



## Moral Hazards in Providing Health Services: A Review of Studies

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### ABSTRACT

**Background:** Moral hazard is the increased likelihood of loss driven by insured behavior, which is a major the challenges faced by the insurance system. Therefore, the purpose of this study is to review the concept of moral hazard and its types, causes, consequences and control measures.

**Methods:** This study was conducted through review, utilizing articles related to the subject in Springer's published texts, valid sites and databases such as: Google Scholar, Magiran, Medline, Springer, SID, Scopus and PubMed. The information utilized was collected from 1960-2016. Databases were searched using keywords of moral hazard in health services, causes of hazards, types of hazards in health systems, the consequences of hazards, the ways of controlling hazards, health insurance, moral hazards and health insurance.

**Results:** The results showed that the third party (insurer) in health insurance contracts, paying a high share of treatment costs, mitigates the motivation for the behaviors of disease prevention, and prevents harm or disease, i.e. Because the patient pays only a fraction of the cost, it has devastating consequences such as increasing insurer costs and the health system, reducing welfare, wasting resources, reducing insurance coverage, and so forth.

**Conclusions:** Identifying various types of moral hazards, their causes and consequences in determining control strategies and reducing moral hazard and preventing undesirable outcomes are effective.

**Keywords:** Health Services, Moral Hazard, Health Services

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## Introduction

Household consumption expenditure is largely predictable, this is while one cannot predict the time and cost of illness, so individuals tend to protect themselves from the cost of using health care services(1-4). Heavy health care costs are expenditures for health services that exceed a certain level of household income(5, 6). More than 10% of the population below the poverty line suffers heavy health care costs(5). In other words, health costs are a major factor behind the drop below the poverty line, and these costs make households in higher income levels downgrade to lower income(5, 7).

This is despite the fact that health care costs are constantly rising(8). One of the reasons for this growth in the cost of household health and treatment is the increased demand for health services, which can be due to asymmetric information about the hidden health status of individuals, which leads to inappropriate choices in insurance contracts and the waste of treatment resources due to moral hazards, because consumers of health care services do not usually bear all the costs of the treatment, therefore with excessive consumption demand increases and as a result, cause more inflation in health care costs(1, 3, 8). At the same time, health care providers also can influence the demand for their products(9). In most developing countries, approximately 5% to 10% of government spending is allocated to the health sector (10, 11), while this figure in Iran is approximately 7% of GDP(11). These significant figures allocated to the health system necessitate the prevention of avoidable costs in this area. Due to its basic characteristics, such as accumulation of cost hazards(2, 12), insurance is a good solution to the unpredictability of the disease and its costs(2, 5, 13). Nevertheless, in recent years, the performance appraisal of insurers, especially in poor and developing countries, represent the failure of insurance companies to achieve their main mission(5, 6). On the other hand, insurance coverage changes the behavior of the consumer and provider of health services. Insurance coverage reduces the price people pay for health care and

gives more access to care and thus the consumer asks for additional services(2, 3). This means that insurance coverage changes the behavior of the consumer and the service provider, this phenomenon is called moral hazard(9-19). Moral hazard is a situation in which one party to an agreement is motivated to act in a manner that increases the cost of the other party to create an additional benefit for himself(2, 20). Moral hazard is an important issue in all hazard accumulation systems, such as the tax-based financing and insurance systems that is due to a third party payer(2). The most obvious form of moral hazard, which is consumer moral hazard, occurs when an individual is encouraged to use more services because of insurance(21, 22). Therefore, the purpose of this study is to explain and review the concept of moral hazard and its types, causes, consequences and control measures.

## Material and Methods

In this study, 1872 articles were obtained through review and using articles related to the subject in Springer's published texts, valid sites and databases such as: Google Scholar, Magiran, Medline, Springer, SID, Scopus and PubMed. The duration for collecting utilized information was from 1990-2016. Databases were searched using keywords of moral hazard in health services, the causes of hazards, the types of hazards in health system, the consequences of hazards, hazard control measures, health insurance, moral hazards and health insurance. Inclusion criteria included: moral hazards in the Health System, articles in this field in Persian and English. Exclusion criteria included: hazards in systems other than the health system and articles in languages other than Persian or English.

Search strategies were searched with 3 keywords (and, or, or not), with the same keywords together or, differently, and the keywords that did not enter the study were searched with the word not. Then the findings were extracted in the form of summarizing tables and the final step was followed up in the next step. In

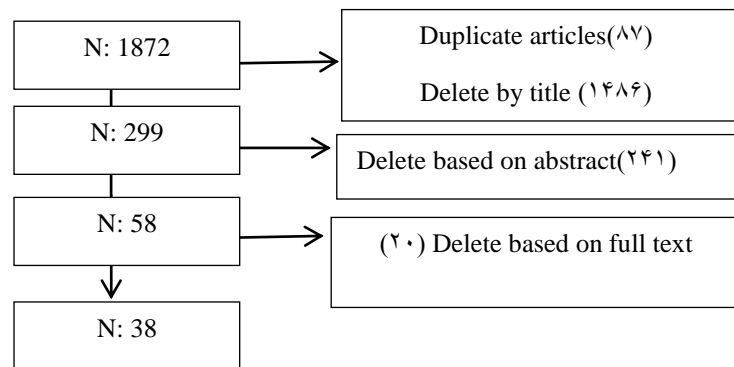


this study, a special test was used to analyze the data and the qualitative content analysis method was used to analyze and combine the results of this study.

## Results

According to the inclusion or exclusion criteria, the result of this search was 1872 articles, which

were refined in stages and finally 38 articles were selected and analyzed, which were presented as summarizing tables. The conducted studies were on health, moral hazards, causes of hazards, types of hazards in health, consequences of hazards, and hazard control measures. .



### Types of moral hazards

Ex-ante moral hazard	Hazard which states that although the occurrence of a disease or health of individuals in the future is uncertain and dependent on probabilities. This probability can be affected by people. The reduction of disease preventative behaviors and the conduction of high-hazard behaviors is defined as ex-ante moral hazard(2, 8).
Ex-post moral hazard	This happens when a person is ill, in this situation where insurance coverage reduces the cost of medical services and healthcare users do not usually pay for all medical expenses, which is why there is no incentive to save on services(2, 8, 12, 23-29).
The hazard of hidden information	Moral hazards from hidden information means that the insurer cannot view or measure the actual loss or the severity of the illness or illness of the insured person and, accordingly, pay the cost to the extent necessary(2, 8, 30, 31).
The hazard of covert actions	In this case the insured person can not only affect the whole loss at the time of the disease, but may also not exercise precautions to prevent the disease, due to the cost implication for them, and that is the reduction in the desirability of life. These moral hazards, in which the precautionary measures of individuals are not visible, are the moral hazard stemming from covert action(8, 26, 30, 32, 33).
Provider's moral hazard	The moral hazard of the provider occurs when more services are provided for increasing its income. This kind of moral hazard is known as the demand supplier induced(34). Induced demand phenomena means that health service providers act as representatives of their patients and have a great effect on the demand for services provided to consumers(35-37).
Consumer's moral hazard	This means that people covered by insurance demand more care compared to the uninsured people (according to the demand law), because the cost of the perceived service is lower than the actual cost of the service(38).



### Causes of moral hazards

Information asymmetry	The unavailability of complete information about the hazard probability distribution function(2) as well as information about the covert health of individuals(8).
Illegal behavior	Some people may deliberately stage an accident in order to receive funds from insurance companies(3, 19).
People's reduced affordability for insurance	It occurs when the actions taken by the insured affect the probability of damage that cannot be detected by the insurer. In these cases, the insurer cannot enforce actual prices (premiums and compensations) that depend on insured actions, thereby leading to a market failure(39).

### Consequences of Moral Hazard

Decreased welfare	In this situation, the only way to increase the utility of one person is to reduce the utility of others. In this context, the inequity of access to services for poor and rural communities is created(2, 8, 40-42).
Increased premiums and reduced insurance coverage	Excessive use of services due to moral hazards leads to increased insurance costs for the company. This issue was first shown by Aroos in 1963(4, 43, 44). In fact, due to moral hazard, the premium consists of two parts: The first part is the amount the person pays for his protection against danger, assuming no moral hazards, and the second is a surplus that is created as a result of moral hazard(2, 8, 13).
Negative external effects	Increasing the premium will reduce the insurance coverage for those who can benefit from insurance(2, 8, 43).
Reduced technical and allocation efficiency	When customers pay less for the use of services because of insurance coverage, this will make customers even use them when the value of these services is lower than the cost of generating services, in this case, meeting the patient's demand reduces the technical efficiency of services in producing health consequences(24-27). Individuals with more severe illness when covered by insurance pay more than people with milder illness. However, as this service is more urgent for people with more severe illness, the proportion of moral hazard that results in inefficiencies in resource allocation is reduced(8, 45, 46).
Reducing the benefits of hazard accumulation	Hazard accumulation is the essential characteristic of all insurance, in which funds are taken from healthy people and used for sick patients, but when, due to the moral hazards, people increase the use of services, the benefits of the hazard accumulation substantially decreases(2, 8).



### Ways to Control and Reduce Moral Hazard

Demand control methods to reduce moral hazard	<p>Deductible: The insured pays a percentage of the cost(3, 31).</p> <p>2. Fixed payment: the cost paid by the patient for receiving the service(32).</p> <p>3. Payment ceiling: The maximum amount that an insurer is required to pay per patient annually(3).</p> <p>4. Encourage not to use or use to a limited extent: This will reduce the amount of premium next year(4).</p> <p>5. The first payment or the initial deductible: The amount that the patient must pay before the insurance company starts paying(39).</p> <p>6. Expectancy queue: Instead of cash costs, the cost of the lost time is a factor in controlling moral hazard(44, 47).</p> <p>7. Health savings accounts: These accounts resolve the conflict between the problems of moral hazard and the availability of resources. This is because individuals insured under this system must pay part of their health expenses by funds they have deposited in their personal savings accounts(3, 42).</p>
	<p>1. Retrospective methods: 1. Examining the pattern of consumption (insurance inspection on the existence of an offense in providing a service and ensuring that all services included are actually provided)(48).</p> <p>2. Reviewing the statistical report (identifying abnormal patterns of presenting services by investigating the services provided by a physician per a certain number of patients(3).</p> <p>3. Prospective monitoring of the pattern of consumption: 1. Testing before reception and monitoring it. 2. The second opinion of the doctor. 3. Simultaneous monitoring of service provider and insurance agent(30, 31, 39, 49, 50).</p> <p>4. Use of financial incentives and payment methods: 1. Payments based on Diagnosis-related groups (DRGs) 2. Per capita payments 3. Global payment(36).</p> <p>5. Structural reform of service delivery and behavioral interventions: 1. Exclusive referral (It is the first encounter of the person with the general practitioner and he is responsible for controlling the cost and suitability of services)(3, 29) 2. Prescription limit (in this method, the approved drugs are set up for repayment by the insurer(3) 3. Setting regulations on investments and provision of service license 4. Use of clinical guidelines(35).</p>
Supply control methods to reduce moral hazard	
Other methods	<p>1. Use of contributory or taxable and deductible insurance(51)</p> <p>2. Using the appropriate reward and punishment system(51)</p> <p>3. Public sector intervention(51)</p>

### Discussion

In the 1980s and 1990s, the United States expanded the use of per capita spending and investigation of the consumption patterns as ways to reduce moral hazard. Health savings accounts were implemented in Singapore, South Africa and the United States to prevent moral hazard and cost control. In countries like France, Canada, and the United Kingdom, the use of budget payment system as the most common form of payment to the hospital has reduced the costs or at least reduced its growth. Since 2007, Germany's official health insurance funds have been able to design joint payment policies and provide them as an

option for systematic policy-making with full cost recovery. Participants in this joint payment policy contributed to the cost of medical treatment. Joint payment policies reduce the costs of realized moral hazard. The higher the joint payment, the higher its negative effect will be on the use of medical services, and thus reducing the realized moral hazard(51). Keshavarz Haddad et al.(52), stated that there is a moral hazard in all treatment policies, and Feldstein estimated that the current over-use of US health insurance has caused a significant welfare decline in the USA. The study results of Soufi et al.(2), showed that insurance reduces the incentive to prevent loss, so it is





necessary to investigate the effects of moral hazards and its control in order to prevent undesirable outcomes and misallocation of resources. To assess the effect of insurance coverage on ex-ante moral hazard, a study in the United States concluded that the effect of Medicare insurance coverage is associated with lower levels of preventive activities related to behaviors such as smoking, obesity, exercise and alcohol consumption. Studies in African countries have shown 50% increase in the size of services and their cost by shifting from the budget system to the remuneration system(53). Yip et al. (54), studied the effect of per capita and services payment on service consumption in Thailand and observed the significant increase in the average length of stay in the hospital, drug costs per hospitalization and laboratory costs per patient in the pay-per-service group. Payment providers choose pay-per-service because its implementation is simple, profitable and associated with lower hazard for the provider. Yingling Dung's results showed more use of healthcare by people with health care services insurance because of the low cost of health care for the insured. In addition, having insurance can encourage unhealthy behavior through moral hazard. Yingling Dung examined the causal relationship among the health insurance status, health behavior and medical use in theoretical and experiential aspects, and separates the effects of the price from the moral hazard of behavior. Ashley Gary(38) found that full insurance encourages people to overuse health care because they are "free" or subsidized. However, the new theory suggests that this prevailing view of moral hazard is fundamentally flawed; in fact, full insurance is effective and efficient(38). Patrick Bijeri et al.(14), showed that separating an adverse selection from a moral hazard is difficult. In 2011 Liran Einav's study(55) entitled "selection based on moral hazard and health insurance", a review article used a change in insurance options of some company employees to identify behavioral responses to health insurance coverage and its heterogeneity. They started with descriptive evidence with a heterogeneous moral hazard as

well as selection, including those who choose more cover, and pretend to have more behavioral response to that coverage.

### Conclusion

In insurance-based health systems, there is always a potential high demand problem due to the existence of a hazard that is, in fact, driven by a change in the attitude of suppliers and consumers of services resulting from individual insurance thereby increasing the willingness to use the service. The problem becomes more complicated when the insured does not pay any fee at the point of receiving the service, which will encourage more and repetitive use without taking into account the efficiency. The supplier's moral hazard is due to his lack of knowledge of the costs incurred by the insurance company on the one hand and the method of payment of remuneration for service on the other. In such a system, physicians will have the financial incentives to provide additional services that cover a range of essential to unnecessary services. Moral hazards have different causes. Moral hazard also has adverse consequences such as reduced welfare, increased costs, reduced insurance coverage, unnecessary consumption and reduced benefits of hazard accumulation, and reduces the technical and allocation efficiency of the health system. In order to avoid these consequences and increase efficiency, both in terms of allocation and technology, appropriate policy interventions are needed to prevent consumer moral hazard (supply-side control). Generally speaking, in order to control moral hazard, policies need to be taken to prevent the worst misuse of resources by avoiding unnecessary and costly expenditures and thus prevent higher costs and inflation in the health sector.

### Conflict of Interest

The authors declare that there is no any conflict of interest.

### Authors' contributions

SA .asadi, M. barati, F. ahzami, designed research; M. barati, SA .asadi and B. naghdi, S. HB, M. foladi wrote the paper. SA. asadi had primary responsibility for final content All authors read and approved the final manuscript.



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