visits, and participation and willingness to participate in seminars on health economics. The second section encompassed 26 questions to investigate the

physicians' attitudes toward cost-conscious prescription services using a five-point Likert scale. Such key questions as "Awareness of the costs of prescribing services is the responsibility of every physician, physicians should consider the cost-effectiveness of interventions, physicians should be aware of the costs of the tests or treatments they recommend and physicians should also consider the costs to the health system when using new diagnostic or therapeutic procedures for their patients" were included in this questionnaire.

Face and content validity of the questionnaire was checked qualitatively seeking 15 experts' opinion including physicians, health managers and economists, while the reliability was verified for internal consistency using Cronbach's alpha coefficient ($\alpha=0.78$.)

Physicians from the 17 cities in the province were selected using stratified sampling. They were subsequently approached randomly to complete the questionnaires; seven northern cities, Urmia city in the center, and nine cities were in the south. Data collection was carried out between September and December 2018, during which, 306 completed questionnaires were received. To interpret the attitude of physicians toward cost-consciousness, first, the score of their responses were converted into percentages; second, the percentages have been split into five equal ranges (Table 1).

Table 1. Scaling of physicians' attitude toward cost-consciousness of prescription services

Scale	85-100	69-84	53-68	37-52	20-36
Attitude	Highly agree	Agree	Middle	Disagree	Highly disagree

Data was analyzed using SPSS 25. Descriptive statistics, i.e. mean, frequency, standard deviation, were applied. Due to the

normal distribution, T-test and ANOVA with a significance level of 0.05 (first type

error) were used in analyzing the collected data.

Results

Out of 306 physicians contracting with IHIO in WA province, all completed the

questionnaire (response rate=100%) following the researchers' consistent follow-up. The characteristics of participants and their responses to the first section in the questionnaire are shown in (Table 2).

Table 2. Demographic characteristics of physicians

Variable	%	Variable	%
Medical specialty		Years of practice	
General practitioners (private)	17.6	<5	28.4
Family physicians (public)	24.2	5-10	24.5
Private sector specialists	32.4	10-15	20.3
Public sector specialists	25.8	15-20	14.1
		>20	12.7
Region		Years of cooperation with IHIO	
Urmia (capital)	37.2	<5	42.5
Northern cities	24.2	5-10	27.1
Southern cities	38.6	>10	30.4
Age		Average number of patient visits per week	
25-34	23.9	<50	13.1
35-44	39.2	50-99	27.8
45-54	28.7	100-149	26.5
55-64	8.2	150-199	14.0
		>200	18.6
Gender		Interested in participating in HE seminars	
Female	40.2	Interested in participating in HE seminars	77.1
Male	59.8	Not interested in participating in HE seminars	22.9
participated in HE seminars		not participated in HE seminars	
participated in HE seminars	20.9	not participated in HE seminars	79.1

HE= health economics

Of the physicians surveyed, 32.4% were specialists and 17.6% were general practitioners, both recruited from the private sector. A number of 39.2% aged between 35 and 44 years, 8.2% between 65 and 54 years. Around 40.2% were females and 59.8% were males. 28.4% and 12.7% of physicians were having less than 5 years, and more than 20 years of experience in medicine, respectively. 42.5% have been contracting with the IHIO for less than 5 years, 27.1% whose contract duration was

between 5 and 10 years, and 30.4% more 10 years. 27.8% of participants have reported 50-99 as an average for weekly patient visits, whereas, 13.1% were receiving less than 50 patients per week. 29.9% of physicians have participated in health economics-related seminars, and 77.1% have shown their willingness to take part in the relevant future seminars.

The total mean percentage of physicians' attitude towards cost-consciousness was 73.02% with a standard deviation 7.71,

while it was 75.15% for that of family physicians with 8.29 as a standard deviation (Table 3).

Table 3. Average percentages of physicians' attitude toward cost-consciousness

Group	Percentage (%)	Attitude	Standard deviation	Lower limit	Upper limit
General practitioners (private sector)	73.53	Positive	8.31	56.92	90.77
Family physicians	75.15	Positive	8.29	57.69	90.77
Specialists (private sector)	73.61	Positive	6.40	59.23	90.00
Specialists (public sector)	69.94	Positive	7.43	52.31	93.85
Total	73.02	Positive	7.71	52.31	93.85

No negative attitude was reported among the participating physicians toward cost-consciousness of services (Table 4).

Table 4. Physicians' attitude toward cost-consciousness on Likert scale

Group	Highly positive (%)	Positive (%)	Middle (%)	Negative (%)	Highly negative (%)
General practitioners (private sector)	9.3	61.1	29.6	0	0
Family physicians	16.2	60.8	23	0	0
Specialists (private sector)	2	73.7	24.3	0	0
Specialists (public sector)	3.8	49.4	46.8	0	0

There was a statistically significant difference in the attitude amongst the four groups of physicians toward cost-consciousness (Table 5). The paramount

difference in attitude was between specialists from the public sector and family physicians from the private one.

Table 5. Different physicians' attitude towards cost-consciousness

	GP (private sector)	Family physicians (public sector)	Specialists (private sector)	Specialists (public sector)
Average	73.53	75.15	73.61	69.94
Standard deviation	8.31	8.29	6.40	7.43
ANOVA result	$f=6.704, df=3, p=0.000$			

As illustrated in (Table 6), both general practitioners (private sector) and family physicians (public sector) have been compared to each other, while, specialists from public and private sectors were also

compared as a pair. There was a statistically significant difference in the attitude of private and public specialists ($p=0.001$), unlike, the difference in attitude in the other pair was not significant ($p=0.28$).

Table 6. Physicians' attitude towards cost-consciousness in private and public sectors

	General practitioners and Family physicians		Specialists	
	Private	Public	Private	Public
Average	73.53	75.15	73.61	69.94
Standard deviation	8.31	8.29	6.40	7.43
T-test result	$t=-1.086, df=126, p=0.28$		$t=3.540, df=176, p=0.001$	

A comparison between physicians' attitudes towards cost-consciousness according to their participation and willingness to

participate in health economics-related seminars was undertaken (Table 7).

Table 7- Physicians' attitude toward cost-consciousness in terms of participation and interest in health economics seminars/workshop

Group	Percentage (%)	Standard deviation	T-test result	
Participated	71.54	7.82	$t=-1.736,$	$df=304,$
Not participated	73.41	7.65	$p=0.084$	
Interested	74.10	7.31	$t=4.628,$	$df=304,$
Not interested	69.40	7.96	$p=0.000$	

The difference in the attitude of willing physicians to take part in the abovementioned seminars and those who were not interested, was significant ($p<0.001$). Although there was a difference between physicians who have attended the seminars and those who have not participated, however, it was not statistically significant ($p=0.084$).

In terms of gender and geographical location of workplace, attitudes of physicians have indicated significant differences when comparing male with female physicians, and also physicians who have been working in Urmia when compared to those working in other cities (Table 8).

Table 8. Physicians' attitude towards cost-consciousness in terms of gender and city

	Gender		Geographical location of the city		
	Female	Male	North	Center	South
Average	71.93	73.76	71.43	74.28	72.80
Standard deviation	7.08	8.04	6.93	7.55	8.17
Results	$t=-2.048, df=304, p=0.041$		$f=3.193, df=2, p=0.042$		

There was no statistically significant difference in physicians' attitude toward cost-consciousness with respect to age, medical experience, contract duration with the IHIO, number of weekly visits, and

participation in health economics related seminars.

Discussion

Given the mounting costs of health care (40), and the critical role of physicians, as

the leader of clinical processes and procedures, in the cost growth or reduction in HCOs, it is necessary to draw attention on physicians' attitudes toward clinical costs. The present study tried to assess the attitude of Iranian physicians contracting with insurance organizations toward cost-consciousness of prescription services. Cost-consciousness is defined as "physicians' attention and sense of responsibility in addressing the costs of healthcare during their medical practice"⁴¹.

Although the majority of physicians surveyed have not attended seminars related to health economics (79.1%), many (77.1%) showed their willingness to participate in the upcoming seminars. Promoting the concept of cost-consciousness as a positive professional value might be effective in encouraging physicians to be familiar with different topics of health economics⁴². Most physicians in this survey (80.3%) believed that the role of physicians in managing and rationalizing healthcare costs is significant; however, their practice is still questionable. A large number of participants (85.6%) have reported that decision of physicians about the right diagnosis and then consequent interventions is very important in containing healthcare costs.

The total mean score of physicians' attitude toward cost-consciousness was relatively high (73.27%), indicating their positive desire to be aware of prescription costs (20, 38, 43, 44). Due to the economic burden of growing healthcare costs, the approach of insurance companies and the MOHME in the last two years has been directed at cost containment and engaging physicians in preserving the scarce health resources. A number of 67% confirmed the current emphasis of the MOHME on controlling costs of tests and medical procedures reflecting the changes in the health system approach.

The majority of physicians (83.3%) thought that the responsibility for costs of prescription services should be shared amongst all physicians^{20, 31, 38, 45}. Consistently, a high percentage (78.7%) believed that all physicians have to work on controlling and rationalizing these costs^{31, 38, 45}. Similarly, a large group of physicians (80.4%) have emphasized the cost-effectiveness of interventions in providing the services, while plenty (75.8%) believed in using novel diagnostics or up-to-date therapeutic procedures for treating their patients, at the same time, they have to consider the costs burden laid on the health system. Likewise, an ample percentage (83%) stressed that commitment to the tariffs during prescribing medications or requesting medical procedures, is essential. On the other hand, a limited percentage (21.5%) said that physicians are solely caring for their patients without exposing them to any kind of financial hardship.

As such, a small percentage of physicians (39.6%) pointed out that focusing on both treatment of patients and prescription costs simultaneously could be unfair^{31, 38, 45}, meanwhile, few also (25.8%) picked the necessity to respect patient choices regardless of services costs. The physicians have claimed that concentration on costs while caring patients might adversely affect the quality of the provided healthcare services^{46, 47}.

Some physicians perceived the link between the costs to patient care decisions inappropriate. In their perspective, patients are the cornerstone and of a higher priority. Some other reasons for their negative impression were; concerns upon healthcare inequality, and the system's failure to respond to healthcare costs and expenses⁴⁸. Time constraints limiting the ability of physicians to focus on the cost of tests and procedures while practicing medicine, was

another challenge reported by 42.5% of participants^{31, 38, 45}. Senior medical students and recent graduates gave special attention to the laboratory and imaging research⁴⁹, this approach does not requires sufficient time for investigation, clinical skills, searching in medical history, and critical thinking. Without adequate time, it will not be easy to obtain reliable and prompt information⁵⁰.

Attitudes of general practitioners and family physicians towards cost-consciousness of prescription services in the public and private sectors do not differ significantly and this was consistent with the results of Schilling et al. study²¹. However, the attitude score of specialists from the public sector was lower than those working in the private sector and attributable to the high number of patients, payment method, and the employment of newly graduated doctors based on the permanent contracts and continuous rotation at public hospitals. It is noteworthy that educational efforts in medical courses mainly draw students' attention towards medical basics and related pure science apart from other topics such as health economics and management. In the training courses, medical students used to wonder why you do not provide such medicine or lab test, without thinking about using this instead of that. So, it is essential for them to understand the concept of proper utilization of medical procedures and clinical interventions, in addition to the costs loaded on the health expenditures, and the sane ways to control and rationalize healthcare costs. When compared to their peers in the public sector, physicians in the private sector reflect positive attitude towards cost-consciousness due to the stability of employment system in the offices, and defining a specific number of patients who wait for a short time and see their physicians for a sufficient time, which

in turn associates proportionally with patient satisfaction as a health outcome^{42, 51}.

Positive attitudes of family physicians to cost-awareness were similar to the previous studies^{45, 52, 53}, which might be due to the long-term communication between patients and physicians, the constant training sessions and regular monitoring of the physicians by the IHIO (e.g. checking the number of prescription items and its link to their payment), the per capita payment method and the MOH supervision^{52, 53}. The difference in attitudes towards cost-conscious care between groups with different medical experience and contract duration with the IHIO was not significant⁴⁵; inconsistent with Hernu et al¹⁶ and Schilling et al²¹. They found that the physicians with a longer medical experience had a higher rate of cost-conscious care. It seems a long medical experience will be more effective, if it is accompanied by effective information or adequate training on health economic related topics.

Number of weekly patient visits had no significant effect on the physicians' attitudes toward cost-consciousness as similarly echoed by Maghbouli et al³⁷, unlike Bucheeri et al⁴⁵, Bovier et al³⁸, and the Robert Wood Johnson Foundation¹¹. Cost conscious patients might affect the physicians' perspective⁵⁴ depending on the number of patients visited.

As such, the participation in the health economics related seminars, though confirmed before³⁹, surprisingly had no remarkable effect on the physicians' attitudes toward cost-conscious care in line with Bucheeri et al⁴⁵, Scheurer⁵⁵ and Eisenberg⁵⁶. Generally, as appears the physicians in developing countries are less likely to participate in such events because of their different interests and time constraints, unless they are pushed. Thus, such results should not be treated oddly;

whilst, the physicians willing to take part in those seminars were of higher cost-conscious attitude.

Male physicians proved more cost aware as compared to the female, consistent with Wilf-Miron et al³⁹, Bovier et al³⁸ and Bucheeri et al⁴⁵, as the former was found occupying managerial positions more, as a pre-determinator of their cost-consciousness³⁹. Moreover, the age of physicians had no significant effect on their cost related attitude, compatible with Bucheeri et al⁴⁵ and Moghbouli et al³⁷. Medical curricula in the country have seen slight changes over the recent years and no indication to cost; resources usage and expenses could be found. Therefore, no difference in the attitude of older and younger physicians might seem natural with respect to cost-conscious care.

In terms of geographical location of workplace, evidently those physicians working in the capital and bigger cities report a positive attitude towards cost-conscious. The existence of health economics related trainings and events, the educated and cost aware patients, a tense competition, and the active role of third parties might be effective.

Limitations of this study, nonetheless, should not be ignored. Even though, the clinical practice is almost the same in all country and there are similar levels and specialties in all provinces; small sample of the physicians and possible difficulty of statistical generalization to all country could matter. Further, the cost-related attitudes and behavior of those physicians not in contract with insurance bodies might also be different.

Conclusion

Health care costs are on the rise in the world and the sustainability of most health care

system might be subsequently at risk. Physicians are of a leading role both in the clinical and resource management at point of service. The power of physicians and their clinical autonomy, varying in terms of health systems, might nevertheless undermine their cost related efforts. Departure point is to measure and work on their cost awareness attitude. This study then sought to investigate Iranian physicians' attitudes towards cost conscious care. Though the results were promising in that their attitude was relatively positive towards cost awareness, the real hope should be relied mostly on how they show in their real practices.

What is known from the international experiences indicates that while working on current physicians, the viable way is to focus more on medical students at either stager or internship and residency period, i.e. setting pre, during and post-graduation training courses. As widely echoed, the behavior of medical students during medical education courses, specialization period, and extracurricular courses, could often persist throughout the professional life of physicians, though, this attitude may slightly change or diminish by graduation and completion of short training courses. Academic staff and authorities could play an active role in rectifying the attitude of their students.

Moreover, engaging physicians in managerial briefing sessions, allowing for assessing resources allocation and expenses might be of use. Reliance on other complementary ways as embracing physicians' opinions in reviewing the reimbursement systems and extending patient examination time to enhance the quality of services, and to avoid misdiagnosis and consequent repeated tests, unnecessary prescriptions or even medical errors should not be ignored for cost

containment. Besides, reducing the direct patient-physician payment relationship, incentivizing physicians to use diagnostic-therapeutic services rationally should be followed at the same time. Establishment of referral system and family medicine program might further help to organize medical services and diminish undesirable competition among physicians.

Governmental regulatory practices, such as health technology assessment, for the allocation of new equipment and technologies, improving society awareness to remove and lessen the pressure on the doctors to prescribe additional or unnecessary healthcare services and enhance a mutual trust between the community and physicians might sustain such attitudes and pave the groundwork to transform the physicians' attitudes into practice.

Abbreviations

GDP: Gross Domestic Product, IHIO: Iran Health Insurance Organization, SSO: Social Security, MOHME: Ministry of Health and Medical Education, WA: West Azerbaijan.

Ethics approval and consent to participate

Ethical clearance is obtained from Tehran University of Medical Sciences (TUMS) Ethics committee (IR.TUMS.SPH.REC.1398.23). The purpose of study was explained and verbal consent was obtained, as no it was just seeking to obtain the perspectives and no harm was expected. They were informed that the participation would be considered as their consent. Further, the participants were assured that their participation was voluntary and their participation or their incorrect answers would not affect their practice. They were also assured their data will be treated confidentially.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Funding

This research is partially supported by the Iran Health Insurance Organization (IHIO). The funders had no role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Authors' contributions

The authors are the same

Acknowledgements

The authors appreciate Tehran University of Medical Sciences (TUMS) and Iran Health Insurance Organization (IHIO) for their support for this work.

Availability of data and materials

The original dataset is available from the corresponding author upon the request.

Resources

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Please cite this article as:

Farideh Jafari, Abbas Rahimi Foroushani and Ebrahim Jaafaripooyan . Attitudes toward cost-conscious care among Iranian physicians. *Int J Hosp Res*. 2021; 10 (2).