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Effects of Patient and Provider Moral Hazard Related to Health Insurance in Riyadh, Saudi Arabia

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Journal of University Studies for inclusive Research (USRIJ)
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Table of Contents

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Abstract

In 1999, Saudi Arabia has formed the Council of Health Insurance, commencing the health insurance to foster health and access to healthcare. The term “Moral hazard” originated in the insurance literature. Its modern use of economics is understood -by economists- to describe loss-increasing behavior that arises under insurance. The problem of moral hazard in insurance has, in fact, little to do with morality but can be analyzed with orthodox economic tools. Some economic definitions focus on *ex ante* behavior: moral hazard is defined as the “impact on insurance on the incentives to reduce risk”.The purpose of this research is to see how patient and provider moral hazard effects the functioning of the health insurance at the district health level in Riyadh, Saudi Arabia. The goal of the study is to identify differences in socio-demographic characteristic, healthcare utilization, and provider service between insured and uninsured patients as well as the critical challenges these factors pose to the health insurance This study showed that protected customers utilized out-patients benefits more regularly and at more limited time stretches than uninsured purchasers, with a total of 240 customers had visited a health institution in the previous six months, with 145 (85.3%) being insured and 95 (54.3%) being uninsured. moral hazard for health insurance level in Saudi Arabia may exist, according to the findings of this study. In conclusion, if the patients moral hazard persists, assistance at the national level to aid the insurance systems may not be enough to keep them running in the long term. Few approaches could be used to restricting the abuse of moral hazard such as incentives as motivators for the consumer and provider, as being done in Thailand for example.

Keywords: *Health insurance, adverse selection, Patient’s moral hazard and provider moral hazard*

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Chapter one

Introduction

In underdeveloped nations, providing appropriate health care remains a difficulty. These nations are responsible for 56% of world illness burden but just 2% of global health investment.(World Bank, 2000) Additional issues occur while providing necessary health care and financial protection against the devastation caused by catastrophic disease to its residents.(Gottret & Schieber, 2006) Given this dire scenario, governments, particularly in developing nations, are still grappling with how to fund health care in the most cost-effective way possible as governmental financing is severely limited due to the lack of a significant tax base. Health insurance is difficult to implement in these nations due to the high burden of disease, lack of sufficient disposable income among the population, and difficulty creating large, diverse risk pools. Almost all currently implemented health insurance schemes in these countries require government subsidization to sustain them. The two most common problems are adverse selection and moral hazard. Thus, moral hazard is a problem only present when healthcare is free of charge or subsidized by government. Moral hazard is more likely to be found in developing and developed nations. The purpose of this research is to see how patient and provider moral hazard affects the functioning of National Health Insurance at the district health level in Riyadh, Saudi Arabia. The goal of the study is to identify differences in socio-demographic characteristics, health-care utilization, and provider services between insured and uninsured patients, as well as the critical challenges these factors pose to the municipality National Health Insurance systems proper functioning.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Definition and operational terms

Council of Health Insurance: A governmental body with an independent legal authority established under Cabinet Resolution No. (71) dated 27/4/1420 AH - 11/8/1999 AD, which stipulated on the establishment of a council with the aim of supervising the implementation of the cooperative health insurance system headed by the Minister of Health and the membership of a representative at the level of undersecretary for the Ministry of Interior, Ministry of Health, Ministry of Labor, Ministry of Finance, Ministry of Commerce, nominated by their authorities.

Moral hazard: refers to the additional health care that is purchased when persons become insured. Under the conventional theory, health economists regard these additional health care purchases as inefficient because they represent care that is worthless to consumers than it costs to produce (Pauly, 1974).

Adverse selection: Adverse selection occurs in health insurance when there is an imbalance of high-risk, sick policyholders to healthy policyholders. The imbalance can happen due to sick individuals, who require more insurance, using more coverage and purchasing more policies than the healthy individuals, who need less coverage and may not buy a policy at all (Pauly, 1974)

Deductible: The amount you pay for covered health care services before your insurance plan starts to pay. With a $2,000 deductible, for example, you pay the first $2,000 of covered services yourself.

Co-pay: A co-pay, short for co-payment, is a fixed amount that a healthcare beneficiary pays for covered medical services. The remaining balance is covered by the person's insurance company.

Co-pays typically vary for different services within the same plans, particularly when they involve services that are considered essential or routine and others that are considered less routine or in the domain of a specialist. (Endo, 2021)

Co-insurance: The percentage of costs of a covered health care service you pay (20%, for example) after you've paid your deductible. ("Understanding Copays, Coinsurance and Deductibles - NerdWallet", 2022).

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Chapter two

Literature Review

- **Background**

Despite the fact that the impacts of health insurance are widely studied, the literature does not pay enough attention to differences in the effects dependent on the kind of insurance. Furthermore, little is known regarding the implications of insurance on health-seeking behavior, particularly when it comes to medical check-ups for chronic diseases. Furthermore, the majority of these research do not show that insurance has a direct effect on health outcomes.

National insurance coverage is associated with a reduction in the burden of blood pressure in Nigeria, according to empirical findings. (Hendriks et al., 2014) In addition, the program reduces cancer mortality in the United States of America (Bittoni et al., 2015) and promotes the use of community healthcare services among hypertensive and diabetic people in China. (Yang et al., 2014) Increased insulin consumption among covered members is one of the recognized transmission mechanisms unique to diabetes reduction. (Hernandez et al., 2016) Furthermore, in Colombia, national health insurance is linked to lower birth weights and better newborn health. (Camacho & Conover, 2013)

At this critical moment, when many countries are pursuing the third Sustainable Development Goal (SDG) of ensuring healthy lives and fostering well-being for all people of all ages, health insurance remains an essential policy option for improving health outcomes. (Johnston, 2016) According to previous research, health insurance lowers the cost of medicine and hospitalization, allowing patients to receive better medical care while undergoing treatment for various ailments (Levine et al., 2015), (Sparrow et al., 2012), (Cuong & Vu, 2018). Other studies, on the other hand, suggest that insurance does not dramatically boost health-care consumption, particularly when the insured persons would have received enough medical treatment even if they did not have insurance. Where the insured are the marginalized, however, the effects

operate better. This bolsters the case for most nations to create national health insurance plans with the goal of aiding the poor in obtaining high-quality treatment. (Raza et al., 2016), (Sheth, 2013)

The Kingdom of Saudi Arabia (KSA) is one of the nations in the process of expanding insurance coverage to the general people, who have mostly depended on free public healthcare in the past, which has been plagued by bottlenecks such as long wait times. (Walston et al., 2008), (Al-Harajin et al., 2019), (Al-Hanawi et al., 2018) Affluent people in Saudi Arabia frequently obtain personal insurance to avoid the problems that public healthcare might cause. As a result, there is a rising demand for an expanded medical insurance program to improve service delivery efficiency by relieving the Ministry of Health of some of the load. (Almalki et al., 2011) Health insurance might contribute to a general improvement in the populations health standards by boosting access to services provided by private health institutions. However, such benefits are contingent on health insurance incentivizing individuals to seek medical help, a topic for which there is a paucity of empirical data in Saudi Arabia.

- **Moral hazard as psychological behavior**

Dehghanpour and Rezvani (2014) In their study on understanding the psychological factors that lead to exaggerated/false insurance claim reporting that would enable insurance companies and policy makers to devise better preventive policies they found that there are four segments of unethical clients in the context of insurance fraud "non-conservatives (sensitive to both wrong behavior and the monetary payoff for a fraudulent claim), self-protectionists (sensitive to the probability of being caught), hedonists (sensitive to the personal pleasure and monetary payoffs for insurance fraud) and socially focused customers (sensitive to social norms regarding admitting to having committed insurance fraud)" Also, (Kish-Gephart et al., 2010) confirmed in their study that people who have a relativistic moral are more likely to behave unethically.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

In insurance studies they have found that perceptions of unfairness may lead to insurance fraud that are viewed to be more acceptable by some policyholders (Dean, 2004; Miyazaki, 2009). On the other hand, (Lopes and Fletcher, 2004) assert that if people notice that others are getting more benefits for their input, they will be dissatisfied, and this may lead to feeling unfair as well. Brinkman (2005) further noted that making too much money at a consumer's expense may influence clients' attitudes toward insurance fraud. On the same topic, Sims and Felton (2006) also argued that personal learning and experience may be important factors in shaping unethical choice of actions.

- **Implications of moral hazard in health insurance**

When evaluating the effects of insurance on health outcomes, the presence of adverse selection and moral hazard is a major problem. (Boone, 2015) Health-risky individuals would self-select into insurance under adverse selection, but moral hazard indicates overuse of the medical system. (Haddad & Anbaji, 2010)

The concept of moral hazard in insurance systems, as well as its kinds, causes, effects, and control mechanisms, were investigated in a review paper. This research was carried out through an examination of relevant publications from Springers published texts, as well as valid websites and databases such as Google Scholar, Magiran, Medline, Springer, SID, Scopus, and PubMed. The data used was gathered between 1960 and 2016. The findings revealed that in health insurance contracts, the third party (insurer), who pays a large percentage of treatment expenses, reduces motivation for disease preventative activities and avoids injury or sickness, i.e. Because the patient only pays a portion of the cost, it has far-reaching repercussions, such as raising insurer and health-care costs, lowering welfare, squandering resources, diminishing insurance coverage, and so on. (Barati et al., 2018) Another review research aimed at examining moral hazard in a variety of classes and its implications for insurance marketing and the health-care system. Insurance-covered people want greater medical treatment than uninsured people, according to the research, since they

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

know their medical bills will be paid by insurance in the case of illness. Providers, on the other hand, are financially motivated to give unneeded and excessive medical treatments. Ex ante and ex post moral hazard, hidden knowledge and hidden action moral hazard, provider and customer moral hazard, and provider and patient moral hazard are all examples of moral hazard that can emerge as a result of insurance coverage. These have negative implications such as the usage of unnecessary care services, a shift in consumption patterns to make inefficient use of resources, a loss of welfare, and an increase in health spending. (Soofi et al., 2012)

We believe that this research is critical because the added benefits will enhance access to health care and health insurance, with the potential to boost use and better protect individuals from (catastrophic) health costs. As a result, financial obstacles to health care access are being reduced, resulting in improved population health.

- Steps taken by health insurance companies in tackling moral hazard

Implementation of Deductibles

Various researches on implementation of deductibles in the studied countries show that the most important goal of implementing these plans is to prevent moral hazard by reducing the use of unnecessary health care services (van Winssen, van Kleef & van de Ven, 2015)

The findings of several studies suggest that the use of health care services has decreased with the introduction of deductibles, so that decrease in referrals to specialists in two studies, (van Esch et al., 2017)

slight reduction in medication consumption in one study (Law et al., 2017)

reduction in diagnostic imaging in one study (Zheng, Ren, Heineke & Geissler, 2016), decrease in the number of visits by general practitioners in two studies(van Esch et al., 2017) and a modest decrease in physicians visits for chronic diseases as well as general tests in one study, (Reddy, 2008) were reported.

However, some studies have found that the use of deductibles is not significantly effective in reducing health care utilization. For example, there was no significant difference in physician visits for acute illnesses and preventive diagnostic tests, and it was ineffective in terms of radiographic imaging. (Reddy, Ross-Degnan, Zaslavsky,

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Soumerai & Wharam, 2014) The lack of a significant reduction in the use of essential medications for three common chronic conditions (Diabetes, blood pressure, and asthma).(Reiss et al., 2011) the lack of change in the overall costs of outpatient services, and the likelihood of an increase in the consumption of services for chronic illnesses, as well as the medical costs of those who can choose their insurance plan (Waters, Chang, Cecil, Kasteridis & Mirvis, 2010)

, and the lack of difference in the use of cancer screening tests (Wharam et al., 2008). are reported as evidences supporting this claim.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Chapter three

Materials and Methods

This is a five-week analytical cross-sectional research that will be conducted the hospitals of Riyadh, Saudi Arabia, from March 2022 to April 2022.

Study Settings

Location: This study will be done on a random sample of adult Saudi patients in outpatient clinics in both private and general sectors, Riyadh, Saudi Arabia.

Duration and start day: 5 weeks starting from 15 March 2022 to 20 April 2022

Sampling Methods, and Sample Size

The study will compare two groups of users who used the facility: insured and uninsured. In this investigation, the sample size was calculated to have 95 percent power (Z=1.645) to detect a 20% impact on health-care consumption, assuming a two-sided type 1 error of 0.05 percent (Z1=1.96). Epi-info software will be used to compute the exact sample size. (CDC, 2018)

During the research period, a systematic sampling process will be utilized to choose insured and uninsured clients visiting the facility.

Instruments

This research will use a questionnaire as a tool for collecting the data. A 19-item survey. instrument was developed and distributed randomly to the patients using barcode via the online Google questionnaire platform that allows researchers to deploy and analyze surveys via the web (Google forms, n.d.). The questionnaire was adapted from a previously published study (The Effects of Health Insurance on Health-Seeking Behavior: Evidence from the Kingdom of Saudi Arabia) with modifications and additions related to the effects of patient and provider moral hazard related to health insurance.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Not all the items on the questionnaire were used in this study.

Items were selected for this study that specifically related to the ideas identified by the general hypothesis.

It required 5 minutes to complete; Patients were interviewed after translating the questionnaire into Arabic with the assistance of a dictionary website to translate the English words to Arabic (Cambridge Dictionary, n.d.).

Data collection and analysis

Patients will be interviewed in outpatient settings and their medical records will be reviewed using a standardized questionnaire.

The structured questionnaire was created to collect data on fundamental socio-demographic variables, outpatient attendance patterns, medical problems presented, therapy received, and patient access to prescriptions and lab findings. The number of out-patient visits in the previous six months, the average length of time (in months) between visits, the types of diseases presented, the treatment received for similar disease conditions (e.g., the number and category of drugs prescribed), and the proportion of patients who received hematinic or multivitamin/food supplements as supplements to their treatment were all outcome measures for this study. The number of laboratory tests performed per patient per visit, the number of customers referred by physicians, and the proportion of patients who were able to receive all prescriptions and laboratory results at the health facility were among the other outcome measures.

In the index/current visit to the health facility, these outcome markers were compared between the two groups. Access to prescription drugs and laboratory test results, on the other hand, was determined by the most recent visit to a health provider during the past six months. Using Chi-square for categorical variables and t-tests for means, differences will be tested for significance at the 0.05 significant level and 95 percent confidence intervals. The likelihood of customers obtaining various treatments depending on their insurance status will be determined using logistic regression (using

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Odds ratio and p-values). The dependent binary variable was insurance status, and the analysis included eight binary covariates. The confounders were whether or not patients were given a multivitamin/food supplement, hematinic, vitamin C, antibiotics, NSAIDS, or intramuscular medicines, and whether or not they were referred or had a laboratory test done.

SPSS version 26 will be used to analyze the data. To increase uniformity in the data entering process, the double entry approach was adopted.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Chapter Four

Results

Basic socio-demographic characteristics of insured and uninsured patients

Table 1 shows the age and orientation qualities of the 343 clients talked with, uncovering that 210 were females and 134 were males. Insured clients had a male to female proportion of 1: 1.4, while uninsured customers had a male to female proportion of 1:1.8. Table 1 shows that uninsured clients were significantly bound to be in the age range 15-44 years, with 122 (70.3 percent) contrasted with insured clients, who were just 47 (44.0 percent) in this age bunch. The more established age classes, 45-64 years and more of 65 years, had a higher extent of insured clients. The age abberations between the two gatherings were statistically significant (p-value 0.001).

Table 1: 343 customers were questioned for the study, and their ages and genders were distributed

Age Group (years)	Uninsured (174)						Insured (169)					
	Male		Female		Total		Male		Female		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
0-4	5	6.8	2	2	7	4	9	14.8	10	9.2	19	11.2
5-14	4	5.5	7	6.9	11	6.3	6	9.8	10	9.2	16	9.4
15-44	51	69.8	71	70.6	122	70.3	27	44.2	47	44	75	44.1
45-64	8	11.1	16	15.7	24	13.7	9	14.8	24	22	33	19.4
65+	5	6.8	5	4.9	10	5.7	10	16.4	17	15.6	27	15.9
Total	73	100	101	100	174	100	61	100	109	100	169	100

Participants' city/region: The responses to the question about (city/region) of the patients, the majority of the patients (80.4%) reported Riyadh as their city / region. 10.8% answered with other (3.0% stated south as their city/region, 2.0% Tabuk,

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

similarly, 2.0% reported Qassim and 1.0% hail and Delm 1.0% as well). Patients from Western region (5.9%) and patients from eastern region (2.9%).

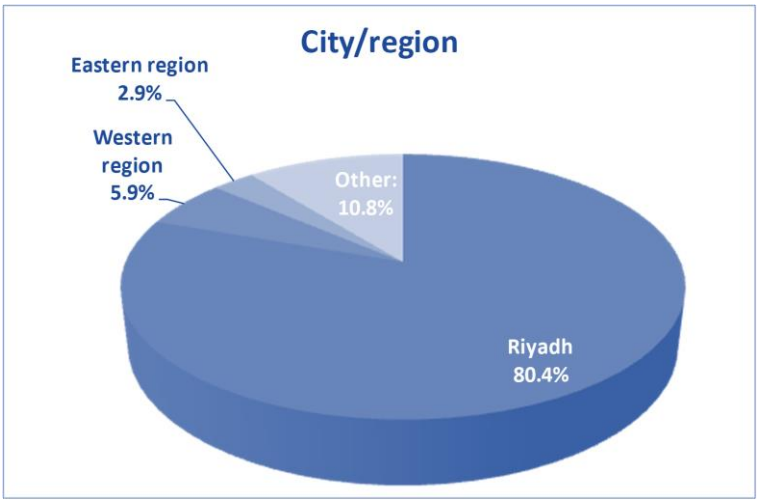

Figure 1: Participants' city/region

Participants' marital status: As shown in Figure 2, most of the patients were married (66.7%), while 18.6% single. 9.8% of the patients were widowed and 4.9% divorced.

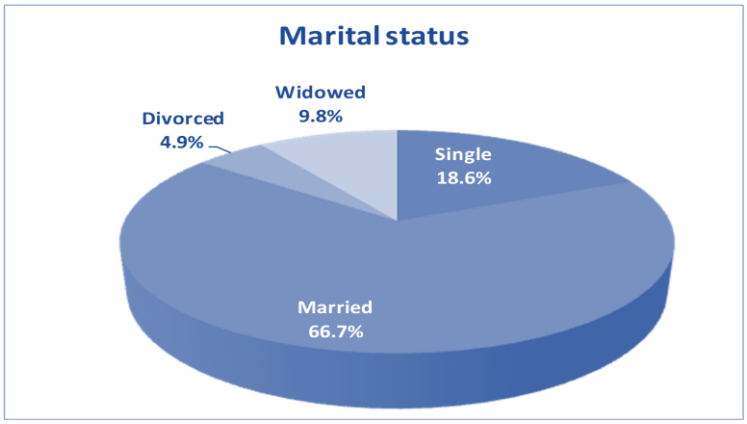

Figure 2: Participants' marital status

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Figure 3: Participants' education levels

Regarding education level of the patients, the majority with low education (61.8%), 37.3% with less than high school education and 24.5% with high school certificate. However, 5.9% of the patients holding Diploma, while 32.4% of the patients with high education (28.4% with bachelor's degree, 2.0% with Master's degree or more).

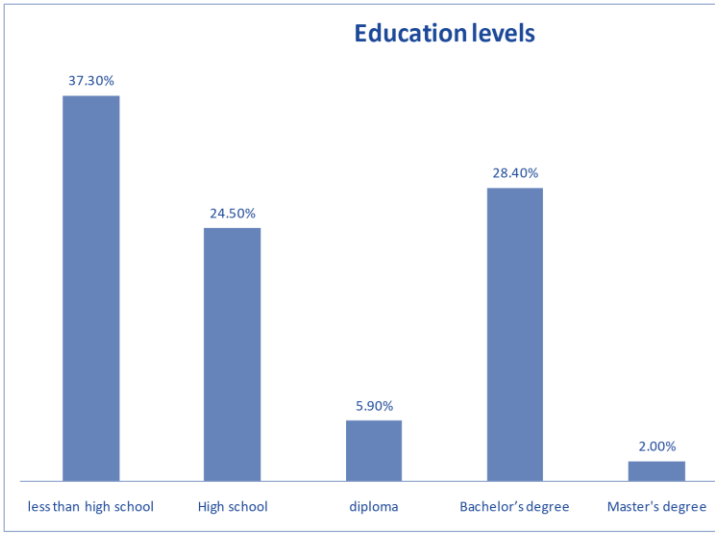

Figure 3: Participants' education levels

Patterns of outpatient clinic attendance in insured and uninsured customers

There were substantial disparities in patterns of health-care usage between insured and uninsured customers, as shown in Table 2. Only 27 of the 79 clients who came to the clinic for the first time were insured, with 52 being uninsured.

A total of 240 customers had visited a health institution in the previous six months, with 145 (85.3%) being insured and 95 (54.3%) being uninsured. Almost half of uninsured customers, 80 (45.7%), had not visited a health institution in the preceding six months, compared to just 25 (14.7%) of insured patients. Insured customers had visited a health institution several times in the previous six months, with as many as 66 (28 percent) having done so three times or more.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

In the past six months, 29 (20.0 percent) insured customers have visited a health institution four or more times. The bulk of the 95 uninsured customers who had visited a health institution had only done so once, with 78 of them having done so just once (81.9 percent). The mean and standard deviation (SD) of the number of visits in the previous six months for insured customers was 2.48+/1.007 and 1.18+/0.387 for uninsured patients.

Table 2 also shows that 84 (57.9%) of the 145 insured customers had visited a health institution in the preceding 1–3 months. Unlike insured customers, up to 62 (65.3%) of uninsured patients had not visited any institution in the previous 4–6 months. For the past six months, the mean and SD of time gap between visits (in months) among insured people was 1.94+/0.648 and 2.56+/0.664 among uninsured people. There was also a substantial variation in mean time intervals between visits. (p=0.001, 95% confidence interval: 0.450–0.790)

Table2 : Patterns of outpatient clinic attendance by insured and uninsured clients in the six months leading up to the research at Outpatients clinics, Riyadh, Saudi Arabia.

Characteristics of health care utilization	**Insurance Status (%)**		**Total (%)**	**P-value**
	Uninsured	**Insured**		
First ever visit to the Outpatient Clinic				
Ever visited	49 (29.1)	30 (15.5)	79 (22.9)	0.001
Never visited	125 (70.9)	139(84.5)	264 (77.1)	
Total	174 (100)	169 (100)	343 (100)	
Visited any health facility				
Visited	95 (54.3)	145 (85.3)	240 (69.6)	0.001
No visits	80 (45.7)	25 (14.7)	105 (30.4)	
Total	174 (100)	169 (100)	343	

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

			(100)	
Number of visits				
Once	78 (81.9)	26 (17.9)	104 (43.1)	0.001
Twice	17 (18.1)	53 (36.6)	70 (29.3)	
Three times	0 (0.0)	37 (25.5)	37 (15.5)	
Four times or more	0 (0.0)	29 (20.0)	29 (12.1)	
Total	95 (100)	145 (100)	240 (100)	
Minimum time interval between current and last visits				
Less than one month	9 (9.5)	35 (24.1)	44 (18.3)	0.001
One to three (1–3) months	24 (25.3)	84 (57.9)	108 (45.0)	
Four to six (4–6) months	62 (65.3)	26 (17.9)	88 (36.7)	
Total	95 (100)	145 (100)	240 (100)	

Health-care practitioners' treatment of insured and uninsured patients differs at outpatients clinics in Riyadh.

The highest 10 sicknesses conditions announced by insured and uninsured individuals were analyzed across age gatherings (age ranges are recorded in Table 1), yet no tremendous contrasts were identified between the two gatherings. As displayed in Table 3, diabetes was the most pervasive affliction shown in the two gatherings of clients, representing 132 (38.2%) of the 343 aggregate.

Insured customers got more drugs per visit for each illness condition (in terms of the absolute number of various types of medications supplied) than uninsured patients (p-value 0.001). The average number of different prescriptions recommended for all ailments reported by insured customers was 3.91+/0.093, whereas the average number of different medications prescribed for all conditions presented by uninsured patients was 3.35+/0.078. There was a significant difference in means (p-value 0.001, 95 percent CI).

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

As shown in Table 3, there were significant variations in the mean number of drugs provided for diabetes, ear infection, and eye infection (insured had higher means), whereas uninsured had higher means for accidents/injuries, and dental problems (uninsured had higher means).

Table 3: Patients' insurance status, top ten ailments, and quantity of prescriptions provided

Disease condition presented by clients	**Insurance Status**	**Number of clients seen with disease on index visit Uninsured=174, Insured= 169**		**Number of different medications given for treatment of disease on index visit**		
		Number (%)	**Total (%) N= 343**	**Mean**	**Standard deviation**	**Significance (p-value)**
Diabetes	Uninsured	57 (32.6)	132 (38.2)	3.70	1.149	.001
	Insured	75 (44.1)		4.27	1.018	
Upper Respiratory. Tract Infection	Uninsured	12 (6.9)	28 (8.1)	3.25	0.754	0.272
	Insured	16 (9.4)		3.50	1.366	
Hypertension Skin disease	Uninsured	12 (6.9)	26 (7.5)	3.58	1.025	0.121
	Insured	14 (8.2)		4.29	1.157	
Hypertension	Uninsured	9 (4.6)	20 (5.2)	3.13	1.126	0.964
	Insured	11 (5.9)		4.00	1.333	
Ear problems	Uninsured	11 (6.3)	14 (4.0)	3.09	0.701	0.174
	Insured	3 (1.8)		3.67	2.082	
Gynaecological	Uninsured	6 (4.0)	8 (2.9)	2.57	0.787	0.010

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

disorders	Insured	2 (1.8)		3.00	1.000	
Diarrhoea	Uninsured	8 (4.6)	13	3.62	0.744	0.643
	Insured	5 (2.9)	(3.8)	4.00	1.000	
Accidents and	Uninsured	13 (8.0)	17	2.79	0.699	0.002
injuries	Insured	4 (1.8)	(4.9)	2.67	2.082	
Eye infection	Uninsured	4 (2.3)	13	2.50	0.577	0.013
	Insured	9 (5.3)	(3.8)	3.00	0.707	
Dental	Uninsured	7 (4.0)	14	3.14	0.378	0.039
conditions	Insured	7 (4.1)	(4.0)	2.86	0.378	

Table 4 shows the frequency with which prescribers delivered different sorts of drugs to consumers (i.e. how many times a particular type of medication was written for insured or uninsured consumers on the index visit). Antibiotics, multivitamin/food supplements, antihistamines, hematinic, vitamin C, and peptic ulcer medicines were all used differently, as can be observed. Apart from antibiotics, frequency was considerably greater among insured customers than among uninsured consumers in all of these cases. Surprisingly, there were no significant changes in anti-diabetic and anti-hypertensive medicine prescribing between the two groups.

As shown in Table 4, over half of insured customers (49.1%) received multivitamin/food supplements as part of their therapy, whereas just 62 (35.4%) of uninsured consumers received similar treatment (the difference was significant, p-value 0.009). Overall, 45 customers were treated with haematinic, with 34 (20%) of them being insured and just 11 (6.3%) being uninsured (p-value 0.001). In addition, the addition of vitamin C (ascorbic acid) to the treatment of customers varied greatly. 16 (80%) of the 20 customers who received vitamin C were insured, whereas only 4 (20%) were uninsured (p-value 0.005). As seen in Table 4, the only category of medication for which uninsured customers got more than insured consumers was non-steroidal anti-inflammatory medications (NSAIDS).

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Table 4: Consumers' insurance status and the kind and frequency of prescriptions prescribed

Category of Medication	Frequency at which medicines were prescribed per visit			Significance (p-value)
	Uninsured (%) N=174	Insured (%) N=169	Total (%) N=343	
Antibiotics	103 (59.4)	74 (44.1)	179 (51.9)	0.004
Anti-diabetic medications	78 (44.6)	88 (51.8)	166 (48.1)	0.181
Paracetamol	76 (43.4)	80 (47.1)	156 (45.2)	0.498
Multivitamin / Food supplement	62 (35.4)	84 (49.1)	148 (42.9)	0.009
NSAIDS	82 (46.9)	65 (38.2)	147 (42.6)	0.105
Antihistamine	15 (8.6)	32 (18.8)	47 (13.6)	0.006
Anti-hypertension	19 (10.9)	26 (15.3)	45 (13.0)	0.221
Haematinics	11 (6.3)	34 (20.0)	45 (13.0)	0.001
Eye / ear drops	17 (9.7)	15 (8.8)	32 (9.3)	0.776
Anti-fungal	15 (8.6)	15 (8.8)	30 (8.7)	0.934
Antitussives	10 (5.7)	17 (10.0)	27 (7.8)	0.134
Vitamin C	4 (2.3)	16 (9.4)	20 (5.8)	0.005
Anti-helminths	13 (7.4)	5 (2.9)	18 (5.2)	0.061
Peptic ulcer medicines	4 (2.3)	12 (7.1)	16 (4.6)	0.035
Anti-diarrhea	7 (4.0)	7 (4.1)	14 (4.1)	0.956

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Table 5 demonstrates that insured consumers got more multivitamin/food supplements, hematinic, NSAIDS, and vitamin C as extra drugs to their diabetic therapy than uninsured patients. In the case of hematinic and vitamin C, these changes were considerable (table 5).

Table5: Consumers' insurance status and additional drugs prescribed

Medication added to diabetes treatments of clients	**Insurance Status (%)**		**Total (%)**	**P-value**
	Uninsured N= 174	**Insured N= 169**		
Multivitamin/Food supplement				
None	22 (38.6)	26 (34.7)	48 (36.4)	0.642
Given	35 (61.4)	49 (65.3)	84 (63.6)	
Total	57 (100)	75 (100)	132 (100)	
Heamatinic				
None	50 (87.7)	57 (76.0)	107 (81.1)	0.001
Given	7 (12.3)	18 (24.0)	25 (18.9)	
Total	57 (100)	75 (100)	132 (100)	
NSAIDS				
None	35 (61.4)	45 (60.0)	80 (60.6)	0.870
Given	22 (38.6)	30 (40.0)	52 (39.4)	

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Total	57 (100)	75 (100)	132 (100)	
Vitamin C				
None	56 (98.2)	66 (88.0)	122 (92.4)	0.028
Given	1 (1.8)	9 (12.0)	10 (7.6)	
Total	57 (100)	75 (100)	132 (100)	

Other Disparities Between Insured and Uninsured Consumer Services

Referrals: A total of 47 (14%) of all consumers seen during the index visit were referred to a specialist or a specialty clinic. There were somewhat more insured 26 (55.1%) than uninsured 21 (44.9%) referrals. The most common referrals were to the Ear, Nose, and Throat (ENT) clinic (15/31.9%), the Dental clinic (11/23.4%), and the Eye clinic (8%). (17.0 percent). The remaining patients were sent to orthopedic surgeons, obstetricians/gynecologists, and general surgeons. There was no substantial difference in referral patterns between the two groups.

Laboratory testing: During the index visit, seventy percent (70%) of all customers had laboratory tests performed. There were 35 (50.6 percent) insured and 35 (50.0 percent) uninsured among them. In 46 individuals, the most common test sought was a full blood count (hematological study). Twenty-two of them (47.8%) were uninsured, while twenty-four (52.2%) were.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Chapter Five

Discussion

Moral hazard and adverse selection affect the functioning of National Health Insurance.

The extraordinary issues of social health care coverage in immature countries have started a ton of conversation. Purchaser factors influencing the working of Saudi Arabia's public health care coverage were analyzed among protected and uninsured clients, as well as provider angles. The greatest contrast in segment highlights between the two gatherings was demonstrated to be age. More youthful age gatherings (15-45 years) had more uninsured clients, while more seasoned age bunches had more insured buyers (more noteworthy than 45 years).

This determination is reliable with an earlier exploration by Pisarek et al, which showed that in the example of crisis division use, uninsured clients are more youthful than insured purchasers.(Pisarek et al., 2003) Numerous more seasoned people being protected in this study might recommend that, more seasoned people get guaranteed so their families, particularly kids under 18 years can likewise profit from the health insurance.(McKee et al., 2004) This view concurs with discoveries of a concentrate in Ogun State Nigeria, which showed that country families were more able to pay for public health care coverage assuming they realize the plan would cover the whole family individuals.(Oyekale & Eluwa, 2009)

Other segment attributes, for example, sex, level of education, occupation, martial didn’t show contrasts in the two gatherings which contrasts discoveries from different investigations demonstrating that race and occupation are huge segment contrasts among insured and uninsured purchasers.(Bourne, 2009) (WHO, 2005) (Sen, 1982)(Haider et al., 2008)

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

This study showed that insured customers utilized out-patients benefits more regularly and at more limited time stretches than uninsured patients. Different examinations have shown however, that usage of healthcare clinics might be affected by decision and accessibility of different offices separated from protection status.(Burge et al., 2005) This study decided the utilization of all healthcare offices inside the region in the past a half year by shoppers, yet observed that insured customers utilized healthcare clinics more than the uninsured. Proof of customer moral risk can surely be construed from this finding. The expanded visit by guaranteed buyers, presents difficulties to the capacity of healthcare focuses to adapt to the monetary ramifications of the numerous visits and the ability to ideally cook for the expanded numbers.

Studies have shown that flexibility of interest for healthcare clinics is negative, which infers that with the expulsion of client expenses and ensuing presentation of a pre-installment conspire in Saudi Arabia, this versatility of interest for medical services might become huge.(Newhouse, 1993) Evidence suggests that patient moral hazard exists also in Africa (Kenya and Uganda), putting huge load on the health system. (Nabyonga et al., 2005) When user fees were removed in Uganda, all population segments saw a significant rise in usage.(Nabyonga et al., 2005) Meanwhile, in South Africa, government health-care services have been subjected to a raging moral hazard, posing significant obstacles to the health-care system.(Allison, 1998)

Moreover, research in other center pay nations (e.g., Jordan, where more than 60% of the populace is covered) show that the guaranteed populace utilizes medical services all the more seriously and frequently.(Ekman, 2007) Buyer moral risk is a peculiarities that occurs in both high-and low-pay countries.

Moral peril has added to expanded medical services costs and coordinated clinical and mechanical improvement off course, as indicated by a multi-country assessment in the created world.(Schreyogg, 2004)

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Patient moral hazard for health insurance at the regional level in Saudi Arabia may exist, according to the findings of this study. If the current trend of patient moral hazard continues, assistance at the national level to keep district-level insurance systems afloat may not be enough to keep them afloat in the long term. Some public healthcare frameworks are utilizing imaginative approaches to restricting or fighting the peculiarity. For example, the Thailand health care coverage conspire is limiting moral risk through motivators given to put different utilizations of administrations down. Explicitly guaranteed shopper's membership is recharged for nothing in the event that individual didn't utilize their medical coverage card in the earlier year. Likewise the guaranteed may decide to pay client charge when healthcare administration is looked for with a 10% markdown for minor ailment and hold the protection card for use should a significant disease happen.(Allison, 1998)

Aside from purchaser moral peril, this study distinguished that healthcare providers added more prescriptions to the treatment of protected customers at the civil healthcare office. By and large, healthcare providers on normal gave more various kinds of prescriptions for comparative illness condition per unit visit for insured shoppers contrasted with the uninsured. The administration of buyers with intestinal sickness was altogether unique for guaranteed and uninsured customers.

It is intriguing to take note of that, there were no distinctions in the utilization of the diabetic prescriptions and against hypertensive in the two gatherings. it appears to be logical that healthcare providers in the office may serenely add additional meds in conditions like diabetes, however, wouldn't add additional risk of hypertensive medicine to the therapy of a hypertensive buyer because of the expected clinical outcomes.

The distinctions in medical clinic the board for insured and uninsured shoppers found in this study concur with discoveries from different examinations. For example the Institute of Medicine (IOM) in the United States has uncovered that distinctions in

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مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

care exist for hospitalized patients based on insurance status.(White et al., 2007) One more concentrate in China including 1232 out-patients at medical services offices showed that healthcare funding frameworks seemed to impact anti-microbial prescribing in out-patient consideration, as far as recurrence and types prescribed. The review presumed that, anti-infection recommending by healthcare providers may be one-sided by the buyer's method of installment for medical services.(Dong et al., 1999)

Recommendation

If the current trend of consumer moral hazard continues, assistance at the national level to keep district-level insurance systems afloat may not be enough to keep them afloat in the long term. Few approaches could be used to restricting the abuse of moral hazard such as incentives for the patient and provider.

To support the drawn out working of the medical coverage conspire, strategy creators and supervisors of the health insurance might have to figure the genuine monetary expense of moral peril to the plan in Saudi Arabia.

Limitation

Several limitations should be mentioned. First, the variables of interest (medical check-ups and insurance) had some missing values. Therefore, further research should consider using panel datasets that can test whether attrition is correlated to results or not. Secondly, countries in the Arabian Gulf, including Saudi Arabia, have a unique type of financing where health expenditures are paid through natural resources. Therefore, results beyond the Arabian Gulf region should be used to verify the effects of insurance on health-seeking in different contexts. Lastly the differences in medical practice between a physician and another is an obstacle as results will differ depending on physician discission.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Conclusion

The presence of customer moral danger and healthcare provider over-adjusting guaranteed buyers in a medical clinic in Riyadh, Saudi Arabia has been illustrated (a peculiarity that might be occurring in numerous different areas/districts). The difficulties of customer and provider moral risk on the working and long-haul maintainability of health insurance is basic.

To support the drawn out working of the medical coverage conspire, strategy creators and supervisors of the health insurance might have to figure the genuine monetary expense of moral peril to the plan in Saudi Arabia.

Additionally, to lessen customer moral danger, a few impetus estimates should be considered for example reward systems for non-successive visits and conceivable presentation of co-installments for minor ailments and for quite some time. To battle impact of provider moral peril, adherence to standard clinical rules and conventions by medical care providers (prescribers) combined with the presentation of extraordinarily planned health insurance remedy structures (with names of prescriber and healthcare office) are strategy estimates worth chasing after. This study showed that protected customers utilized out-patients benefits more regularly and at more limited time stretches than uninsured purchasers, Patient moral hazard for health insurance at the regional level in Saudi Arabia may exist, according to the findings of this study. If the current trend of patient moral hazard continues, assistance at the national level to keep district-level insurance systems afloat may not be enough to keep them afloat in the long term.

Journal of University Studies for inclusive Research (USRIJ)
مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

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مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

Appendix

Effects of Patient and Provider Moral Hazard Related to National Health Insurance in Riyadh,Saudi Arabia

*Required

Basic socio-demographic characteristics of insured and uninsured patients

1 Gender *

Mark only one oval.

- Male
- Female

2. City / Region *

Mark only one oval.

- Riyadh
- Westren Region
- Eastren Region
- other

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مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

3. Martial Status *

Mark only one oval.

- Married
- Single
- Divorced
- Widowed

4. Age Group(years) *

Mark only one oval.

- 0-4
- 5-14
- 15-44
- 45-64
- 65+

5. Education Level *

Mark only one oval.

- Less than high school
- High school
- Diploma
- Bachelor Degree
- Master degree or higher

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مجلة الدراسات الجامعية للبحوث الشاملة
ISSN: 2707-7675

6. Occupation *

Mark only one oval.

- Governamintal sector
- Private sector
- Unemployed (including students)
- Other: _____

7. Insurance Status *

Mark only one oval.

- Insured
- Uninsured

Patterns of outpatient clinic attendance in insured and uninsured patients in the past 6 months

8. First ever visit to the outpatient clinic *

Mark only one oval.

- Ever visited
- Never visited

9. Visited any health facility *

Mark only one oval.

- Visited
- Never visited

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ISSN: 2707-7675

10. Number of visits *

Mark only one oval.

- Once
- Twice
- Three times
- Four times or more

11. Minimum time interval between current and last visits *

Mark only one oval.

- Less than one month
- One to three (1-3) months
- Four to six (4–6) months

Health-care practitioners' treatment of insured and uninsured patients

12. Disease condition presented by patient *

Mark only one oval.

- Diabetes
- Upper Respiratory tract infection
- Skin disease
- Hypertension
- Gynaecological disorders
- Accidents and injuries
- Other:

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13. If you have diabetes, was there any of these medications given to you *

Mark only one oval.

- Multivitamin/Food supplement
- Heamatinic
- NSAIDs
- Vitamin C
- None

14. Number of different medicatios given for treatment of disease onindex visit *

Mark only one oval.

- 0
- 1
- 2
- 3 or more

15. Type of medication *

16. In the past 6 months, were you refered to any other department in the hospital *

Mark only one oval.

- Yes
- No

17. If your last answer was yes; at what department / clinic were you refered to *

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18. Number of laporatory tests performed *

Mark only one oval.

- Yes
- No

19. what was the lap test performed *