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Impact of Healthcare Insurance on the Efficiency of Emergency Services in Private-Sector Hospitals in Al-Ahssa, KSA: An Analytical Comparative Study for Insured and Non-Insured Patients

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Abstract:

Kingdom of Saudi Arabia is in a peculiar situation regarding healthcare; there is the free healthcare provided by the governmental hospitals in addition to that offered by private-sector hospitals for insured and non-insured patients. **Aims of the study** are to evaluate the level of efficiency of ED services in private-sector hospitals and to compare between insured and non-insured patient regarding their evaluation of efficiency of services provided in ED in private-sector hospitals in Al-Ahssa region, KSA. **Research design:** descriptive comparative research design**. Setting:** The study was conducted in three EDs (emergency departments) of three private hospitals in Al-Ahssa region, KSA which are: Al Mana General Hospital, AlMosa Specialist Hospital and AlAhssa Hospital **Subjects:** convenient sample of 150 patients (97 patients were insured however 53 patients) at the EDs of the three private hospitals were selected**. Tools for data collection:** Self-administered Patient Evaluation Questionnaire (PEQ). **Results:** Insured patients have higher means of efficiency of ED services in private hospitals in all axes of efficiency than non-insured. **Recommendations:** MOH should develop a program of cost share between citizens and MOH to promote parallel access with MOH hospitals for non-insured patients. Also, there should be a continuous monitoring of patients' experiences of the received healthcare services in private-sector hospitals.

Key words: Health Insurance, Efficiency, Emergency Services.

1. Introduction:

Health care services in Saudi Arabia have been given a high priority by the government. KSA has witnessed boom era leading to increase of population growth (3.1% per year) **(Almalki, Fitzgerald &Clark, 2011) and (Health Indicators statistic of KSA, 2012).**

The Ministry of Health (MOH) is the agency with the overall responsibility for health care in KSA. But there are 16 other health care providers that provide health care mainly for their own staff, for example, the Ministry of Defense and Aviation. Within the health service sector the private health sector has grown very quickly in recent years. In 2002 there were 101 private hospitals with the capacity of 9834 beds, which constituted 19.35% of the total number of beds in the Kingdom **(Al-JarAllah, 2007).**

huge infrastructure projects which need a lot of expertise and expatriate workforce to build up the

country, this situation has resulted in approximately more than seven million foreigners targeted by Saudi health insurance; also, 9.6% of Saudi population in private sector received health insurance as a job privilege and they have the national right to seek healthcare in Ministry of Health (MOH) facilities in additional to their job health insurance coverage**(Cooperative Council For Health Insurance, 2012)**.

With comparison to capacity between ''Organization for Economic Co-operation and Development (OECD) originated in 1948 as the organization for European Economic Co-operation which include 34 countries'' and KSA's condition in both governmental and private, still KSA has 2.2 bed/1000 persons against 5.8 bed/1000 person in OECD countries that mean there is a potentially anticipating difficulty with bed availability specially for critical and emergency cases to receive a quality healthcare **(Department of Statistics and Information, 2011).**

MOH received 55% of the total governmental expenditure and is responsible for offering 60% of total healthcare services and 80% of governmental healthcare services that mean equity of care under challenge that force some people to search for other place for healthcare. After five years from the date of health insurance implementation on15/07/2006, there are 8.3 million health insured individuals, 2.147 Health Care Providers accredited and 26 Health Insurance companies certified **(Barakah& Alsaleh, 2011).**

In private hospitals the patient treatment model that used has been the cash model that has two members, a physician who provides the services and a patient who pays directly. The introduction of a health insurance program changes the patient treatment model, and introduces a third member, the insurance agent. The duties of this third member are firstly, to make sure that services provided are essential and included in the agreed insurance policy coverage. Secondly to pay the expenses according to the amount of money paid by patient in advance. The investigation starts from the premise that the introduction of third member will affect the whole system of providing medical care **(Al-JarAllah, 2007).**

"Efficiency is the relationship between the outcomes of care and the resources used to deliver care" **(Ardawi, 2011)**.

An emergency service is any health care service provided to evaluate and/or treat any medical condition such that a prudent layperson possessing an average knowledge of medicine and health, believes that immediate unscheduled medical care is required **(ACEP,2009) and (Healthcare Quality Improvement Partnership, 2004).**

The healthcare system circumstances in KSA have created challenges to maintaining efficient healthcare outcomes; recent research indicates that a patient-centered approach can make health service delivery more efficient **(Luxford, et al., 2010).**

1.1. Aims of the study:

1. To evaluate the level of efficiency of ED services in private-sector hospitals in Al-Ahssa region, KSA**.**
2. To compare between insured and non-insured patient regarding their evaluation of efficiency of services provided in ED in private-sector hospitals in Al-Ahssa region, KSA**.**

1.2. Research questions:

1. What is the level of efficiency of ED services in private-sector hospitals in Al-Ahssa region, KSA?

2. What is the difference between insured and non-insured patient regarding their evaluation of efficiency of services provided in ED in private-sector hospitals in Al-Ahssa region, KSA?

2. Subjects and methods

2.1. Research design:

Descriptive comparative research design**.**

2.2. Setting:

The study was conducted in three EDs (emergency departments) of three private hospitals in Al-Ahssa region, KSA. These hospitals are accredited by Joint Commission Accreditation Institution (JCAI). The three hospitals are: Al Mana General Hospital (150 beds capacity), AlMosa Specialist Hospital (100 beds capacity), and AlAhssa Hospital (150 beds capacity).

2.3. Subjects:

Convenient sample of 150 patients at the EDs of the three private hospitals were selected. 97 patients were insured however 53 patients were non- insured. Each patient was asked to fill the questionnaire after receiving the care in the ED.

The inclusion criteria for participants were:

Over 20 years of age, and/or had recently visited ED of private sector.

The exclusion criteria for participants were:

If patient has severe pain, or suffered from cognitive or intellectual impairment that limited their ability to self-report regarding their level of evaluation feedback. The aim of the inclusion and exclusion criteria was to ensure homogeneity of the sample **(Loboindo- Wood & Haber, 1998).**

2.4. Tool for data collection

Self-administered Patient Evaluation Questionnaire (PEQ). The questionnaire was developed by the researcher after extensive review of literature to meet the aim of the study.

PEQ includes two parts: the first part include items about socio-demographic characteristics of study subjects. It asks about age, sex, nationality, insurance condition, level of education, type of health insurance coverage and participant`s work sector.

The second part includes the five axes of efficiency which are: 1)Procedures at Reception Department, 2)Time of medical Staff's Procedures at ED, 3)Communication about medicine,4) ED discharge information, and 5) General evaluation of emergency services. The survey tool was in two versions (Arabic and English), targeting Arabic and non-Arabic speakers and covering insured and non-insured ED patients.

The questionnaire contains 22 items, including both indirect statements about medical care and medical employees in general, and direct references to the respondents' own experiences of emergency services.

Scoring system: Each item was constructed as a statement of opinion and accompanied by five response categories strongly disagree (1); disagree (2); acceptable (3); agree (4); and strongly agree (5). A balance was maintained between negatively and positively worded statements with scoring reversed for negatively worded items.

ED service is as highly efficient if the total score ≥ 88, moderately efficient when total score is ranges from 44 to < 88, and lower efficiency if less than 44.

Table 1. Representation scoring rules for PEQ subscales

Subscale	PEQ	Score
Procedures at reception department	PEQ1+PQE2+PQE3	15
Time of medical staff's procedures at emergency department	PEQ4+ PEQ5+ PEQ6+ PEQ7	20
Communication about medicine	PEQ8+ PEQ9+ PEQ10+ PEQ11	20
Emergency department discharge information	PEQ12+PEQ13+PEQ14+PEQ15+PEQ16+PEQ17 PEQ18+ PEQ19+	40
General evaluation of emergency services	PEQ20+PEQ21+PEQ22	15
Total score (Maximum positive)		110

The questionnaire for this research was designed to collect demographic variables of the availability of health insurance data about each participant and to assess the level of patient's evaluation of the efficiency of emergency health services provided by private sector hospitals, with the efficiency's axes of ED services.

Validity of data collection tool:

A- **Face validity**

The tool offered to (3) jury members to determine validity and to decide if the questionnaire measures what it claims to measure. Based on their comments, the researcher developed the final version.

B- Content validity

To assess content validity, a pilot study was administered. The Pearson correlation (r) was also calculated to find the strength and direction of the relationship between each statement with the related axis. The following table shows this relation:

Table 2. Representation Pearson correlation Calculating internal consistency for each statement with the related axis

Statement NO.	Pearson correlation	Statement NO.	Pearson correlation	Statement NO.	Pearson correlation	Statement NO.	Pearson correlation	Statement NO.	Pearson correlation
Procedures at Reception Department		Medical Staff's Procedures at Emergency		Communication about Medicine		Discharge from Emergency Room		General Evaluation of Emergency Services	
1	.762(**)	4	.563(**)	8	.595(**)	12	.442(*)	20	.856(**)
2	.763(**)	5	.817(**)	9	.588(**)	13	.380(*)	21	.772(**)
3	.810(**)	6	.785(**)	10	.836(**)	14	.516(**)	22	.835(**)
		7	.574(**)	11	.802(**)	15	.561(**)		
						16	.447(*)		
						17	.680(**)		
						18	.796(**)		
						19	.409(*)		

The above table shows a positive correlation between the value of the statement and the total degree of the

related axis which statistically significant(P- value 0.01) and less than for all axes' statements.

C-Reliability of data collection tool

To measure the consistency of the data collection tool researcher used (Alpha Cronbach(α)) as shows on table 3.

Table 3. Representation alpha Cronbach to measure the consistency of the data collection tool

Axes of the study	Statement No.	Consistency of the axis
Procedures at Reception Department	3	.67
Time of medical Staff's Procedures at Emergency Department	4	0.63
Communication about Medicine	4	.73
Emergency department discharge information	8	0.63
General Evaluation of Emergency Services	3	0.75
General consistency	22	0.78

The above table shows the range consistency of the axis's statements (0.63-0.75) and general consistency (0.78) which means the tool obtained high degree of the consistency and very accredit for the research setting.

Procedure for data collection:

Data was collected throughout two months from 16- 6- 2014 to 16- 8- 2014.

2.5. Administrative approval:

Formal letters were issued to the administrations of the three hospitals before starting data collection.

2.6. Pilot study:

Before starting data collection pilot study was carried out to assess applicability, clarity and validity of the questionnaire. The time needed to fill in the questionnaire about 15 minutes.

2.7. Statistical analysis

To meet the research aim the collected data was coded, entered, analyzed and tabulated using the Statistical Package for Social Sciences (SPSS). Mean and standard deviation were calculated. T test was used to test the statistical significant difference. The mood of five-scale ranks was calculated with the lowest range and highest(5-1=4). Then they were divided over the number of cells (4/5=0.8). Then, this value was added to the lowest value of the scale is (1), in order to find the maximum of this cell.

As such, the range of the cell can be one of the following:

First category: 1-1.8 represent "strongly disagree"; second category: 1.81-2.60 represent "disagree"; third category: 2.61- 3.40 represent "satisfied or acceptable"; fourth category: 3.41-4.20 represent agree"; fifth category: 4.21-5.00 represent "strongly agree".

3. Results

Table 4. Socio demographic characteristics of the study subjects.

Characteristics	No. (total= 150)	%
A. Availability of healthcare insurance within the sample:		
1. Insured	97	64.7
2. Non-insured	53	35.3
B. Nationality:		
1- Saudi	114	76.0
2- Non-Saudi	35	23.3
3- Did not mention	1	.7
C. participants' work sector:		
1- Governmental.	29	19.3
2- Private.	110	73.3
3- Others.	10	6.7
4- Not mention	1	.7
D. **Type of health insurance**:		
1- Total coverage	29	19.3
2- Deductible	39	26.0
3- Coinsurance	34	22.7
4- Not mention	48	32.0
E. Age		
21 -35 years	84	56.0
36-50years	56	37.3
51-65years	7	4.7
More than 65years	2	1.3
Did not mention	1	0.7
F. Gender:		
1- Male	106	70.7
2- Female	44	29.3
G. Level of education:		
1- Secondary	43	28.7
2- Diploma	48	32.0
3- Bachelor	53	35.3
4- Master	5	3.3
5- Did not mention	1	.7

Table 4 shows that the majority of participants (64.7%) have healthcare insurance, Saudi (76 %), work in private sector (73.3%), deductible health insurance (26.0%), their age group were 21 -35 years (56.0 %), males (70.7%)and have bachelor degree(35.3%).

Table 5. Insurance companies covering the participants.

Health insurance company	No.	%
Pupa	33	22.0
Med Gulf	27	18.0
Pals am	1	.7
Aramco	3	2.0
Al tawniah	14	9.3
Malad	7	4.7
Union Gulf for	2	1.3
Al s aqer	2	1.3
Radian	1	.7
Tawan	3	2.0
Saudi Electric	3	2.0
Al ahliah	1	.7
Total	97	64.7

The above table shows (22%) of the participants have healthcare insurance from Pupa insurance company, (9.3%) from Al tawniah, (4.7%) from Malad, while (Aramco, Tawan and Saudi Electric Company) covered an equal percentage of (2.0%), also (Union Gulf for cooperation insurance and Al saqer) obtained an equal percentage of (1.3%), (Palsam, Rdian and Al ahliah) obtained an equal percentage of only (0.7%). (35.3%) of participants were not healthcare insured.

Table (6) study subject evaluation of the level of efficiency of ED services in private hospitals.

Item of efficiency of ED services	Level of efficiency of ED services (N=150)					
	Highly efficient		Moderately efficient		less efficient	
	N	%	N	%	N	%
1. The reception department took less than 15 minutes to approve admission of patient	97	64.7	39	26	14	9.3
2. The receptionist's conduct was not negatively/positively affected by payment method (insurance/cash)	92	61.3	48	32	10	6.7
3. The receptionist is well-trained to handle the procedures of receiving emergency patients	71	47.4	65	43.3	14	9.3
4. Waiting time (from arriving at Emergency Room to seeing the doctor) was suitable to the emergency case	98	65.3	42	28	10	6.7
5. I had enough time to tell the doctor about my emergent case	102	68	39	26	9	6
6. I was completely convinced with the need to do all the medical tests (x-ray, lab tests…etc)	87	58	53	35.3	10	6.7
7. Official approval of medical tests (x-ray, lab tests…etc) was quick (less than 15 minutes)	72	48	53	35.3	25	16.7
8. Medicine was available as prescribed by the doctor	123	82	21	14	6	4
9. Medical staff's language and instructions were clear	95	63.3	39	26	6	4
10. the medical staff made sure that I know when I must stop the medicine in case of any negative effects	77	31.3	46	30.7	27	18
11. Medical staff made sure that I understood the side effects of the prescribed medicine	84	56	45	30	21	14
12. I was checked again to confirm the diagnosis	86	57.3	40	26.7	24	16
13. I was informed of the cases in which I must see a doctor again	91	60.7	43	28.6	16	10.7
14. I was informed of the possible options of continuing my treatment	91	60.7	46	30.7	14	9.3
15. The doctor decided my discharge because of the lack of the appropriate medical facilities/devices/specialty	**48**	**32**	**41**	**27.3**	**61**	**40.7**
16. The doctor decided my discharge because I had improved	108	72	36	24	7	4
17. I decided to leave the hospital because the cost of healthcare was over the approved insurance coverage	68	45.3	45	30	37	24.7
18. I decided to leave the emergency department because I could not pay the expenses	76	50.7	26	17.3	48	32
19. I decided to leave the emergency department because the services were not "good"	60	40	42	28	48	32
20. The results of treatment at the emergency department is worth the effort	81	54	56	37.3	13	8.7
21. The results of the treatment at the emergency department is worth the time spent there	86	57.4	50	33.3	14	9.3
22. The results of the treatment at the emergency department is worth the financial cost	74	49.3	55	36.7	21	14

According to this table the majority of study subjects evaluate Level of efficiency of ED services as highly efficient except for the item "The doctor decided my discharge because of the lack of the appropriate medical facilities/devices/specialty" majority of the subjects (40.6%) evaluate it as less efficient .

Table 7. Comparison between Insured and Non -Insured Patient regarding the Efficiency of Procedures at Reception Department and Time of medical Staff's Procedures at Emergency Department.

Statement	Insured (N = 97)		Non-insured (N = 53)	
	Mean	±SD	Mean	±SD
A. Procedures at Reception Department 1- The reception department took less than 15 minutes to approve admission of patient	3.89	0.95	3.60	1.01
2-The receptionist's conduct was not negatively/positively affected by payment method (insurance/cash)	3.82	0.89	3.64	0.88
3-The receptionist is well-trained to handle the procedures of receiving emergency patients	3.52	0.98	3.60	1.01
B. Time of medical Staff's Procedures at Emergency Department. 1- Waiting time (from arriving at Emergency Room to seeing the doctor) was suitable to the emergency case	3.81	0.92	3.74	0.96
2- I had enough time to tell the doctor about my emergent case	3.97	0.88	3.72	0.86
3- I was completely convinced with the need to do all the medical tests (x-ray, lab tests…etc)	3.85	0.89	3.49	0.78
4- Official approval of medical tests (x-ray, lab tests…etc) was quick (less than 15 minutes)	3.53	1.05	3.38	0.95

Table 7 presented that generally the participants (insured and non-insured) agree for the statements measuring the procedures of receptionist and comparatively between insured and non-insured found insured patients more agree than non-insured patients regarding first axis's statements except the third item "The receptionist is well-trained to handle the procedures of receiving emergency patients" its mean 3.52 in insured patients however 3.60 in non-insured patients. The mean of each of the items of the domain Time of medical Staff's Procedures at Emergency Department is higher in insured than non insured.

Table 8. Comparison between Insured and Non -Insured Patient regarding the Efficiency of communication about medicine.

Statement	Insured (N = 97)		Non-insured (N = 53)	
	Mean	±SD	Mean	±SD
C. Communication about Medicine: 1- Medicine was available as prescribed by the doctor	4.07	0.74	4.06	0.89
2- Medical staff's language and instructions were clear	3.93	0.86	3.85	0.72
3- the medical staff made sure that I know when I must stop the medicine in case of any negative effects	3.52	1.07	3.38	1.10
4- Medical staff made sure that I understood the side effects of the prescribed medicine	3.72	1.06	3.32	0.98

Table (8) shows generally the participants (insured and non-insured) agree for the statements measuring the communication about medicine at Emergency Department and comparatively between insured and non-insured found insured patients more agree than non-insured patients regarding third axis's statements.

Table 9 . Comparison between Insured and Non -Insured Patient regarding efficiency of discharge information at ED.

Statement	Insured		Non-insured	
	Mean	±SD	Mean	±SD
D. Discharge Information at ED 1- I was checked again to confirm the diagnosis	3.58	1.14	3.57	0.93
2-I was informed of the cases in which I must see a doctor again	3.72	0.95	3.58	0.86
3- I was informed of the possible options of continuing my treatment	3.71	0.93	3.70	0.89
4- The doctor decided my discharge because of the lack of the appropriate medical facilities/devices/specialty	3.04	1.21	2.66	0.85
5-The doctor decided my discharge because I had improved	3.90	0.88	3.77	0.61
6- I decided to leave the hospital because the cost of healthcare was over the approved insurance coverage	3.33	1.25	3.21	0.72
7- I decided to leave the emergency department because I could not pay the expenses	3.10	1.29	3.42	1.03
8- I decided to leave the emergency department because the services were not “good”	3.23	1.28	2.89	1.01

Table (9) presents comparison between insured and non-insured regarding Discharge Information at ED. It is found insured patients more agree than non-insured patients regarding all statements of the fourth axis except "I decided to leave the emergency department because I could not pay the expenses " is higher in non insured than the insured.

Table 10. General Evaluation of Emergency Services

Statement	Insured		Non-insured		t-test	p-value
	Mean	±SD	Mean	±SD		
D. General Evaluation of Emergency Services 1- The results of treatment at the emergency department is worth the effort	3.68	0.84	3.38	0.88		
2- The results of the treatment at the emergency department is worth the time spent there	3.76	0.84	3.40	0.91		
3-The results of the treatment at the emergency department is worth the financial cost	3.70	0.94	3.02	0.95		

Table (10) shows the insured participants chose agree level for the statements measuring (general evaluation of emergency services) while non-insured participants chose acceptable level and comparatively between insured and non-insured found insured patients more agree than non-insured patients regarding the fifth axis’s statements

Table (11). Comparison between insured and non-insured patient regarding the domains of the efficiency of ED services in private hospitals.

Domain	Insured (N = 97)		Non-insured (N = 53)		t-test	p-value
	Mean	±SD	Mean	±SD		
1. Procedures at Reception Department	11.23	2.29	10.85	2.48	.916	.362
2. Time of medical Staff's Procedures at Emergency Department	15.07	2.90	14.32	2.83	1.53	.128
3. Communication about Medicine Discharge from Emergency Room	15.24	2.96	14.60	2.89	1.26	.208
4. Emergency department discharge information	27.61	5.70	26.79	3.25	1.12	.266
5. General evaluation of Emergency Services	11.14	2.21	9.79	2.30	3.53	.001**

According to table (11) there is statistical significant difference between insured and non-insured patient regarding the fifth axis of efficiency which is "general evaluation of emergency services". Insured patients have higher means of efficiency of ED services in private hospitals in all axes of efficiency than non-insured.

4. Discussion

The aims of the study was to evaluate the level of efficiency of ED services in private-sector hospitals in Al-Ahssa region, KSA; and To compare between insured and non-insured patient regarding their evaluation of efficiency of services provided in ED in private-sector hospitals in Al-Ahssa region, KSA.

The study results showed the participants (insured and non-insured) agree for the statements measuring the procedures of receptionist and comparatively between insured and non-insured found insured patients more agree than non-insured patients regarding first axis statements both fall into the fourth category, "agree". This axis covers receptionist procedures and time of reception procedures was less than 15 minutes. This result is contradicted with **(Schoen's et al., 2010)** who found that complexity of insurance can consume more time at receptionist. Furthermore, (**Ross et al., 2009)** reported that ED patients are "very sensitive" to procedures as regards time.

Insured participants indicated that ED visits were worth the effort, time and the financial cost, which is a clearly positive point about the efficiency of the provided healthcare services. The current study seems to add another evidence for confirming the results of (ACEP , 2009) study which found that 50% of the efficiency is a system issue; the other 50 % depends on the emergency physicians. However, nursing might have also had a positive effect on the participants' overall evaluation. **Otani, et al (2010)** found that nursing care was the strongest effect on the patients' overall evaluation.

5. Conclusion and recommendations:

Study subjects evaluate level of efficiency of ED services as highly efficient except for the item" The doctor decided my discharge because of the lack of the appropriate medical facilities/devices/specialty"**.** There is statistical significant difference between insured and non-insured patient regarding the fifth axis of efficiency which is "general evaluation of emergency services". Insured patients have higher means of efficiency of ED services in private hospitals in all axes of efficiency than non-insured.

It is recommended that insured patients' positive views should encourage MOH to develop a program of cost share between citizens and MOH to promote parallel access with MOH hospitals for non-insured patients. Also, there should be a continuous monitoring of patients' experiences of the received healthcare services in

private-sector hospitals.

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