



## Household Health Costs: Direct, Indirect and Intangible

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### Abstract

**Background:** This study aimed at identifying components of the household health costs.

**Methods:** This study was a qualitative research conducted in two main phases. The first phase consisted of interviews with sample households selected in eight provinces of Iran. They were to identify components of the household health costs. In the second phase, components were determined as direct, indirect and intangible based on a content analysis.

**Results:** In the first phase of the study, 93 components of households' health costs were identified. According to the content analysis, 44 components were categorized as direct costs, 10 components were indirect and 39 components were categorized as intangible.

**Conclusion:** All components of households' health costs including: direct, indirect and intangible costs, should be considered in the planning and policy-making in the health system.

**Keywords:** Household health costs, Direct costs, Indirect costs, Intangible cost

### Introduction

Health systems provide a variety of services which can improve human health conditions; however, using of these services may lead to catastrophic health expenditures or impoverishment for households (1).

The main purpose of health financing is to ensure that the required funding is available. In fact, health financing should ensure that all individuals may access to efficient health, preventive and curative services. In other words, the purpose is to reduce or eliminate the number of individuals who are not able to pay for such services or would face profound poverty (2). Millions of people in the world do not access to the required health services,

due to poor performance of the health financing systems. The main reason is that they cannot afford the health services charges (3-5).

This event has also other consequences; for instance the households would face catastrophic costs and poverty; low income due to absenteeism and the reduced productivity (1, 6-7). The intangible costs of illness should also be considered for patients and their families (8). A question arises in this regard: What are the components of the household health costs? To answer this question, we firstly review some recent studies and reports.

According to WHO (2010), health care expenses include consultations with health professionals,

medical or examination procedures, medicine and other supplies, and laboratory tests (9). Ke Xu et al. suggested that the expenses include all types of health-related costs such as consultation fees, medications purchase, and hospital bills” (insurance reimbursement has been considered) (1). The components of the household health costs assumed in the world health survey questionnaire (2002) consisted of the care required hospitalization; care by doctors, nurses, or the trained midwives; care by traditional or alternative healers; dentists; medication or drugs; glasses, hearing aids, prosthetic devices; and diagnostic and laboratory tests(10). Health expenditure covers drug, treatment tools and equipments, medical products, hospital and out of the hospital services and dental services(11). In addition, many studies have been carried out in the world related to the costs of household health That most of them pointed to the same components (7, 8, 12-17).

Do components of the household health costs consist of the above mentioned items? It seems that, in addition to these components, there are other expenses to households in health. The main purpose of the current study was to answer this question.

## Materials and Methods

This qualitative study with an emphasis on the people’s real experiences (18, 19) was conducted in 2012. The study consisted of two phases:

### Phase I

Phase I was a semi-structured open ended interview about the household experiences regarding health care utilization and payments. Because the main objective of this phase has been completion of the household health costs components (identified previously in the literature review), a projective technique was employed in this phase. Two interview methods were used in this phase: face to face interview (18 percent) and telephone interview (82%). All interviews were conducted after setting the time frame and providing the necessary explanations to the participants. At the beginning of the interview, after explaining the purpose and

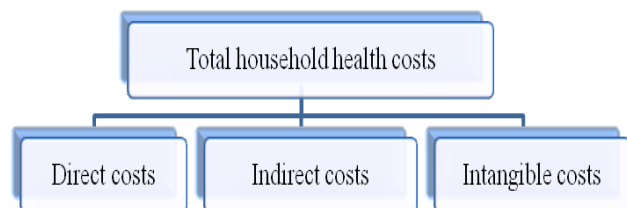
the processes of the study, the participants’ expressed consent to participate in the study was taken. A guided questionnaire was employed to direct the discussion, encourage participation of the participants, to maintain flexibility and to control the time of the session. Interviews approximately lasted about 45 to 80 minutes until saturation of concepts was reached. Transcripts of all interviews were audio recorded for entry into the second phase of the study. To avoid bias in the interviews, all interviews were conducted by the principal investigator.

The instrument used in this study composed of 10 questions covering the study’s objectives. In order to establish its validity and reliability, questionnaire developed based on related literature review, then this questionnaire was submitted to four experts in this area for final evaluation and then a pilot study was implemented.

### Phase II

Phase II was content analysis of the data collected (in the first phase) by expert panel. The panel members comprised of ten individuals. All of invited members were familiar with the health economics and households health costs and at least had 5 years experience in the health system of Iran. The panel members were from the Ministry of Health and Medical Education (four), two different medical universities (four), and a non medical university (two). The output of this phase was classification of the household health costs into three categories: direct, indirect and intangible costs (Fig. 1). In this phase, the data from face to face and telephone interview were considered by panel experts and was not observed bias. To avoid potential bias caused by the presence of the principal investigator in all phases of the study, various stages of this study were controlled by two experts. The direct costs refer to those costs incurred as a result of medical management of the disease, drugs, admissions, complementary tests, patient transportation (8, 20-21). The Indirect costs refers to those costs incurred not as a result of medical management of the disease but rather of other incurred losses such as lost wages, lost productivity, and costs resulting from the need for

home care and child care that would otherwise not be incurred (20-21). Intangible costs are those associated with the function lost, increased pain and reduced life quality (22-23).



**Fig. 1:** Composition of the total household health costs, based on content analysis

### Participants

Overall, 93 households were interviewed. We selected these participants randomly from eight provinces of Iran between January and May 2012. Criterion for this selection was the four-level-based Human Development Index (24) and then, two provinces were selected randomly as samples from each level (using random numbers). The sample size was determined according to proportion of households in each level and the extent that the interviews were saturated (25,26). Accordingly, interviews with households continued until three after the last case that new information was not obtained (24-26). All Participants were interviewed when they were in their home. Participants, who had not utilized health services in the past year, were excluded from the study. Callbacks up to 5 times on different days were taken if we fail with the contact with a household. Overall, we were not succeeding to call with the 11 selected households and we replace them with new households from the random list.

Participation in this study was voluntary and informed consent was obtained from all of participants. All information obtained from the participants was keep confidential.

### Results

In the first phase of the study, 93 types of the household health-related expenses were identified. The expenses generally include expenses related to outpatient services, hospitalizations, special dis-

eases, drugs, rehabilitation, diagnosis, health care for elderly, health insurance, non-cash gifts for service providers, disability, decreased productivity, transportation, housing, food, information and communication technology used during treatment and intangible costs such as depression, anxiety and stress.

The results of the second phase are summarized in Tables 1, 2 and 3. The components of the household health costs were categorized according to the research's definition; which is confirmed by expert consensus (agreement more than 75%) as direct, indirect and intangible costs.

#### Direct costs

Totally, 39 items were identified as the direct costs of household health (Table 1).

According to the interviews, some of the direct costs components incurred repeatedly during the treatment process (such as visits and diagnostic services), due to poor health services quality.

#### Indirect costs

Table 2 shows the components of the household health costs incurred in addition to disease management.

#### Intangible costs

Table 3 shows the components of household health costs, which are not monetary and called intangible. They include 44 components.

1. Depression is a state of mind characterized by negative mood, low energy, loss of interest in usual activities, pessimism, unrealistically negative thoughts about self and the future, and social withdrawal (27).
2. Stress is a prolonged state of psychological and physiological arousal leading to negative effects on mood, cognitive capacity, immune function, and physical health (27).
3. Anxiety: A fearful mood that has a vague or no specific focus and is accompanied by bodily arousal (27).
4. Disability is an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors) (28).

**Table 1:** Direct components of household health costs

1. *General Practitioner services (public and private)	21. Receive services Cosmetic (skin care, hair)
2. *specialist physician services (public and private)	22. Public Health services, particularly maternal and child services (public and private)
3. general dentists services (public and private)	23. Elder care services (health related expenses)
4. Dentistry Prosthodontics services (public and private)	24. Premiums for basic health insurance mandatory
5. dental specialists services(public and private)	25. Basic health insurance premiums for voluntary
6. Non-physician personnel services (public and private)	26. Premiums for supplemental insurance
7. Traditional healing services (public and private)	27. Receiving rehabilitation services (including physiotherapy, speech therapy, optometrist, audiological and occupational therapy and prosthetics services)
8. Midwifery services (public and private)	28. * Receive diagnostic services (including laboratory, imaging and genetic counseling clinic)
9. Emergency services (public and private)	29. ***under the table payment, as money (voluntary / involuntary as a condition for receiving service)
10. Services received at home	30. ***Purchasing drugs that have been imported unofficial
11. Outpatient surgery (public and private)	31. Purchasing medical equipment have been imported into country unofficial
12. *Hospitalization for surgical services (public and private)	32. **Purchasing traditional medicines (Purchasing outside of insurance system and out of the pharmacy)
13. *Hospitalization without surgical services (acute diseases) (public and private)	33. **Receive health services as non-official person(who are ineligible approved by the Ministry of Health)
14. Hospitalization without surgical services (chronic disease) (public and private)	34. Purchasing gifts for health care providers
15. Services related to a specific disease	35. Purchasing flowers and sweets for health care providers
16. Purchasing Organ for Transplantation	36. Reception expenses for health care providers(such as dinner)
17. day clinic services	37. **patient transportation expenses to receive health services
18. *Official drugs, covered by health insurance, according to the approved price (available at pharmacies)	38. Patient food expenses (if you have a specific diet)
19. *Official drugs, uncovered by health insurance, according to the approved price (available at pharmacies)	39. **Patient housing costs, the city where the service received (other than admission)
20. * Purchasing medical equipment	

\* Common in more than 75 percent of the participants \*\* Common in participants that were residing outside the provincial centers. \*\*\* Formed a major part of informal household's health payments.

**Table 2:** indirect components of household health costs

1. expenses related to the patient's permanent disability due to illness	6. *Transportation expenses associated with patient family
2. expenses related to the patient's temporary disability due to illness	7. *Patient's family food expenses (in excess of the normal cost of food)(In place of service receiving)
3. expenses related to the patient's family temporary disability	8. *Expenses related to patient's family housing (In place of service receiving)
4. expenses related to the patient's changing jobs	9. Expenses of information and communication technologies (telephone, Internet, etc.)
5. Expenses related to the patient's family changing jobs	10. Expenses resulting from the change in location due to illness of a family member

\* Common items in areas outside the provincial centers.

**Table 3:** Intangible components of household health costs

1. *The pain of disease for the patient	23.*_Patient stress and anxiety concerning the economic problems and self-sufficiency disabilities
2.*Patient's family suffering due to patient's pain	24.Patient's family stress and anxiety concerning the occurring Economic self-sufficiency disabilities for patients
3. Patient Depression <sup>1</sup> due to disease	25. *, **_Patient stress and anxiety concerning the confusion in selecting a physician
4. patient's family_Depression	26. *, ** Patient's family stress and anxiety concerning the confusion in selecting a physician
5. *, **_patient's Stress <sup>2</sup> and anxiety <sup>3</sup> due to inability to pay health costs	27. Patient stress and anxiety concerning the selection of treatment center
6. *,** Patient's family stress and anxiety concerning the inability to pay for health costs	28. Patient's family Stress due to confusion in the selection of treatment center
7. Patient stress and anxiety concerning the behavioral disabilities <sup>4</sup> due to disease	29. patient stress resulting from loss of time due to long waiting lists
8.Patient's family stress and anxiety concerning the behavioral disability due to disease	30. Patient's family stress resulting from loss of time due to long waiting lists
9. Patient stress and anxiety concerning the Communication disabilities due to disease	31. * Stress imposed to the patient due to lack of confidence in the quality of health services
10. Patient's family stress and anxiety concerning the Communication disabilities due to disease	32. Stress imposed to the Patient's family due to lack of confidence in the quality of health services
11. Patient stress and anxiety concerning the Occurring a self-care disability	33. Stress imposed to the patient due to lack of confidence in the health insurance system
12. Patient's family stress and anxiety concerning the Occurring the patient's self-care disability	34. Stress imposed to the Patient's family due to lack of confidence in the health insurance system
13. Patient stress and anxiety concerning the mobility disabilities	35 *,**_patient_Stress due to probability of poor responsiveness from health services providers
14. Patient's family stress and anxiety concerning the mobility disabilities for the patient	36. Patient's family Stress due to probability of poor responsiveness from health services providers
15. Patient stress and anxiety concerning the Body disposition disabilities	37. Patient stress about treatment result
16. Patient's family stress and anxiety concerning the Body disposition disabilities Occurring to patient	38. Patient's family stress about treatment result
17. Patient stress and anxiety concerning the Occurring Dexterity disabilities	39. *patient anxiety resulting from lack of sufficient knowledge of his/her disease
18. Patient's family stress and anxiety concerning the occurring Dexterity disabilities for patients	40. Patient's family anxiety resulting from lack of sufficient knowledge of his/her disease
19. Patient stress and anxiety concerning the occurring Situational disabilities	41. Patient stress and anxiety concerning the possibility of re-admission
20. Patient's family stress and anxiety concerning the occurring Situational disabilities for patients	42. Patient's family stress and anxiety concerning the possibility of readmission
21. Patient stress and anxiety concerning the occurring Particular skill disabilities	43. Patient stress and anxiety concerning the possibility of being isolated from family and community
22. Patient's family stress and anxiety concerning the occurring Particular skill disabilities for patients	44. Patient's family stress and anxiety concerning the possibility of being isolated from family and community

\* Common in more than 75 percent of the participants \*\* Common in participants that were residing outside the provincial centers. \*, \*\* these items Includes features that are listed for \* and \*\*.

## Discussion

Although the health sector has characteristics similar to those of other parts of the economy, it seems that unusual economic characteristics of health sector such as the extent of government intervention in the health care market, domination of uncertainty in all health care levels, information asymmetry among physicians and patients are too vast (29). Therefore, low price elasticity of demand for most of goods and services consumed by the households is one of the most important consequences of this feature in the health sector. This feature shows the necessity of consumption of the goods and services when needed (30-34). Accordingly, the results of this study about identifying components of the household health costs have a great importance. As mentioned in introduction, components of health expenses which has been noted in various studies have a major weakness (7, 10-13). In the Most of these studies, household health costs have been calculated by a few components. However, the results of the current study have identified 93 components of the household health costs. It seems that most of the studies have just considered the direct household health costs, and of course imperfectly. Our study has attempted to define the components of the household health costs clearly through scientific methods. We have also tried to consider comprehensively the indirect costs for the households who had previously participated in several studies (8, 16, 20, 35-37).

Household's emphasis on the informal payments for health services should be considered in the forthcoming studies, especially in developing countries; because various studies have confirmed the prevalence of the informal payments for health care especially in developing countries (17, 38-45). Another finding of the study is identifying the intangible components of household health costs. These components have been neglected in the most related studies, while a significant number of the interviewed households focused initially on these components.

This study has been faced with three important limitations. The first two limitations have been related to sampling. In the study, only households

with fixed line phone were included. Therefore households that did not have fixed line phone were excluded from the sample. However, due to the low cost of getting a fixed line phone and that over 80 percent of Iranian households had a fixed telephone in 2011(46), This limitation was accepted considering the benefits derived from it.

Another limitation has been related to the generalizability of the study. In this regard, this study attempted to select a sample of households that are representative of all households in country, to identify the components of household health costs. But due to the high costs of the qualitative studies (Financial and time costs), we had to choose the sample that was very smaller than the total households of country. We tried to control this limitation via selection of participants by appropriate method and through Determine the number of interviews based on the achievement of saturation level.

The third limitation has been related to the identified components. Because of these limitation, we should be considered that identify different components of the household health costs is not enough to measure household expenses; But it appears that we are in urgent need for appropriate methods to measure the components. For example, according to Kathleen and Pato, willingness to pay (WTP) method can be used to measure for intangible expenses (8, 15).

## Conclusion

Due to the inherent characteristics of the health care market and concerning the households' sensitivity to the health care services, using inadequate components in calculation of the household health costs can be misleading; it may also lead to the results which do not provide adequate incentives for policy-makers to reduce households' share in health costs. So, it is very useful to consider all components of the household health costs and in this regard, this study attempted to identify these components.

## Ethical considerations

Ethical issues (Including plagiarism, voluntary and informed consent, misconduct, data fabrication and/or falsification, double publication, redun-

dancy, etc.) have been completely observed by the authors.

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