

Fraud and Abuse in the Saudi Healthcare System: A Triangulation Analysis

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Abstract

In the insurance industry, the majority of fraud and abuse cases fall into a limited number of patterns, yet false claims normally lead to negative national, local, and organizational effects. Through monitoring the exploitative and abusive behavior commonly found in healthcare services, this paper aims to analyze initiatives implemented by governmental and related healthcare insurance agencies in Saudi Arabia to reduce moral offenses. To accomplish this objective, major governmental health insurance policy documents were analyzed at the macro-level. At the meso-level, semi-structured interviews were conducted with five health insurance professionals on measures undertaken to prevent such incidents. At the micro-level, the critical factors of fraudulent behaviors were analyzed using a retrospective analysis. Data were retrieved from anti-fraud records of ten leading health insurance companies and the focus was mainly on individuals involved in unethical practices between 2014 and 2019. After a full audit was completed, the results concluded that the Saudi healthcare system is composed of twenty-six cooperative health insurance agencies and over 5,202 health services providers. The official documents contain the details of various moral hazard measures. On annual average, more than 196 fraudulent cases were reported with a claim rejection rate of approximately 15%. The majority of fraud cases were reported in dental services with invalid card usage, followed by obstetrics-gynecology services (47 and 113 cases, respectively). Females tended to make up most deceit cases in obstetrics-gynecology with a high level of abuse (95% confidence interval: -83.398 to -24.202 ; $P < .003$ and $-28 > 638$ to -7.362 ; $P < .005$, respectively). This study ultimately identifies basic measures employed at the macro-level to reduce moral hazards. However, such measures are not intended to be coherently implemented at the micro-level, especially by health insurance companies and healthcare providers.

Keywords

Measures, health insurance, fraud, abuse, Saudi Arabia

What do we already know about this topic?

Fraud and abuse are secretly practiced within the health insurance industry. Governments and other agencies are collaborating to reduce such risks.

How does your research contribute to the field?

Based on existing practices and data analyses on fraud and abuse, this study proposes a triangulation technique to enhance scrutiny and increase the effectiveness of the healthcare system.

What are your research's implications toward theory, practice, or policy?

Various approaches have concluded to date that public agencies, private insurance companies as well as major health providers are exercising their respective general guidelines to prevent fraud and abuse within the Saudi healthcare context. Applying a more integrated approach on diverse levels should ensure more effective policy in fighting falsifications.

Introduction

In healthcare management, health status is typically measured by some basic health indicators related mainly to healthcare access, effective of treatment, and quality of life.¹ Health insurance is a worldwide resource for financing healthcare systems, and any violations or misinterpretations of the processes may induce defragmentation in the population's health.^{2,3} While health policies intend to increase overall health and well-being, moral hazards (such as certain

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human behaviors), are still obstacles to the maintenance of an effective healthcare system.⁴

Moral Hazards in Healthcare

Moral hazard is a broad term used in healthcare, normally used if there is a demand for specific medical care.⁵ Moral hazards are of two types: ex-ante, a type of moral hazard committed prior to obtaining health insurance and ex-post, which is practiced after health insurance is acquired. All health insurance companies endeavor to establish tactical strategies to minimize risks. The two types of moral hazards, ex-ante and ex-post, are practiced secretly in many developed and developing countries.⁶

In 2016, a pediatric dentist was alleged to have violated the dental practice and fined \$1.4 million because his assistant was not qualified to perform dental X-rays.⁷ Thus, the enforcement of government health programs, such as professional licensing, has proven to contribute to reducing fraud and abuse.⁸ Although regulations vary across countries, all of which merit investigation, various hazards may lead to economic disruption and inequality in healthcare.⁸⁻¹⁵ As in other countries, in Saudi Arabia (SA), the demands on the health insurance industry have recently increased owing to both economic and regulative initiatives established by the government.^{12,13} A handful of studies have examined the measures taken by the SA government in terms of risk reduction and insurance purchase decisions.¹⁴⁻¹⁶ There is a need to analyze the contribution of various constructs on fraud and abuse within a particular context through a triangulation approach.

Fraud and Abuse in Healthcare Systems

In 2020, around \$ 3,823.6 trillion is projected to be spent on healthcare in the United States (US), resulting in billions of health insurance claims. Fraudulent claims constitute only a small fraction, but they impact finance, integrity and the value of the healthcare system.¹⁷ It is expected that financial losses due to healthcare fraud abuse cost 3-10% annually of all US health expenditures.¹⁸ Such an outcome is definitely the result of errant human behavior; on a spectrum, some are common while others unusual. Thus, fraud and abuse as categories depend heavily upon regulated health policy, organizational behavior, and how individuals apply their social norms. Generally, the Saudi health insurance system follows a similar pattern.

System Thinking Role in Reducing Moral Hazards

The future of anti-fraud management may be adequately based on a set of clinical and administrative measures. These measures would be instilled in the core of human behavior, using computer simulation and a variety of diagrams and graphs to predict elements of health behavior.

Table 1. Key Indicators of the CCHI (2019).

Indicator	Statistics
Health Insurance Company	26
Third-Party Company	7
Health Providers	5,202
Saudi Insured	1,314,938
Dependent Saudi Insured	212,949
Non-Saudi	5,938,412
Dependent Non-Saudi Insured	1,720,962

Note. CCHI= Cooperative Council of Health Insurance.

In modern society, unexpected risk and fraud measures can identify perpetrators of fraudulent and abusive acts against health actions, insurance companies, and healthcare payers within each healthcare system.¹⁹ Such a holistic approach is based on system thinking and analysis, focusing on how systems can cohesively relate to each other simultaneously.²⁰ Sure, the theory of system thinking is centered on non-separate health actions within health systems; but the theory's future will depend on how authentic data are retrieved, processed, and effectively used in making sound decisions while predicting moral hazards.

The Health Insurance System in Saudi Arabia

Characterized by resistance and a reluctance to engage with computer technologies, the Saudi healthcare system (SHCS) is mainly run and financed by the government (80%) and the private sector shares only a small portion (20%).²¹ However, there are initiatives that invite the private sector into more partnerships, as proposed in many transitional healthcare systems.^{12,13,22} In 2005, the Cooperative Council for Health Insurance (CCHI) was established to monitor private participation and reduce the heavy burden of the government's annual budget in a bid to optimize resources.^{23,24} The current indicators of the Saudi health insurance system are shown in Table 1.²⁵

Currently, there are over nine million customers registered in the CCHI (against a population of around 30 million, one-third of which are non-Saudis).²⁶ Health insurance represents the greatest portion of SA's insurance industry, with more than 51% of the market share based on 2018 census. Out of the 27 health insurance companies, only three dominate more than 82% of the local premiums.²⁵ In this study, the nature and pervasiveness of moral hazards, as well as how they have been reduced legislatively, are eventually explored.

Materials and Methods

Different materials were used to document the measures employed by various entities to trace fraud and abuse through a triangulation approach. First, official documents issued

directly by the SA authority were reviewed. This included rules and regulations issued by the Saudi Arabian Monetary Agency (SAMA) as well as the CCHI. The former issued procedures to reduce financial hazards in general, while the latter dealt with health specific issues. Careful and complete documentation of the measures used by the two agencies (legislative and monitoring) were reviewed. The exercise of documenting data management activities may reflect current guidelines and may enhance future research studies. The literature particularly covers articles, financial irregularity, and the accepted code of ethics associated with anti-fraud policies. The documents were reviewed, and key issues were analyzed methodologically using thematic analysis method.²⁷

Second, fraudulent behavior data were analyzed randomly based on data from ten providers collected between Q1-2014 and Q4-2019 through a retrospective analysis. The data included the average of several years' scores, including the type of fraud and abuse, rejection rate, fraud segmentation, and the major result reported after investigation. Reports were reviewed from alleged cases and patients' medical files who visited only private hospitals during that period.

Finally, five leaders from five health insurance companies were interviewed after selecting a purposive sampling, using a semi-structured interview format. Subjects were selected based on their long experience with anti-fraud policy and being in senior positions for five years at least. The interviews were based on inverted funnels with closed questions, but gradually built to more open-ended questions. The aim was to collect significant information and place the subjects in a comfortable zone prior to uncovering details about the fraud cases. The researcher devised a series of eight similar questions, focusing mainly on binary answers about moral hazard. The respondent had a chance to include statements or comments about any factor.

While quantitative data were analyzed using simple statistical analysis, qualitative data were analyzed employing a modified constant consequential method using an inductive approach.²⁸⁻³⁰ Initially, open coding was used to categorize patterns based on the semi-structured interviews, deriving themes until saturation was ensured. The processing of the data collection and review took place after research protocol submission. The data, including materials, computer codes, and the research protocol associated with publication are available upon request for educational purposes. Ultimately, ethical issues have considered privacy, consent, and disclosure.

In this study, triangulation entails overlapping the results of exploring fraud and abuse in SHCS at three different points to enhance reliability through a holistic approach.

Data Process

To indicate a major portion of the healthcare reimbursement system, ten providers were approached to report on the nature of moral hazards they had experienced over the last

six years. Each provider identified the type of moral hazard, specific cases and the means by which such hazards were prevented. The executives had a strategic role in preventing moral hazards. Files were reviewed if records showed that an adult patient (over 18 years old) and the indictment clearly indicated that the patient was guilty.

Representing around 75% of the health insurance premium industry, five leaders from five leading companies were invited to semi-structured interviews. Consent was secured using the appropriate forms in research protocol. Domains included in the interview were pro and reactive measures, policies, and fraud-detection methods.³¹ A checklist was created after the documents were reviewed; key issues were analyzed methodologically using document analysis and semi-structured interviews.²⁷

Results

This study incorporates three main entities to explore measures implemented in reducing moral hazards in healthcare institutions.

Documents Concerned with Moral Hazards

First, based on official documents issued by SAMA and CCHI, the study identifies three main categories for which these organizations strived: utilizing comprehensive Health Information System (HIS), unifying all policies issued by different entities, and setting up an internal committee to resolve complaints. This categorization was mainly derived from sub-articles issued by legislative bodies. Figure 1 summarizes the measures continuously employed by legislative and executive bodies to reduce risk in health insurance.

Figure 1 distinguishes measures by the hierarchy level of efforts required to reduce moral hazards. On a macro-level, different agencies, such as the CCHI, cooperated to ensure effective HIS use among insurance companies as well as providers, particularly in terms of co-payments.³² Like Medicare, this system was verified by the big data available in mainframes, providing a unified policy, where basic treatment would be ensured for every insured patient with an effective payment system.³³ This approach has already reduced variations in medical treatment received; hence, neither the insurance company nor the provider can pragmatically manipulate medical services. However, to allay any disagreement, the CCHI offers an internal professional jury committee to resolve any reported misconduct between parties.

Regulations Concerned with Moral Hazards

Health insurance companies endeavor to control over- and under-utilization, fraud and abuse, as well as any variability of mismatching through contract management.³⁴⁻³⁶ This type of management allows insurance companies to reduce the variations between entities. For reimbursement cycles, the

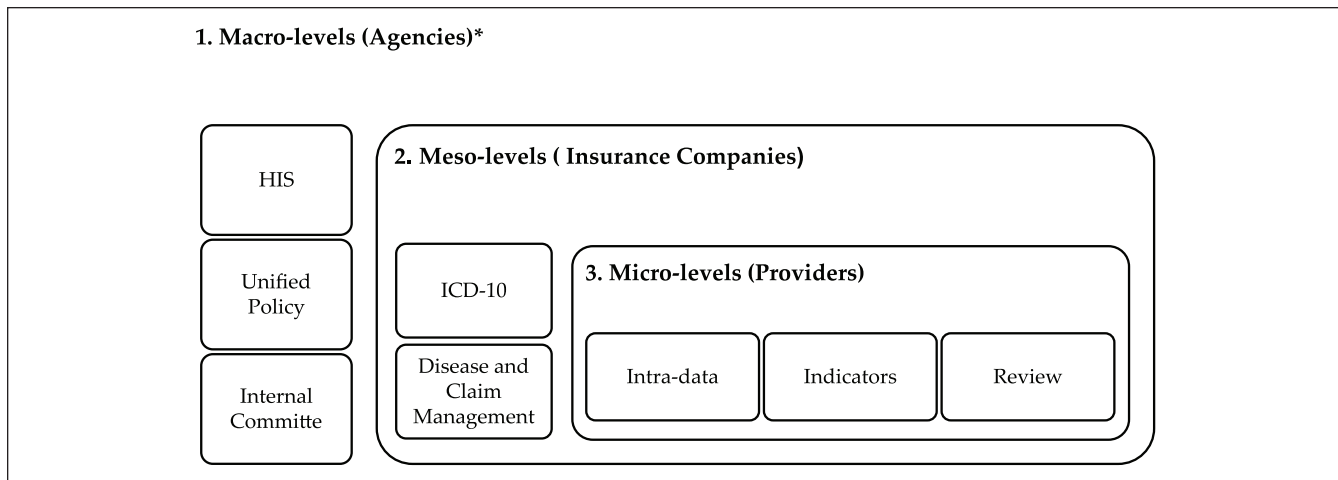


Figure 1. The three tiers in preventing moral hazards in the health insurance industry.
 Note. HIS = Health Information System; ICD-10 = International Classification of Disease (Australian version).

Table 2. Summary of Basic Information Regarding Key Figures' Experience in Moral Hazard Prevention.

Item	A*	B	C	D	E	Ratio of agreement
There is a concern regarding moral hazard	Y	Y	Y	Y	Y	100%
Measures should be proactive	N	Y	Y	Y	N	60%
Measures should be reactive	Y	N	Y	Y	Y	80%
This includes adopting HIS	Y	Y	Y	Y	Y	100%
Measures should be based on finance de-incentives	Y	Y	Y	Y	Y	100%
Measures include black listing	Y	NA	Y	Y	Y	80%
Measures include mystery shoppers	Y	Y	N	Y	NA	60%
Controlling moral hazard is difficult	Y	Y	Y	Y	Y	100%

Note. Y = Yes; N = No; NA = Not Applicable. * The alphabetical codes were used to refer to the sample of the study.

International Statistical Classification of Diseases and Related Health Problems (ICD-10) governs the treatment plan cost approved by the insurance company based on evidence-based practices and agreed upon price lists.

As shown in Table 2, all the insurance executives (100%) raised concerns about moral hazard activities among health-care providers. However, more than half of the respondents (60%) believed that health insurance companies should adopt both proactive and reactive measures.

All respondents agreed that incorporating good will is the most effective means of reducing moral hazards.

Implications Concerned with Moral Hazards

Among the data of the ten providers, on an annual basis, more than 91 fraud cases were reported. As shown in Table 3, males represented 44% while females represented 56% of the cases during the last six years. On average, claim rejection was associated with females more than males (12%; 10%, respectively).

Most incidences of moral hazard occurred in dental services, with the least related to treatment services. Annually,

113 moral hazard cases were reported from dental services investigations, and more than 14 cases were detected as a result of treatment plan claim detection. Using another's medical card was a major moral hazard practiced among the sample; within 99 cases reported from the providers, females represented the majority (51%). However, as a means of moral hazard, misleading information was higher among males than females (56%, 44%, respectively). Females tended to practice fraud more than males in this study, as shown in Table 3.

This part of the study included semi-structured interviews with five healthcare providers. Respondents were asked about the main responsibility of reducing moral hazards, the means used in such risks, and the methods employed to reduce them. The responses were mainly based on reactive rather than proactive measures, as indicated by one executive:

"Hospitals can minimize the moral hazards, if they wish. But if they do not wish, they can practice moral hazards secretly. . ."

When an executive officer in a claim management department was asked to clarify such risk, he stated:

Table 3. Prevalence of Moral Hazards in a Cohort Study Analysis Retrieved from Ten Providers (2014-2019).

Year	2014		2015		2016		2017		2018		2019		Average			95% CI		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	ALL	Sig.	Lower	Upper
Factor																		
Fraud	35	44	30	40	29	33	44	52	66	101	33	39	39.5	51.5	91	.371	-45.339	18.939
Abuse	12	29	9	44	17	23	8	22	18	36	25	66	14.8	37	51.5	.005	-28.638	-7.362
Miscellaneous	6	4	12	19	9	9	3	13	15	8	7	3	8.7	9.3	18	.214	-1.14618	.03818
Reject rate	0.03	0.1	0.05	0.1	0.04	0.1	0.12	0.2	0.1	0.2	0.1	0.2	0.1	0.12	0.174	.768	-41.015	31.415
Most cases were																		
Dental services	60	55	55	93	67	39	101	59	27	88	14	22	54	59.3	113	.768	-83.398	-24.202
Ob-gynecology services	0	37	0	29	0	33	0	82	0	88	0	16	0	47.5	47.5	.003	-9.146	15.946
Treatment	6	2	5	2	5	0	7	21	25	6	2	1	8.3	5.33	14	.014	-5.003	2.603
Pharmacy dispensing	5	5	5	2	1	5	3	7	8	9	2	2	4	5	9	.549	-43.004	42.604
Most reported cases were identified by																		
Card usage	23	55	27	86	31	44	99	51	84	29	26	38	48.3	50.5	99	.992	-47.249	38.049
Misleading information	39	27	28	30	32	30	16	38	87	100	21	9	37.2	39	76	.810	-5.793	3.793
Incomplete medical report	2	9	6	2	4	0	1	3	5	9	2	1	3.3	4	7	.643	-5.793	3.793
Others	7	8	4	8	6	3	11	8	16	8	8	4	8.7	6.5	15	.648	-6.113	4.113

Note. M = Male; F = Female; CI = Confidence Interval.

“Dental services could be indicated in the approval form [but] other services would be done instead. Will you know this if both patient and provider claim that?”

Again, fraud detection methods were created after experiencing some cases on different levels. A financial officer in a leading insurance company maintained:

“We have gone through constant experiences of online fraud victimization. Patients can be involved in explosive cases, but our online system has significantly reduced such cases. A handful cases in the last years approved that our staff involvement in fraud cases were motivated to take part in order to help other potential patients with uncovered cases”

Patients have knowledge, but the system lacks direct detection, as mentioned by a health information manager:

“It is not possible to identify clear fraud and abuse cases within a micro-level. But patients and staff [do] seem to have acknowledge in the sense of considerations, yet the system detects far more than what our eyes catch.”

Discussion

To the best of my knowledge, this is the first study that explored three inter-related levels in enhancing measures to reduce moral hazards among health insurance parties within the SHCS. It determined that although general documents for following rules and reducing moral hazards were available, no specific indications were given priority regarding other health issues, such as treatment costs. Public institutions, such as SAMA and CCHI, have only contributed to identifying moral hazards in general, but no specific definition has been established. Indeed, a moral hazard is not considered a criminal action in the SHCS so far.³⁷ The implication here is an increase in incidence of moral hazards within the SHCS from one organization to another.³⁸ Although SA agencies work collaboratively to control fraud and abuse, the absence of health governance in providing a strategic policy framework and system design is attributed mainly to health policy weaknesses.^{4,33,39,40}

Adopting an effective HIS was a concern in both qualitative and quantitative analyses from the executives' perspectives, especially when sending-receiving medical claims.²¹ Having a unified health policy was not seen as a solution in rendering smooth contract management and unjustified rejection, as good will plays a role in balancing trustworthiness between health insurance companies and health providers.³⁶ Consequently, many unjustified rejected claims may be due to an absence of trust between parties as well as inappropriate medical services. On the other hand, there is a positive side to such rejection especially for providers to elucidate the nature of the clinical and financial audits resulting from such denial.^{23,41}

Practically, moral hazard is not well documented in SA, and this area is currently the subject of academic research. The high volume of fraud represents a concern to health insurance companies; but based on the study results, there is a normal prevalence for this and combating it may require a rational cost-reduction analysis.⁴² Unlike other research studies that have associated moral hazard with a type of treatment, the current work identified females as more likely to be moral hazard subjects, especially in antenatal cases that allow for more risk factors for both patients and health institutions.⁴³ The approach to minimizing risk may involve objective analysis and a process-mining framework, as proposed in risk detection schemes.⁴⁴ The gender role in moral hazard, especially in tracking certain diseases, may require additional research in health services management.

In this study, the limitations included reviewing only official documents approved by the government. Private sector rules and regulations were excluded, especially those issued by insurance companies. Again, the non-probability sample used might not represent the complete population of the key figures affiliated with all health insurance companies. Particular attention should be paid to the duration of data collection. Future research should encourage investigators to explore the impact of specific disease management under existing insurance measures, particularly in mutual relations, from the perspective of insurance companies and providers with a focus on human behaviors, for instance.

Conclusions

Incorporating a mixed method in health policy research, especially on different levels, promises to be a productive approach for research as a way to understand the measures used to describe moral hazard in health research studies. This study identified measures used at the macro-level for reducing moral hazards, yet they are not intended to be implemented practically at the micro-level, especially by health insurance companies and health providers. Therefore, the accumulated evidence indicates inconsistencies between legislative and executive entities in the Saudi healthcare insurance system.

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Ethical Approval

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