SOCIOECONOMIC FACTORS AFFECTING INFORMAL PAYMENTS IN THE HEALTH SECTOR

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Abstract

Informal payments are a significant source for financing health systems in many developing and transition countries. The aim of our study was the assessment of the influence of patients' socioeconomic status on their informal payment for health care. This article presents a cross-sectional and applied research that was conducted in a general public hospital in Iran during April 2014. The population of the study was all the 1,035 patients discharged during April 2014. Data gathering was done using a questionnaire. An ordered logistic regression model based on a truncated method was estimated to investigate factors affecting informal health payments.

About 48% of respondents reported at least one experience of informal payment for health care during the previous year. The results showed that the patients' socioeconomic status can significantly affect the likelihood and frequency of informal payments for health care. Older people, members of small and wealthier families, employed persons, and those who are under coverage of only basic medical insurance are more at risk of making such payments. Policymakers should pay more attention to such socioeconomic groups in order to improve the effectiveness of policies.

Keywords: socioeconomic factors, informal health payments, health financing.

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1. Introduction

The protection of individuals against the financial risks of illness is one of the most important responsibilities of health care systems. In this regard, one of the most important challenges is the reduction of out-of-pocket health payments because it is the weakest and most unfair way to finance health care (Xu *et al.*, 2007, pp. 972-983). From the health economics perspective, informal payments for health care can be out-of-pocket payments because they have the same effect on health care demand and financial risk of illness compared to formal direct payments (Ghiaspour *et al.*, 2011, pp. 1-14).

Informal payments are a significant source of financing health systems in many developing and transition countries (Ensor, 2004, pp. 237-246; Liu and Sun, 2012, pp. 514-524). As per definition, an informal payment for health care is any kind of direct payment for health (in cash or in kind) which is more than the specified legal payment. Furthermore, informal payments for health care have been described by various terms over the world such as 'under-the-table payments', 'under-the-counter payments', 'envelope payments', and 'red packages' (Chereches *et al.*, 2013, pp. 105-114).

Informal payments can be created in a health care system because of various reasons including determination of unreal tariff/price for health care services, lack of transparency and inadequate supervision in the health care market, low salary of health care providers and, finally, sociocultural characteristics of society (Lewis, 2007, pp. 984-997).

Informal payments for health care can increase health system inefficiency, corruption, catastrophic health expenditures, loss of trust and transparency, and inequalities in access to health care. Informal health payments can also lead to making wrong decisions and policies by providing false information about the costs of illnesses and the patient's share of the costs (Thompson and Witter, 2000, pp. 169-187). Moreover, studies showed that the informal health payments can have a negative effect on the quality of health care by inducing rent-seeking behaviors in health care workers and a sense of frustration from knowledge about the unfair allocation of these payments (Mæstad and Mwisongo, 2011, pp. 107-115). Evidence also suggests that informal health payment is a regressive health financing method. People with lower income levels make more informal payments than the rich and are more likely to face catastrophic health expenditures (Szende and Culyer, 2006, pp. 262-271). On the other hand, informal payments are often unevenly distributed among health care workers such that more money go to the doctors, while some health care professionals do not receive any share of the informal payments. Therefore, a negative relationship between informal health payments and job satisfaction is also emphasized by some studies (Stringhini *et al.*, 2009, p. 53).

Although no official statistic about the frequency of informal payments for health care in Iran is released yet, it appears that informal health payments are common in Iran's health care system, according to some studies (Ghiaspour *et al.*, 2011, pp. 1-14).

As a response to this situation, from the beginning of May 2014, the Iranian Ministry of Health and Medical Education (MOHME) applied a set of reforms in the health care system called 'Health Evolution Plan' and one of its aims was restricting informal payments (Akhondzade, 2014, pp. 1-2). The cornerstone of the Iran Health Evolution Plan was securing sustainable funds to increase the total health care annual budget by 50%. Through this plan, the government is trying to reduce informal payments through the increase of official tariffs, government financing, and insurance coverage. Thus, the government intends to increase medical tariffs to make them closer to the real price and thereby drop the physicians' excuse of unreal tariffs. In addition, the government has increased its participation in financing health care as well as insurance coverage to eliminate the financial relationship between patients and health care providers as much as possible (Bahadori *et al.*, 2015, pp. 1-2).

Understanding the socioeconomic factors that influence informal health payments can help policy makers to improve the efficiency of policies to restrict informal payments by identifying and targeting vulnerable groups. Therefore, the aim of our study is to determine the effect of patients' socioeconomic status on their informal payments for health care, which can help us to answer an important question: 'which of the socioeconomic groups are more at risk of paying informally for health care?'.

2. Methods

2.1. Study design and population

This study is a cross-sectional and applied study conducted in a general public hospital in Tehran during April 2014.

The population of the study was 1,035 patients who were discharged during April 2014. All 1,035 patients were asked to participate in the study, but among them only 518 showed interest to participate in the study. Finally, 480 patients have completed the participation and therefore 480 correct questionnaires were completed through face-to-face interviews with patients or their representatives. The low response rate was predictable due to the nature of the study.

2.2. Instrument and procedure

Data gathering was conducted using a questionnaire. The validity of the questionnaire was confirmed through content validity index (0.87). Also the reliability of the questionnaire was confirmed with 0.95 correlations by using test-retest method. All questionnaires were completed with direct collaboration/support of 8 trained and educated interviewers, in order to ensure maximum accuracy of data collection process. Also it should be noted that due to illegal nature of informal payments, in order to protect patients' privacy the study was without any question about their name and address.

A written ethical commitment was given to respondents in order to keep their information confidential.

2.3. Study variables

The study variables were the socioeconomic characteristics of patients (including sex, age, education, household dimension, working status and the average monthly income of patients' family), insurance features of patients (basic and supplementary insurance), average monthly health care expenditure of patients during the last year, and also questions about the frequency of informal payments made by patients to receive health care services during the last year. The patients were asked to answer questions such as 'Have you ever informally paid for health care during the last year?'. The response to the question was classified into 4 items as follows: I have never informally paid for health care during the last year; I sometimes informally paid; I often informally paid; and I always had unofficial payments. Then, the ordered values of 1, 2, 3, and 4, respectively, were allocated to each answer.

Informal health payments were fully explained by the interviewers to the respondents and were defined as paying any mandatory or voluntary direct payment (in cash or in kind) to health care providers other than the legal payment or outside of the official channels, with any reason including accelerating access to care, ensuring quality of care, or even for acknowledgment purposes. Therefore, our definition consisted of all kinds of informal payments including voluntary (such as gifts or tips) or mandatory (such as bribery or balance billing).

2.4. Data analysis

An ordered logistic regression model using the truncated method was estimated to investigate factors affecting frequency of paying informally to health care. The ordered logistic regression model was used due to the ordinal pattern of the dependent variable (informal payment); using the truncated method we can systematically exclude observations with no informal payment from the sample. The overall form of the regression model was as follows:

INFORMALPAY= C + SEX + AGE + EDU + BINSUR + SINSUR + HD + WRK + LOG (HE) + LOG (INCOM), in which:

- C: Intercept
- INFORMALPAY: Frequency of informal payment
- SEX: Sex
- AGE: Age
- EDU: Educational level
- BINSUR: Basic insurance status
- SINSUR: Supplementary insurance status
- HD: Household dimension (The size of family in which respondent lives)
- WRK: Working status
- HE: Average monthly health care expenditure during last year for each patient
- INCOM: Average monthly income level of patients' family

Finally, the coefficients of the model were calculated using maximum likelihood estimations by using Eviews6 software.

3. Results

Table 1 shows the socioeconomic status of patients (respondents). According to Table 1, 77.5% of patients were male and 22.5% were women. The minimum and maximum age of patients was 9 and 83 years old. 95% of patients were under the coverage of basic medical insurance and 5% were not under the coverage of any medical insurance. Also 72.5% of patients were not under the coverage of any supplementary health insurance and only the 27.5% of them were under the coverage of a supplementary health insurance scheme.

Table 1: Socioeconomic status of respondents

Variable		Number	Percentage
Sex	Male	372	77.5%
	Female	108	22.5%
Age group	<20	12	2.5%
	20-35	132	27.5%
	35-50	164	34.2%
	50-65	124	25.8%
	65-80	44	9.2%
	≥80	4	0.8%
Educational level	Primary	124	25.8%
	Secondary	84	17.5%
	Diploma	180	37.5%
	University degrees	92	19.2%
Basic insurance	Insured	456	95.0%
	Un-insured	24	5.0%
Supplementary insurance	Insured	132	27.5%
	Un-insured	348	72.5%
Family size (The number of family members)	1 people	12	2.5%
	2 people	60	12.5%
	3 people	132	27.5%
	4 people	108	22.5%
	5 people	100	20.8%
	≥6 people	68	14.2%
Working status	Employed	358	74.6%
	Unemployed	122	25.4%
Health care expenditure (Average monthly - in thousand Rials)	<250	40	8.3%
	250-500	116	24.2%
	500-750	132	27.5%
	750-1,000	92	19.2%
	1,000-2,000	60	12.5%
	2,000-4,000	24	5.0%
	≥4,000	16	3.3%
Patients' family income (Average monthly - in million Rials)	<10	32	6.7%
	10-20	232	48.3%
	20-30	96	20.0%
	30-40	72	15.0%
	40-50	32	6.7%
	≥50	16	3.3%

Based on our findings, about 48% of respondents reported at least one experience of informal payment for health care during the last year. Of these, 46% stated that the informal payments were rare, 41% stated that they often give informal payments and 12% of them stated that they were always exposed to informal payments. Among total respondents, 22%, 20% and 5% stated that respectively rarely, often and always make informal health payments to health care workers. Table 2 shows the frequency of informal payment for health care.

Table 2: Frequency of informal health payments among respondents

Paying informally for health care	Number	Percentage
No	248	51.7
Yes	232	48.3
Informal health payment frequency		
Sometimes	108	46.5
Often	96	41.4
Always	28	12.1
Informal health payment frequency (among total respondents)		
Not	248	51.7
Sometimes	108	22.5
Often	96	20
Always	28	5.8

Table 3 shows the results of the estimation logistic regression model. According to Table 3, among studied variables, the effects of age, basic health insurance, family size, working status, and income level were statistically significant ($P<0.05$). The effect of other variables including sex, education, supplementary health insurance and health care expenditure were not statistically significant ($P>0.05$).

Table 3: Results of estimation logistic regression model on informal health payment frequency (Full model)

Variable	Estimation Coefficient	Std. Error	P-Value
Intercept (Constant)	-9.043511*	2.915898	0.0019*
Sex (Male/Female)	0.143718	0.189132	0.4473
Age group <20 20-35 35-50 50-65 65-80 ≥80	0.017108*	0.004473	0.0001
Education level (Primary/Secondary/ Diploma/ University degrees)	0.048156	0.061199	0.4313
Basic insurance status (Insured/Un-insured)	0.696805*	0.228189	0.0023
Supplementary insurance status (Insured/Un-insured)	-0.129083	0.147818	0.3825
Patients' family size (1, 2, 3, 4, 5, ≥6 people)	-0.138448*	0.054028	0.0104

Variable	Estimation Coefficient	Std. Error	P-Value
Working status (Employed/Unemployed)	-0.504810*	0.129419	0.0001
Health care expenditure <250 (thousand Rials) 250-500 500-750 750-1,000 1,000-2,000 2,000-4,000 ≥4,000	-0.012334	0.065936	0.8516
Family income <10 (million Rials) 10-20 20-30 30-40 40-50 ≥50	0.874928*	0.196441	0.0000

* Statistically significant at the 95% confidence interval

The variables that were not significant at the 0.05 level have been eliminated from the regression model. Then, this summarized model containing only significant variables was estimated again (Table 4 shows the results of estimation for the summarized regression model).

Table 4: Results of estimation logistic regression model on informal health payment frequency (Summarized model)

Variable	Estimation Coefficient	Std. Error	P-Value
Intercept (Constant)	-8.892007*	1.865465	0.0001
Age group <20 20-35 35-50 50-65 65-80 ≥80	0.016793*	0.004112	0.0000
Basic insurance status (Insured/Un-insured)	0.6953935*	0.21224	0.0003
Patients' family size (1, 2, 3, 4, 5, ≥6 people)	-0.142424*	0.054012	0.0094
Working status (Employed/Unemployed)	-0.516093*	0.117152	0.0000
Family income <10 (million Rials) 10-20 20-30 30-40 40-50 ≥50	0.902232*	0.139261	0.0000

* Statistically significant at the 95% confidence interval

4. Discussions

4.1. The prevalence of informal payments

Informal payments for health care as a part of health sectors' informal market can create major difficulties with efficiency and equity in the health system. According to our study results about 48% of respondents reported at least one experience of informal payment for health care during a year. In a study in Iran from 2009, 21% of discharged outpatients reported that they had made informal payments to health care workers during the last hospitalization (Ghiaspour *et al.*, 2011, pp. 1-14). Studies showed that informal payments for health care are a common phenomenon worldwide, particularly in developing, transition, and low-income countries. A study in Greece in 2008 showed that out of the total number of those reporting treatment in public hospitals during a year, 36% reported at least one informal payment to a doctor (Liaropoulos *et al.*, 2008, pp. 72-81).

Furthermore, a study in Turkey showed that 31% of those who had received medical care during the last 2 months reported at least an experience of informal payment (Özgen *et al.*, 2010, pp. 387-396). Moldova's study (2008) showed that about one-fourth of the patients left informal payments at the doctor's office (Mokhtari and Ashtari, 2012, pp. 189-200).

Informal payments are known in some countries as a major source of financing health care and very high percentages of informal payments are made in order to gain access to public hospitals and to receive a higher quality of services. It's reported that in Hungary family doctors and some specialists may have earned between 60 and 236% of their net official income from informal payments in 2001 (Gaal, Evetovits and McKee, 2006, pp. 86-102). Another study in Hungary in 2007 showed that 9%, 14% and 50% of patients paid informally for their last visit to GP, specialist care and for hospitalization respectively during a year (Baji *et al.*, 2013, p. 62). It should be noted that informal health payments are more common in countries where there are imperative unrealistic tariffs along with inadequate monitoring in the health care system. Moreover, informal payments are common where there are cultures of leaving tips or gifts. A World Bank study in Albania (2003) reported that 67% of people who had been hospitalized in the previous 4 weeks had made informal payments for health care services (Bonilla-Chacin, 2003, pp. 1-59). The situation is not so much better in Bulgaria, Georgia, Taiwan or China.

In addition, the results showed that among total respondents, 22% stated that paying informally for health care happened rarely. Moreover, 20% stated that informal payments occurred frequently and only 5% of respondents stated that they are always faced with such payments. Although in our study the overall prevalence of informal payments (for both inpatient and outpatient services) is analyzed, it should be noted that the frequency of informal payments can be different according to the type and nature of health care services. Paying informally for receiving health care is more common in emergency, vital and life-threatening medical procedures like operations

and critical care units (Ghiaspour *et al.*, 2011, pp. 1-14). Also, leaving tips or giving gifts are more common in maternal and neonatal services especially related to deliveries (Kaitelidou *et al.*, 2013, pp. 23-30).

4.2. The socioeconomic status' influence on informal payments

4.2.1. Age

The result indicated that the patient's socioeconomic status can significantly affect the likelihood and frequency of informal payments for health care. Thus, with increasing age, the probability of paying informally for health care increases significantly (P=0.0001). There are some possible reasons to explain this relation. First, older people are more risk averse than younger ones and so they have more willingness to pay informally for health care services to ensure maximum quality of care. Second, older people are more likely to use services in which informal payments are more common, like operations and critical care units. Third, older people may have less awareness of legal tariffs and are less patience or able to track violations. Still, the effect of age on informal payment is unclear and there are conflicting studies. Studies focused on Hungary showed that age had a significant and positive effect on the probability of paying informally for health care and also the probability of accepting informal payments by patients is significantly higher for those who are above 60 years old (Baji *et al.*, 2013, p. 62; Baji *et al.*, 2014, pp. 853-867). However, a study by Mokhtari and Ashtari showed that older patients are less likely to leave informal payments to doctors (2012, pp. 189-200). They explained that older patients may be more knowledgeable, and may have more time in circumventing the health care staff who may demand informal payments.

A study by Tomini and Maarse in Albania showed that the elderly are less likely to make informal payments, especially in outpatient services (2011, p. 375). In Bulgaria, older women were less likely to pay informally for health care but there was no clear pattern with age among men (Balabanova and McKee, 2002, pp. 243-273). But our study provided evidence to accept the positive effect of age on paying informal payments. According to our results, the elderly are at increased risk of paying informally for health care, and policy makers should pay more attention to this group.

4.2.2. Insurance status

In addition, the possibility of informal payments was significantly higher for those who had a basic health insurance (P=0.0023). It can be due to the fact that having an insurance can encourage individuals to receive more services than when they are not insured (moral hazard); in such situations, inadequate coverage of cost and services by health insurance can lead to more cost and also informal payments by insured individuals rather than uninsured. It can be said that in such situations, 'no-insurance is better than bad insurance'. The inefficiency of Iran health insurance system in providing suitable coverage for cost and services is one of the most known problems in Iran's health care system, previously mentioned by different studies (Abolhallaje *et*

al., 2013, pp. 155-160; Karami, Najafi and Karami Matin, 2009, pp. 36-40). According to our findings, the supplementary health insurance had a negative impact on informal payments but this effect was not significant (P=0.3825). While previous studies (Tomini and Maarse, 2011, p. 375; Mokhtari and Ashtari, 2012, pp. 189-200) stated that insured patients are less likely to make informal payments, according to our study, this relation is not decisive. We believe that the effect of health insurance on informal payments can be dependent on both the health insurance's efficiency and the nature of informal payments. Because even the best health insurance cannot prevent the culture of leaving tips and gifts.

4.2.3. Family size

According to the study results, paying informally for health care is more common by individuals who live in smaller families (nuclear families). In contrast, decreasing the number of family members, can significantly increase the risk of informal payments (P=0.010). It can be due to the family's resources and budget constraints. In this condition, the increase in the number of family members can reduce the share of each member from total resources. In addition, it seems that more attention to the quality of care in small families can lead to more willingness to pay informally for health care. The results of our study are similar to the results of other studies in this field. The study of Tomini, Groot and Pavlova in Albania showed that nuclear households are more likely to pay informally for their members both in outpatient and inpatient care and at the same time to pay higher amounts for household members in both services (2012a; 2012b).

4.2.4. Working status

The findings indicated that employed people were more likely to pay informally for health care than the unemployed (P=0.0001). One important reason is that the opportunity cost of bargaining and tracking informal payments is much higher for employed persons. The result of our study was completely similar to previous studies. The study of Mokhtari and Ashtari showed that all occupational groups (including: private employees, government employees, agriculture workers, students and other occupations) have lower likelihoods of leaving informal payments than unemployed or retired (2012, pp. 189-200). Also a study on informal payments for maternity health services in Greece showed that mothers who are employed pay higher informal payments (Kaitelidou *et al.*, 2013, pp. 23-30).

4.2.5. Income level

The study showed that the probability of informal health payments increases quite significantly by increases in the average income level (P=0.0000). Therefore, richer people are more likely to make informal payments. It is clear that wealthier people have more willingness to pay, and they are more able to pay for qualitative health service out-of-limits. Thus, they are more likely to pay informally for jumping the queue, for choosing a favorite doctor, or for receiving extraordinary services. In addi-

tion, they are more likely to make any payment (in cash or in kind) as a tip or a gift. In such situations, health services are received by those who have more ability to pay for them, and not to those who need them more. Hence, informal payments are extremely unfair and inefficient. The relation between the income level and informal health payment was also noted by previous studies. The study of Kaitelidou *et al*. indicated that those who have higher monthly income pay higher informal payments (2013, pp. 23-30). A study of Baji *et al.* in Hungary showed that higher household income is associated with higher probability of paying informally for health care (2014, pp. 853-867). Tomini, Groot and Pavlova's studies in Albania also suggested a close link between income and ability to pay, since higher income patients were also able to pay higher amounts of informal payments (2012a; 2012b). The study of Özgen *et al*. in Turkey showed that respondents in the highest income quintile made nearly six times more informal health payments than their counterparts in the lowest quintile, but people in the lowest quintile spent informally a larger share of their income on health relative to those in the highest quintile, which indicates repressiveness of informal payments (2010, pp. 387-396). According to our findings, there is a positive association between income and informal payment that can lead to inefficiency and inequity of the health care system.

4.2.6. Other characteristics

The effects of three other variables including sex, education, and health care expenditure were not statistically significant. Although women and more educated people were more likely to pay informally for health care, these results were not statistically significant. Moreover, there was a negative and insignificant relation between average monthly health expenditure and paying informally for health care. Although the effect is not significant, this negative effect may be due to the fact that those who have higher health expenditure usually suffer from chronic diseases and, therefore, are more alert about payments and medical tariffs than those who suddenly encounter an acute illness.

4.3. Study limitations

There are some limitations with our study. First, our definition of informal payment comprised all kind of informal payments including voluntary (such as gifts or tips) or mandatory ones (such as bribery or balance billing). Second, our study investigated total informal payments in both inpatient and outpatient health care services together. Future studies need to address these limitations.

5. Conclusions

The results showed that the patients' socioeconomic status can significantly affect the likelihood and frequency of informal payments for health care. Older people, members of small and wealthier families, employed persons, and those who are under coverage of only basic medical insurance are more at risk of making such payments. In addition, it can be predicted that with the aging of population in the future,

decreasing size of families and the future increase in income and employment informal payments for health care will increase.

We also advise policymakers to pay more attention to such socioeconomic groups in order to improve the effectiveness of policies. For example, older people living in small and wealthier families who have only basic health insurance are at an increased risk of paying informally for health care; thus, policies should focus on raising awareness of these groups about their legal rights and cost of services including legal amount of medical tariffs, legal amount of insured cost-sharing (including deductibles and coinsurance), or services they should receive legally without any payments. Although eliminating informal payments seems to be impossible, such policies could help us to restrict informal payments as much as possible.

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