

Informal payments analysis and its influential variables: a case study of the health system in Iran

Abstract

Informal payments are defined as amounts paid by patients to healthcare providers outside of routine methods or approved fee plans. This study thus aimed to investigate informal payments and their determinants, as well as the effect of the Health System Reform Plan on reducing the rate of informal payments in Iran. This was a cross-sectional study performed in public hospitals affiliated with the Ministry of Health of Chahar-Mahal-va-Bakhtiary Province, carried out from June 22 to October 22, 2018. The population was discharged patients. Stratified sampling was used. Data was obtained through interviews. Both SPSS and EVIEWS were used for descriptive and analytical analysis, respectively. In the analytical section, the Logit model was used to define the determinants of informal payments. Out of 325 patients, 147 cases were chosen from teaching hospitals, while 178 cases were chosen from non-teaching hospitals. Overall, 15.7% of patients had made informal payments, of which 2.8% had paid physicians, 6% nurses, and 8% other employees. Patients hospitalized in teaching hospitals also paid higher amounts of money than those in non-teaching hospitals. The determinants of informal payments were hospital type, treatment type, and gender. The results of this study show that there is an issue related to the informal payments in the hospitalization department, which is considered one of the important challenges of financing the health system in Iran. The health transformation plan that has also been made to aim to reduce direct payments from people's pockets and informal ones has not been able to solve this big social problem.

Keywords: *Informal payment, health system, Iran, health transformation plan.*

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Introduction

The expansion of health services has increased the share of health expenditure as a proportion of total - social costs. Hence, policymakers are focused on controlling health expenditures (1). Designing measures to control the waste of health resources is an important element in controlling rising health expenditures (2). Different countries are faced with various types of corruption; many health systems are struggling to cope with corruption and are actively looking for appropriate solutions (5, 6). Informal payments are one example of corruption in health systems (6, 7)

All in-cash or in-kind payments to healthcare organizations or health staff that are not transferred through formal payment channels are categorized as informal payments (8, 9). In other words, informal payment is defined as payments to healthcare providers that are not a part of regulated co-payments (10). Since, in most situations, informal payments are paid to health staff; it can also be defined as using public resources to satisfy private benefits, which is categorized as a type of systematic corruption as well as a type of black market (11, 12). Health staff commonly use their power or their market advantage to force patients to pay extra amounts of money (7).

Different countries use different names to describe informal payments; common ones are as follows: "under-the-table

payments," "black money," "brown money," and "concurrent money"(13). Recent studies on the prevalence of informal payments have reported wide ranges, from 2% to 80%. It has also been found that hospitalized patients usually pay higher amounts of informal payments (14). The higher the emergency of healthcare services (e.g., for surgical interventions or for deliveries), the higher the chance of paying informal payments. This is mostly due to the severity of patients' needs and the greater precision needed (15, 16). The most common types of informal payments are as follows: (1) in-cash payments (most informal payments are in-cash); (2) gifts: for example flowers, candies, etc. (this type of payment is more voluntary than cash payments, and is mostly intended to show appreciation of health staff); (3) goods or commitments to compensate: including food, blankets, bandages, syringes and medical supplies, or the patient committing to provide special services for healthcare providers (17-20).

Informal payments are mostly due to a lack of appropriate budgetary support from health systems as a result of economic conditions, with providers struggling to maintain their income level. However, local cultures are also important (13). Informal payments can also be used to cope with resource scarcity and poor performance on both the supply and demand sides. Patients, on the demand side, may use informal payments to

avoid waiting lists, to receive better/higher quality services, to access required services, to establish relationships with physicians or other health staff, or to act as a guarantee of receiving better health services in the future. On the other hand, providers, on the supply side, may use informal payments to increase their income, mostly due to low salaries. Informal payments are mainly due to supply-side problems and are rooted in social and cultural norms. Given that supply problems, including inadequate budgets and low salaries, have an important impact on receiving informal payments, these payments act as a tool to collect extra budgets for healthcare organizations as a whole and physicians in particular. In fact, low income, irregular salary payments, and government negligence encourage providers, especially doctors, to receive informal payments and to consider patients' contributions as a prime source to fill their income gap (11, 17, 21, 22).

Informal payments can have severe consequences, such as impoverishing health expenditures, particularly among vulnerable groups, and increasing treatment costs. They also increase inequality in health service access, promote corruption and unethical behavior in society, and provide inappropriate information about treatment costs to patients and policymakers (which may result in inappropriate decisions at the macro level). Performance impairment may, in turn, be an obstacle to developing corrective policies (23-25). It may also result in the expansion of unnecessary services and induced demand, as well as damaging the social status and professional reputation of physicians, and result in deterioration in physician-patient relationships (26, 27). In recent years, health policymakers have focused on developing policy measures to control informal payments. Iran also has enacted significant measures to control informal payments through the 2014 Health Transformation Plan (HTP). The current study aims to measure the success of the HTP in achieving one of its main goals, eliminating informal payments.

Health Reform Plan in Iran consists of three sections, which are patients' financial protection, equal access to healthcare, health quality improvement, which have been enforced in 9 service packages since May 15, 2014, in hospitals associated with the Ministry of Health and Medical Education. Physicians and specialists retention in deprived areas is one sector of this Plan service package, which aims to decrease informal payments in rural and deprived areas and also increase expert and public health service access by increasing physician fees in these areas. So deprived areas patients can receive all required health medical services near their residence location as soon as possible. This study thus aimed to investigate the impact of the Health System Reforms Plan on informal payments and their determinants in Iran.

Methodology

The present study examined the prevalence of informal payments cross-sectional in public hospitals in the Bakhtiari Provinces in 2018. At that time, this province's population was 947,763 people. The study population was all patients who were discharged from public hospitals (in 2 teaching hospitals and 5 non-teaching or therapeutic hospitals) from June to October 2018. The sample study was 325 patients among 43944 discharged patients. Then, according to the total number of discharged patients, the samples of each hospital were calculated. From teaching hospitals, 147 cases were selected, and 178 cases from non-teaching hospitals were selected as a sample size.

Data were collected through an author-developed questionnaire and interviews with patients' families. The questionnaire contained 42 questions in 6 parts. Two questionnaires that had previously been used in Iran, in Tehran and Urumia provinces, were used to develop the questionnaire; their validity and reliability had been previously proved (20, 28). The first part of the questionnaire was about the hospital, patients' insurance, place of residence, services received, and whether informal payments are paid or not, which was developed by the authors. The other three parts were about details of informal payment to physicians, nurses, and other staff. The fifth part was for those without experience of informal payment. This part was intended to investigate whether physicians and other staff had made requests for informal payments and, if they had, why the patient had refused to pay. The sixth part was about the total payment amount (including both formal and non-formal payments), the financing source, and the patient's attitude towards these payments (agreeing or not). In the last part, the socioeconomic and demographic characteristics of the discharged patients were collected.

Data were analyzed in descriptive and analytics parts. In the descriptive part, the frequency and amount of informal payments were calculated separately for each variable. In the analytic part, logistic regression was used to identify factors that had effects on the frequency of informal payments. The probability of informal payment was considered as a dependent variable (Y): if yes, Y was equal to 1; if no, it was equal to zero. A confidence interval of 90% was selected. The regression equation was as follows:

$$\text{Logit } Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n.$$

To investigate the goodness of fit, the Andrew and Hosmer-Lemeshow and Wald tests were used.

Results

Out of 325 samples, 147 were selected from teaching and 178 from non-teaching hospitals. The descriptive characteristics of participants are shown in Table 1. 15.7% of patients (51 out of 325) experienced informal payment, in-cash, and/or in-kind. The frequency of these payments in teaching and non-teaching

hospitals was 17% and 14.6%, respectively. 2.8% of patients made informal payments to physicians, 6% to nurses, and 8% to other staff. In some cases, two or more health staff asked for informal payments. Additionally, patients hospitalized in teaching hospitals paid higher amounts of money than those in non-teaching hospitals. The highest payments were paid to physicians, so that, on average, informal payments to physicians were equivalent to about 237 US dollars. For nurses and other staff, these amounts were about 9 and 6 US dollars, respectively (other staff included security guards, personnel from cleaning departments, and maternal and children's wards). More details about the amount of payments are provided in Table 2. For other staff, the highest prevalence of informal payments was for delivery ward staff - about 46% of all payments. Informal payments to security guards and children's ward staff made up about 3.8% each. According to the findings of the current study, most of the payments were in-kind (about 69%). In both types of hospitals, in-kind payments had the highest prevalence. Also, about 61% of informal payments to health staff were in-kind, but the majority of the payments to physicians were in cash (Table 2). It was also found that every hospital inpatient paid 45 dollars to the hospitals in formal payments and paid 16 dollars to hospital staff in informal payments for receiving care. The ratio of informal payment to formal payment is 35.5%.

The current study also investigated patient incentives to pay informal payments, which showed that the highest prevalence was to show appreciation to health staff (56.3%). Other incentives were as follows: as a gift for their new child (23.6%), staff request (14.5%), and receiving higher quality services (5.4%).

Informal payments paid for physicians have a different reason compared with nurses and other staff; most physicians' payments were due to requests. However, informal payments for nurses and other staff were caused mainly by reward and their appreciation (95% and 84%, respectively). More details are provided in Table 3.

As mentioned before, to identify factors that affect informal payments, logic regression was used in the analytical section. To determine the validity of the models, all factors that affected informal payments for health staff in total were analyzed (Table 4). Results of the logit regression show a significant association between informal payments and the curative intervention type, patient gender, and hospital type. According to the model, patients who received curative interventions and patients who had surgical interventions had a lower chance of paying informal payments relative to those who performed delivery - about 1.5 and 1.4, respectively. In addition, women's exposure to informal payments was, on average, 0.09% higher than men's. Additionally, patients hospitalized in teaching

hospitals had an average 0.07% higher chance of paying informal payments.

Discussion

Due to its hidden nature, accurately measuring informal payments is difficult. These payments are illegal and often are not reported or documented. Due to its illegal and unethical nature, patients and providers often refuse to report informal payments; therefore, measuring its prevalence and frequency is not accurate, and scientific studies underreport such payments. The findings of the current study (a field study in 2018), three years after the implementation of the HTP, show that 17% of patients hospitalized in hospitals affiliated with the Ministry of Health and Medical Education (MoHME) paid informal payments. In a review of studies about informal payments in Iran before HTP implementation, the authors found two related studies with similar methodologies. A study on informal payments in teaching hospitals in Tehran (the capital city) reported a prevalence of about 21% in 201 (28). Another study in Urumia in 2012 reported that about 19% of hospitalized patients had paid informal payments in teaching hospitals (22). The results of these two studies, which were both carried out before HTP implementation, are similar to the current study, which shows that HTP may not have significantly reduced informal payments. Other similar studies conducted after HTP implementation also show that informal payments were not reduced. In a study on informal payments in a teaching center in Shiraz, Fars province, Hadian et al. (2014) found that 20% of patients experienced informal payments. Hajian et al. (2014) also found that about 21% of patients hospitalized in hospitals affiliated with the MoHME experienced informal payments.

In addition, the study findings show that, although the physicians' informal payment frequency is low compared with nurses and other staff, the amount of payment was substantially higher, which is consistent with the findings of other studies conducted in Iran. Studies conducted in other countries also have found that physicians' informal payments are higher than other staff. In public hospitals in Poland, about 80% of all informal payments are paid to physicians, which can increase their gross income twofold (29). Thus, it can be claimed that physicians have strong incentives to receive informal payments (11).

The HTP increased health tariffs and, therefore, the income of medical teams, and it was expected that informal payments would be reduced. Many studies have proposed increasing the income of health staff as a prime strategy to reduce informal payments (23, 25, 30-32). It is, however, worth noting that there is no universal solution to address the issue of informal payments, and each region must develop its own policies based on its needs: a policy may be successful in one country but fail in another. A common strategy to cope with informal

payments, which has been used in many countries and is mentioned in the literature, is to consider formal patient payment for receiving services. A study by Barber (2004) showed that formalizing informal payments in regional hospitals of Taeko province (which made up about 45% of total hospital revenue) ensured the return of fixed costs and increased overall efficiency (33). However, Baji (2012) has shown that the implementation of a fee for each consultation or a formal payment for each consultation only reduced informal payments in inpatient departments. The author noted that this strategy was not successful and even reduced access to health services (34). Kaitelidou (2013) has also found that formal payments cannot substitute for informal payments (35). Atanasova (2012) also noted that even after 10 years of implementing formal co-payments, informal payments are still substantial. (36) Implementation and strengthening of universal health coverage is another important strategy to reduce informal payments. Tomini (2011) has shown that the expansion of universal health insurance and direct contracting to cover inpatient services results in a reduction of informal payments, but more time is needed to achieve greater impact (21). However, Chiu (2007) has shown that the implementation of universal insurance coverage not only failed to reduce informal payments but actually increased them (37). In terms of incentives leading to informal payments, the present study found that the most common incentive was physicians' requests. Other important incentives were to show appreciation to health staff and to receive higher quality services. However, the incentives behind informal payments to nurses and other staff were mainly to express appreciation, as a gift for patient improvement, or to celebrate the birth of a child, which is consistent with previous studies (22). A study by Liaropoulos in Greece found that receiving better services was the main cause of 42% of all informal payments to physicians. Indeed, patients were afraid that without informal payments, they would receive low-quality services. Other main causes were as follows: 20% due to physicians' request, 18% due to Greek cultural characteristics (mainly because other people were paying informal payments), 18% to express appreciation to physicians, and 2% to receive the necessary documentation to hospitalize the patient abroad. According to Liaropoulos's study, access to high-quality services and long waiting lists were the main causes of informal payments in Greek hospitals (7). Ozgen, in a study in Turkey, revealed that 67% of informal payments went to express appreciation of health staff, while 33% went to buying gifts. Other important incentives included establishing better relationships with physicians, both in terms of future possible needs and in order to get their attention. According to this study, Turkish culture was the main cause of informal payments (17). Another finding of the current study is that informal payments and the type of medical intervention

have significant associations with patients' gender and hospital type. Different studies have tried to identify factors that affect informal payments - some studies have found that hospital type and ownership model impact the incidence of informal payments (7, 17). Also, some studies have found that the gender of the patient impacts the chance of paying informal payments (38-41). The type of medical intervention is another important factor that has been emphasized in other studies (16, 21, 36, 41).

Conclusion

When financing health systems is largely carried out through informal payments, providers, therefore, have strong incentives to provide more attractive but unnecessary services, which leads to greater inefficiency. Informal payments act as a disruptive factor for access to and use of health services, as well as an obstacle to reforming health systems. Informal payments not only increase patients' out-of-pocket expenses but may also increase poverty through health expenditure costs, particularly for vulnerable groups. Additionally, it has negative impacts on social equity and health. It also can create significant barriers to achieving financial protection against health expenditures, even for those who have health insurance coverage. Based on the findings of the current study, as well as studies conducted before HTP implementation, it can be said that Iran's recent plan has not been successful in reducing informal payments - though wider research is needed. Due to the lack of access to reliable data, the results of studies and comprehensive investigations about HTP implementation have substantial obstacles in evaluating the results. Undoubtedly, such studies can be an indication of the need to revise the HTP and to promote a society-wide perspective in health policy-making. All health policies should thus be in line with the comprehensive welfare plan for the country.

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Ethics approval and consent to participate

The Ethics Committees of Tehran University of Medical Sciences (TUMS) approved the study protocol (code IR.TUMS.SPH.REC.1395.1753, and all methods were performed in accordance with the relevant guidelines and regulations. The subjects were made aware of the confidentiality of their information and had the freedom to decide whether or not to participate in the study.

Authors' contributions

MK and EB were designed the study and prepared the initial draft. MK, EB and VKH are contributed to data collection and data analysis. MK, EB and AP have supervised the whole study and finalized the article. All authors have read and approved the manuscript.

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Table 1 *Descriptive Characteristics of Participants*

Place of residence	Frequency	Percent
Shahrekurd	68	20.9%
Other provinces	21	6.5%
Other cities in the province	142	43.7%
Village	94	28.9%
education		
illiterate	49	15.1%
Elementary school	46	14.6%
Secondary school	55	16.9%
High school	106	32.6%
University	69	21.2%
Gender		
Female	177	54.5%
Male	148	45.5%
Income group		
I (the lowest)	30	9.2%
II	30	9.2%
III	82	25.2%
IV	55	16.9%
V	38	11.7%
VI	35	10.8%
VII (the highest)	44	13.5%
Not clear	35	10.8%
Type of medical intervention		
Surgery	112	34.5%
Medication	159	48.9%
Vaginal delivery	25	7.7%
C-section	29	8.9%

Table 2: Frequency and Average of Informal Payments Separated by Hospital Type, Health Staff, and Payment Type (In-Kind or In-Cash)

Type of payment	Number of patients	Physic			Nu			Other			Sum of informal payments		In-		In-	
		Freque	Perc	Average of payment (one thousand Tomans)	Freque	Perc	Average of payment (one thousand Tomans)	Freque	Perc	Average of payment (one thousand Tomans)	Freque	Perc	Freque	Perc	Freque	Perc
Teaching	147	8	5%	1100	9	6%	42	10	6%	23	25	17%	6	22%	21	77%
Non-teaching	178	1	0.5%	700	11	11%	31	16	8%	30	26	14.6%	10	41%	14	59%
Total	325	9	2.8%	994	20	6%	36	26	8%	27	51	15.7%	16	31%	35	69%

Table 3: Patients' Incentives to Pay Informal Payments to Physicians, Nurses, and Other Staff

staff	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Motivation								
Appreciating	3	33%	19	95%	9	34%	31	56.3%
Higher quality	1	11%	1	5%	1	3.8%	3	5.4%
Staff request	5	55%	0	0%	3	11.5%	8	14.5%
Gift for newborn child	0	0%	0	0%	13	50%	13	23.6%

Table 4 Results of Logit Regression

Variable	Coefficient	marginal effect	Std. Error	z-Statistic	Prob.
Type of hospital					
Teaching	1	-0.0710773	-	-	-
Non-teaching			0.420682	-1.799841	0.0719