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ORIGINAL ARTICLE

Rising bribes: accessing public health services in Northern Cyprus during COVID-19

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Abstract

Objective: This study investigates the impact of the COVID-19 pandemic on informal payments (bribes) in accessing public health services. It assesses whether the pandemic increased informal payments and whether vulnerable populations, namely women, migrants, and low-income individuals, were more susceptible to bribery.

Methods: Data from pre-pandemic (2019) and pandemic (2021) Global Corruption Barometer surveys in Northern Cyprus were statistically analyzed to examine changes in informal payments and their associations with gender, income, and immigrant status.

Results: The study revealed a significant surge in informal payments for accessing public health services during the COVID-19 pandemic. In 2019, before COVID-19 pandemic, 4.70% of respondents reported paying bribes. However, in 2021, during COVID-19 pandemic, this figure spiked to 17.85%, with an odds ratio of 4.062 underscoring the magnitude of the increase. Moreover, during COVID-19 pandemic, women reported higher bribe rates (20.3%) compared to men (13.7%), migrants had substantially higher bribe rates (25.7%) than natives (15.7%), and individuals with lower incomes (25.6%) were more inclined to engage in bribery. Marginal effects, based on logistic regression estimation results, showed that migrants had a 9.63 percentage points higher likelihood of bribery, low-income individuals had a 12.57 percentage points higher probability, and being female was associated with a 9.05 percentage points higher chance of engaging in bribery.

Conclusion: This study highlights a troubling surge in bribery within the public health sector during the COVID-19 pandemic. Vulnerable populations, especially women, migrants, and low-income individuals, face increased risks. Urgent action is needed to combat corruption in healthcare during pandemics and ensure equitable access to healthcare services.

Keywords: COVID-19, Bribes, Public Health, Vulnerable Groups, Northern Cyprus

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INTRODUCTION

Healthcare, universally acknowledged as pivotal to productivity and happiness[1, 2], faces a pervasive issue of corruption in many countries, making it one of the most corrupt sectors.[3] This corruption obstructs the positive impact of health on well-being, often remaining unaddressed and covered in secrecy.[4]

Informal payments in healthcare, defined as payments for traditionally free services, pose a significant burden, particularly on economically disadvantaged segments: Transparency International's 2006 Global Corruption Report notes that these payments contribute to resource allocation distortion, favoring those who can pay over those in most need.[3, 5] The growing demand for essential health services prompts some to resort to informal payments, encouraging additional corrupt practices.[6] The COVID-19 pandemic intensifies this issue, straining the healthcare system and providing cover for the illicit procurement of funds by corrupt officials.[6]

This intensified corruption incentivizes officials to embezzle funds meant for high-demand but short-supply items, including vaccines, protective equipment, and therapeutic medicines. Vulnerable populations, such as those with underlying health conditions, living in poverty, or belonging to certain racial and ethnic minorities, suffer an increased risk of corruption. These groups may have limited healthcare access and work in jobs with a higher risk of COVID-19 exposure, forcing difficult choices between preventative actions and economic well-being.[7]

Informal payments in healthcare receive little emphasis in corruption research due to difficulty in identification. These payments, taking various forms like under-the-table payments, gifts, or favors, pose a challenge in research due to ambiguity in their intent.[8, 9] Central and Eastern European countries, inheriting informal payments from the former Soviet system, struggle with corruption reform, as socio-cultural values are deeply intertwined with these practices.[10, 11] The coexistence of formal and informal payments heightens addressing corruption reform challenges, burdening patients financially.[11]

Informal payments are often perceived as a necessity to fill financial gaps, especially in less developed countries, where a corrupt healthcare system provides some options. In some countries, patients see informal payments as a means to receive better or faster care for an additional fee.[12, 13, 14, 15]

Furthermore, when informal payments are expected, patients who cannot afford them face challenges in accessing treatment, experience reduced service quality, and encounter longer wait times. Poorer patients make significant sacrifices, and evidence suggests regressive payments, with the poor paying a higher proportion.[16] Research challenges the idea that payment levels depend on a patient's ability to pay. In Hungary, payment sizes are similar across income groups.[6] Transition economies show payment amounts are more determined by willingness to pay[17], emphasizing the regressive nature, as the poorest may have a greater willingness to pay due to limited healthcare access.[18]

This study aims to expand existing literature on how pandemics change informal payments in the public health sector. Additionally, it investigates whether specific vulnerable

groups—women, migrants, and individuals from low-income backgrounds—are more susceptible to informal payments than others.[6, 7, 16] It put forwards two hypotheses:

Hypothesis 1: *As access to public health services becomes increasingly challenging during a pandemic, bribe payments are likely to increase.*

Hypothesis 2: *As access to public health services becomes increasingly challenging during a pandemic, particularly for vulnerable groups (1) low-income individuals, (2) women, and (3) immigrants, they tend to make more bribe payments compared to others.*

The following methods section details the approach to evaluating hypotheses. The subsequent section presents findings, including survey data, chi-square tests, and logit regression model estimation results. The study concludes by discussing results and offering concluding remarks on research implications.

METHODS

To test these two hypotheses, we utilize micro-data from two Global Corruption Barometer surveys conducted in October 2019 [19] (pre COVID-19 pandemic) and November-December 2021[20] (during COVID-19 pandemic) in the northern part of Cyrpus. The North Cyprus Corruption Barometer 2019 and 2021 followed the Transparency International's Global Corruption Barometer (GCB) methodology. Specifically, to gauge the frequency of reported bribery in the public health system, this study focuses on responses to two questions from these surveys: 1) "Have you used the public health services in the past 12 months?"; and if so 2) "Have you ever had to bribe, give gifts or do favors in order to get the services you need at a public hospital or public health institution? If so, how often?" The 2019 survey was conducted by LIPA Consulting and the 2021 survey by Metron Analytics Services—both local survey companies in Nicosia, by utilizing CAPI method. In both surveys, there were 1,000 respondents over the age of 18. In Northern Cyprus, once a citizen reaches the age of 18, they are automatically included in the roster of eligible voters. Therefore, this roster serves as a reliable list that provides the number of citizens over the age of 18. Accordingly, given the official number of electorates of 198624 in the 2020 elections, both surveys have a significance level of 0.05 and a margin of error of +/-3.09%.

To test Hypothesis 1, we compare the frequency of bribe payments in 2019—before COVID-19 and 2021—during COVID-19, calculate the odds ratio, and provide relevant statistics. To test Hypothesis 2, we conduct two sets of analysis: 1) we ran chi-square tests to verify if there was a statistically significant relationship between bribery—"paying bribes" during COVID-19 pandemic and gender, income, and being immigrant or native; and 2) to determine the direction of these relationships between paying bribes gender, income, and being immigrant, we estimate the following logit regression model:

$$P(Bribery = 1\,(Yes)) = \frac{e^{\beta X}}{1+e^{\beta X}}, \qquad (1)$$

where *Bribery* is a dummy variable that takes the value of 0 for individuals who have never paid bribes and 1 otherwise; and the following are the explanatory variables (X): *Migrant* is 1 for those who were not born in Cyprus, 0 otherwise; *Poor* is 1 for those who were

either 'barely getting by', "need to borrow to purchase the things they need' or 'can't afford to buy anything they need'; *Female* is 1 for those who answered gender question as women; *Education* takes a value between 0 and 6—for illiterate 0, elementary school 1, middle school 2, high school 3, university 4, masters 5, and doctorate 6; *Age* takes a value between 1 and 6—1 for 18-24, 2 for 25-34, 3 for 35-44, 4 for 45-54, 5 for 55-64, and 6 for 65 and above; and *City* is 1 for those living in a city and 0 otherwise.

RESULTS

Table 1 provides a summary of the demographics of survey respondents conducted from November to December 2021, during Covid-19 pandemic. Among those who answered relevant questions, 14.1% were migrants, 32.8% were classified as poor, and 48.7% were females. The majority of respondents (53.5%) had university education. Regarding age distribution, the majority falls between the ages of 35 and 44 (29.3%), followed by those aged 25-34 (21.8%). Additionally, 61.1% of the respondents were living in a city.

Table 1. Demographics of public health service recipients during the COVID-19 pandemic

Variable	Frequency	Percentage (number of respondents who answered the relevant question)	
		%	n
Migrant	70	14.1	497
Poor	160	32.8	488
Female	236	48.7	485
Education			
Elementary school	33	6.6	497
Middle or high school	97	19.5	497
University	266	53.5	497
Graduate school	101	20.3	497
Age			
18 – 24	71	14.3	495
25- 34	108	21.8	495
35 – 44	145	29.3	495
45 – 54	93	18.8	495
55 – 64	48	9.7	495
65 and over	30	6.1	495
Living in a City	304	61.2	497

In the 2019 survey, 517 out of 1000 respondents used public health services. As presented in Table 2, among these respondents, only 4.70% either reported paying bribes or did not answer the question. However, in the 2021 survey, out of 497 respondents who used public health services, this percentage reached 17.85% of the respondents.

Table 2. Frequency of bribe payments for accessing public health services in Northern Cyprus: Before and during COVID-19 pandemic

	2019 Before COVID-19		2021 During COVID-19		Difference (%)
	Frequency	Percentage	Frequency	Percentage	
Never	492	95.2	412	82.9	***12.30***
Once or twice	15	2.9	42	8.5	***-5.60***
More than once or twice	3	0.6	10	2.0	***-1.40***
Very often	5	1.0	6	1.2	***-0.20***
Don't know	2	0.4	27	5.4	***-5.00***

An odds ratio of 4.0602 (z-statistic = 5.909, $p < 0.0001$) was calculated to compare the odds of bribe payments before the COVID-19 pandemic to those during the pandemic, revealing a statistically significant association. This indicates that the odds of paying bribes for health services were approximately four times higher during the COVID-19 pandemic. The substantial increase in bribe payments provides strong evidence supporting the claim that, during the pandemic, bribe payments significantly increased.

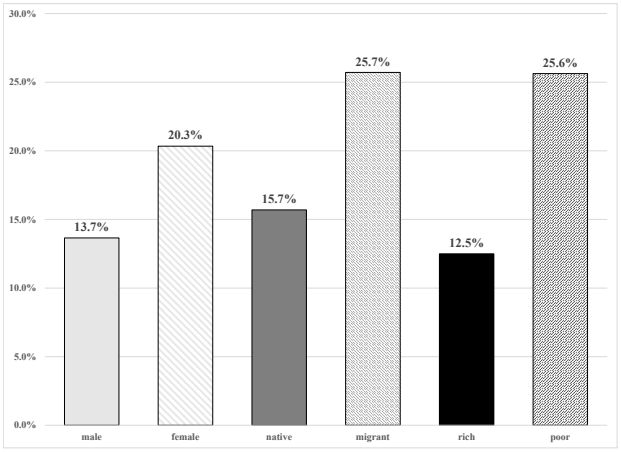

Figure 1. Bribe payments for accessing public health services in Northern Cyprus during COVID-19 pandemic by different groups

When comparing differences in bribe payments during the pandemic, based on gender, nativity, and income, significant disparities become apparent. As is presented in Figure 1, females report a higher rate of bribe payments (20.3%) compared to males (13.7%), suggesting a greater inclination for females to engage in bribery. Migrants also stand out with a notably higher rate of bribe payments (25.7%) compared to natives (15.7%), indicating a pronounced propensity for bribery among migrants. Furthermore, individuals with lower incomes (25.6%) are more likely to partake in bribery than those with higher incomes (12.5%). In summary, the data underscores substantial differences in bribery rates among distinct demographic groups. Gender disparities are evident, with females more likely to report making bribe payments. Additionally, the data highlights an elevated tendency for bribery among migrants compared to natives. Furthermore, individuals with lower income levels exhibit a significantly higher likelihood of engaging in bribery than their more affluent counterparts. These findings offer valuable insights into the dynamics of bribery within various population segments.

Table 3. Contingency table of bribe payments for accessing public health services in Northern Cyprus during COVID-19 pandemic

		Gender		Nativity		Income	
Bribe payment		**Male**	**Female**	**Native**	**Migrant**	**Rich**	**Poor**
No	**n**	215	188	360	52	287	119
	%	86.3	79.7	84.3	74.3	87.5	74.4
Yes	**n**	34	48	67	18	41	41
	%	13.7	20.3	15.7	25.7	12.5	25.6
Total		249	236	427	70	328	160
		$\chi^2 = 3.853$		$\chi^2 = 4.261$		$\chi^2 = 13.251$	
		$p < 0.05$		$p < 0.05$		$p < 0.01$	

Table 3, the contingency table, displays the observed frequencies of bribe payments based on 1) Gender (Female, Male); 2) Nativity (Migrant, Native); and 3) Income (Poor, Rich), as well as chi-square statistic (χ^2) and the associated p-values. Significant chi-square values indicate a statistically significant relationship between paying bribes and gender, income, and immigrant status.

Table 4. Logistic regression model estimation results for the probability of paying bribes

	Odds ratio	**Std. err.**	**[95% conf. interval]**	
Migrant	2.089	0.688	1.096	3.982
Poor	2.614	0.699	1.548	4.414
Female	1.998	0.529	1.189	3.357
Education	1.235	0.176	0.933	1.634
Age	0.951	0.095	0.782	1.156
City	1.219	0.322	0.726	2.046
Constant	0.038	0.030	0.008	0.176
No of Obs	477			
LR χ^2 (6)	23.78			
Prob > χ^2	0.0006			

As is presented in Table 4, the logistic regression results indicate the following: Migrants have 2.09 times higher odds of bribe payment than non-migrants ($p < 0.05$). Poor individuals show a substantial increase with 2.61 times higher odds ($p < 0.01$). Females exhibit 1.99 times higher odds compared to males ($p < 0.01$). Education, with an odds ratio of 1.23, lacks statistical significance ($p < 0.15$). Age and city are non-significant.

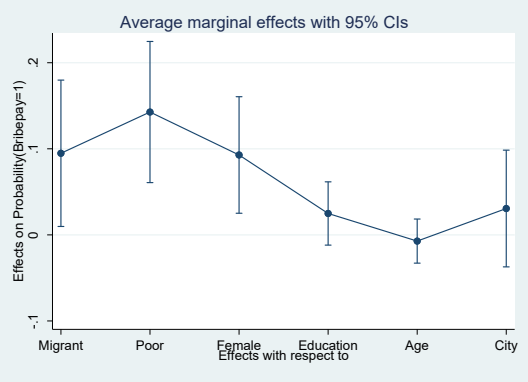

Figure 2. Marginal effects of different demographic characteristics on probability of paying bribes with 95% confidence intervals

Finally, the delta-method is employed to calculate the marginal effects of different factors on the predicted probability of bribery. Accordingly, as is presented in Figure 2, being a migrant is associated with a statistically significant increase (0.0963) in the predicted probability of bribery compared to non-migrants ($p < 0.05$). Similarly, individuals classified as poor exhibit a substantial and highly significant increase (0.1257) in the likelihood of bribery compared to those not classified as poor ($p < 0.01$). Gender also plays a significant role, with females showing a higher predicted probability of bribery (0.0906) compared to males ($p < 0.01$). However, the effects of education, age, and city residence are not statistically significant ($p = 0.138$, $p = 0.611$, $p = 0.453$, respectively). These findings underscore the heightened vulnerability of migrants, individuals in poverty, and females to corrupt practices in the public healthcare sector, providing valuable insights into the demographic dynamics of bribery.

DISCUSSION

Our study delves into the dynamics of informal payments within the public healthcare sector, with a specific focus on the ramifications of the COVID-19 pandemic on bribery tendencies and the susceptibility of distinct demographic groups.

The literature explains the pervasive nature of corruption in global healthcare systems, emphasizing the adverse impact of informal payments on resource allocation and equitable access to health services. Our study extends this discourse by scrutinizing how the prevalence of informal payments evolves at the individual level, especially in the context of a pandemic. The observed upswing in bribe payments during the COVID-19 pandemic resonates with broader literature suggesting that corruption tends to thrive during crises. [6, 7, 13, 14] It appears that the pandemic, characterized by heightened demand for health services and strained systems, provides fertile ground for the exacerbation of corrupt practices within the public health sector.

Our findings align with existing research emphasizing the regressive nature of informal payments, highlighting that vulnerable populations, including low-income individuals, women, and migrants, bear a disproportionate burden. [7, 16, 17]

Our study provides robust evidence of a significant increase in bribery during the pandemic. The odds ratios and logistic regression results corroborate the statistical significance of this surge. Notably, the marginal effects analysis dissects the impact of demographic characteristics on the likelihood of engaging in bribery, highlighting the distinct vulnerabilities of migrants, low-income individuals, and women. These results underscore the complex interplay between corruption, socioeconomic factors, and healthcare access.[17]

While our study sheds further light on these issues, limitations exist. We focused on a specific population in Northern Cyprus, and our sample size of around 1,000 respondents may limit generalizability to diverse global settings with varying cultural norms. Survey data introduces response and recall biases, potentially leading to underreporting of bribery. Moreover, our concentration on specific vulnerable groups might overlook others, and the study lacks a qualitative understanding of bribery motivations. Despite these limitations, our study emphasizes the urgency of addressing corruption in

healthcare reform efforts, particularly considering its potential negative impact on vulnerable groups.[16, 17, 18]

The governance in the northern part of Cyprus has been weak and deteriorating.[21] The decline in the Transparency International Corruption Perception Index score from 40 in 2017 to 28 in 2021 and further to 27 in 2022 is indicative of a rising trend in corruption within the northern part of Cyprus. Concurrently, the country's ranking has experienced a significant drop, falling from 81st place in 2017 to 140th place in both 2021 and 2022.[21] Research indicates that informal payments are most prevalent in countries with weaker governance.[22, 23] Therefore, comprehensive, people-centered policies are crucial, with a focus on alleviating the burden on vulnerable populations. However, formalizing informal payments should be approached with caution, as it can increase costs and disproportionately affect vulnerable individuals.[17] Informal payments often persist despite formal charges, emphasizing the complexity of the issue.[3]

The public health system in the northern part of Cyprus confronts challenges on both the supply and demand sides, encompassing issues of accessibility, quality of care, and inefficiencies within healthcare institutions.[24, 25, 26, 27] The public healthcare system is accessible to individuals with social security insurance and their dependents, offering free use of accident and emergency departments for everyone.[24] However, despite a preference for government hospitals, issues such as patient dissatisfaction, prolonged waiting times, and discontent among doctors drive patients towards private hospitals.[25] The persistence of poor service quality is evident, emphasizing a lack of structure and the employment of underqualified personnel.[26] Additional problems highlighted include financial incapability, long waiting lists, a lack of medical equipment and instruments, an inadequate number of personnel in the hospitals' cleaning, kitchen, and service sections, disinterested staff, insufficient staffing levels, the absence of well-established security systems in hospitals, and limited opportunities for patients to choose their preferred doctors.[26] Furthermore, it is documented that public hospitals lacked systematic data collection about inpatient needs, service quality, and inpatient complaints.[24, 27] Accordingly, addressing both demand and supply-side factors within the healthcare system, such as resource imbalances, low salaries, lack of accountability, inadequate government oversight, and transparency, is critical.[3, 28] Strengthening patients' rights and increasing healthcare providers' salaries can help reduce informal payments.[3, 10, 29] Engaging the public and transparent community dialogues are vital to tackling the issue at the grassroots level.[30] Transparent data on informal payments can raise awareness and generate political will.[31, 32] Reducing informal payments necessitates addressing demand-side factors like expectations, fears, cultural norms, and distrust in the healthcare system.[18]

CONCLUSION

Our research contributes valuable insights for both academic and policy-oriented discussions on corruption in the public health sector. As the global community grapples with the repercussions of the pandemic, our findings underscore the pressing need to address corruption in healthcare reform initiatives. Policymakers and stakeholders are

urged to prioritize interventions that foster transparency, equity, and accountability within health systems, with a specific focus on alleviating the disproportionate burden faced by vulnerable demographic groups.

Moving forward, further research and targeted interventions are imperative to foster fair and accessible healthcare services, particularly during times of crisis, and to confront the multifaceted challenges posed by informal payments. The distinct vulnerabilities uncovered in our study should inform future policy decisions aimed at creating a more resilient and equitable healthcare system, free from the shackles of corruption.

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