Framing of sensitive topics in surveys measuring corruption in healthcare

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ABSTRACT

Corruption is a costly, consequential and complex phenomenon facing healthcare systems globally. Measuring the prevalence of petty corruption, such as bribery and informal payments, is challenging due to the hidden and sensitive nature of these exchanges. This paper explores how question framing influences estimates of informal payment prevalence in doctor-patient relationships in two steps. We analyze the responses from the Euro-barometer survey and then conduct a novel survey experiment in Bulgaria and the UK, comparing the effect of 'neutral' (avoiding corruption-related terms) versus 'loaded' (using corruption-related terms) question wording on individuals' reports of experiences with informal payments. Data from the Special Eurobarometer 397 survey (N = 16,051) fielded in 2013 reveals a notable framing effect: respondents report higher prevalence of informal payments when questions are neutrally framed, as opposed to using corruption-related language. This result is confirmed by a survey experiment we ran between November 2023 and February 2024 in with participants in Bulgaria (N = 428) and the UK (N = 424). Respondents exposed to neutral framing were significantly more likely to admit making informal payments compared to those in the loaded treatment group. The difference in response rates between countries suggests that cultural and normative specificities play a role in willingness to report healthcare corruption. Our results underscore the trade-off between using culturally contextualized terminology to elicit responses on sensitive topics and adopting a universal approach that facilitates cross-country comparisons. We further discuss the behavioral and normative implications of using neutral versus corruption-related language when investigating informal practices in healthcare settings.

1. Introduction

Corruption is a barrier to achieving equitable access and outcomes in healthcare (Hutchinson et al., 2019). It not only has significant financial implications causing an estimated annual loss of $500 billion across health systems globally (Glynn, 2022) but also contributes to increased mortality (Dincer and Teoman, 2019). Common petty corruption practices, such as bribery and informal payments for healthcare, are often secretive and private. Therefore, measuring their prevalence accurately through individual or household level surveys is challenging (Heywood, 2014). The collection of such data relies on the personal accounts of respondents and is susceptible to biases (Agerberg, 2022; Li et al., 2022). Moreover, as with any other sensitive topic, individuals' views and willingness to truthfully share their experiences may be impacted by the design features of the survey, such as how questions are framed (Stalans, 2012).

Whether informal payments should be defined and framed as a bribe

is a central question in the health economics literature and has vast implication for measurement efforts. Balabanova and McKee (2002) among others argue that informal payments should be considered as an additional often small payment or a gratuity rather than a bribe. Central to this distinction is the assumption that the payer has no explicit intention of receiving any preferential treatment in return (Cohen, 2012). However, there is both theoretical and empirical evidence suggesting that all informal payments, independent of their size and the intention of the payer, lead to the same favoritism as bribery (Currie et al., 2013; Smart, 1993). Yet, there is no clear evidence on whether these two conceptualizations of informal payments (*bribery* versus *additional payments and gifts*) influence the way individuals perceive and report their experience of informal payments.

The aim of this paper is to fill this gap in the literature. We estimate the causal framing effect by measuring how question wording impacts people's willingness to share their experience with informal payments. To explore this problem, we adopt a two-step analytical framework.

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First, we exploit the Special Eurobarometer 397 (European Commission, 2014) in which respondents answered two questions about experiences with informal payments in health care, each using a different wording reflecting different conceptions of informal payments. We refer to these as neutral and loaded framing. Under the neutral framing, informal payments refer to making an unofficial payment, gift or donation, while they are qualified as 'bribes' under the loaded framing. Using the presence of both framings in the survey, we analyze whether the difference in question framing impacts the estimated corruption prevalence, and how framing effects vary across countries. We refer to this analysis as Study 1. In the second part of the paper, which we call Study 2, we report the results of a survey experiment which randomly assigns respondents to either the neutral or loaded frame, in order to cleanly identify the causal link between question wording and individuals' willingness to share their experience with informal payments. Parvanova (2024) demonstrates that holding descriptive norms, i.e. believing that others pay informally, is linked to a higher probability of engaging in these payments. We further explore how framing impacts these beliefs.

We find that using questions with neutral wording results in a higher reported prevalence of informal payments compared to those using loaded language, with 21.8% of respondents under neutral framing and 9.4% under loaded framing reporting such payments ($p < 0.001$). Differences across countries suggest that cultural and normative contexts influence individuals' willingness to report corruption. Our survey experiment further demonstrates that framing affects the elicitation of beliefs about others' paying informally. We find that a significantly higher share of respondents report holding such beliefs when asked a neutrally framed question ($p < 0.001$). These findings highlight the impact of survey design in the measurement of corruption, offering valuable insights for researchers and policymakers aiming to understand and address corruption in healthcare.

This study contributes to four strands of literature. First, it contributes to the survey design literature focusing on framing effects and sensitive topics. Respondents' willingness to share their experiences with corruption is affected by social desirability bias (Tourangeau and Yan, 2007). The use of neutral, comparable to forgiving language circumvents such bias and stigma and increases the likelihood of truthfully recounting one's experiences (Charles and V. Dattalo, 2018). While the literature has explored framing effects for sensitive topics such as crime (Levin et al., 1998) and harassment (Galesic and Tourangeau, 2007), this is the first paper to engage with the measurement of corruption and informal payments specifically.

Second, it contributes to the broader literature on corruption measurement through surveys. Reviews of cross-country corruption surveys have emphasized the importance of question wording but have not extensively analyzed the effect of framing on measurement outcomes (Wysmułek, 2019). Chabova (2017) compares corruption prevalence estimated through different questions. Our paper adds to this literature by explicitly identifying the causal effect of question wording and identifying the modifying role of social norms in a survey experiment.

Third, framing effects have been studied in the lab. This literature mostly looks at the impact of framing in experimental instructions on the likelihood of players offering or accepting bribes. Some studies have found that using corruption-related terminology in game design has no impact on players' behaviors (Abbink and Hennig-Schmidt, 2006; Barr and Serra, 2009). Others find that exchanges framed as bribes rather than gifts increase reciprocity in these exchanges (Lambsdorff and Frank, 2010). These studies investigate the impact of framing in lab game design on engagement in corruption. However, the effect of framing on respondents' willingness to share their real-life experience with bribery, informal payments and gift-giving to service providers has not been investigated experimentally.

Lastly, it adds to the health economics literature looking at informal payments which has focused on defining and estimating the prevalence of these payments (Laleva and Atanasova, 2019; Schaaf and Topp, 2019). However, the interplay between these two questions has not been empirically tested. To our knowledge, this paper is the first to provide causal evidence on the differential effects of framing informal payments as *bribes* versus *unofficial payments*.

The paper is organized in the following way. Section 2 presents a review of the literature on informal payments and survey measurements of sensitive topics. Section 3 presents *Study 1* which descriptively analyzes the Eurobarometer data. We list the statistical strategy, results and limitations of our analysis of this data. Section 4 presents *Study 2* which is a survey experiment, including the experimental design, statistical approach and results from this study. In Section 6 we lay out a general discussion of the two studies and the implications of our results for further research and policy.

2. Literature review

2.1. Conceptualizing informal payments

As we have established, there is no consensus about what constitutes an informal payment. This is reflected in the variety of terms used across disciplines – gratuities, under-the-counter or unofficial payments in the health literature (Laleva and Atanasova, 2019) and bribery in economics (Hunt, 2010; Mavisakalyan et al., 2021; Sommersguter-Reichmann et al., 2018). There also are differences across countries and cultures (Ledeneva, 2018).

Definitions of the practice vary, emphasizing different aspects of the exchange. One approach underscores the additionality of an informal payment, where this is conceived as any transfer above what the patient is expected to pay for services or goods, they are entitled to (Gaal et al., 2006). Similarly, such payments are often considered to be in-kind, or cash transfers made outside official payment channels and for services meant to be covered by the healthcare system (Lewis, 2000). These definitions assume that such basic entitlement is always clearly defined and communicated making it possible for patients to distinguish what counts as an additional payment. However, this approach relies on the availability of coverage information which is often inaccessible in countries with high prevalence of informal payments (Cohen, 2012).

Another set of definitions incorporates legality. For example, Cohen (2012) incorporates it as one of the dimensions within a topology of informal payments. In another study, Stringhini et al. (2009) put forward the notion that for a payment to be informal it must also be deemed illegal. However, legality is constructed by the state and can change independently of the impact of the practice (Gaal et al., 2006).

Legality is often determined by the patient's reason for making a payment, e.g., were they extorted, aiming to express gratitude or trying to obtain premium service. Some studies emphasize these intentions and desired outcomes as the defining aspect of informal payments (Cohen, 2012). However, reliably eliciting the reason for engaging in such exchanges is complex and rarely included in prevalence data collection. The time of making the payment is sometimes used as a proxy for intention (Balabanova and McKee, 2002). A payment made after treatment may be considered a gratuity, while an ex-ante payment aims to influence the practitioner. Notably, one limitation is that patients rationalize their behaviors to reduce the moral costs associated with engaging in undesirable activities (Gaal, 2006). Moreover, if the patient expects to have a repeated interaction with the physician, an ex-post payment improves their chances of receiving some preferential treatments in the future. Therefore, while some definitions have focused on the reasons for paying, they do not consider informal payments as poor signals of patient intention.

Some definitions tie informal payments to specific inefficiencies of the health system. They can be seen as the result of system shortages (Gaal, 2006), such as insufficient funding combined with broad mandates for free access to care (Vian et al., 2006). However, there is some evidence on the rigidity of informal payments as a practice (Ledeneva, 2009). Therefore, while these factors might explain the emergence of the practice, they are not necessary for its continuation.

Informal payments are also seen as the result of negative experiences with public health system inefficiencies combined with no option to express their dissatisfaction by exiting the market and seeking private alternatives (Gaal and McKee, 2004; Richardson et al., 2012). These payments are seen as the only way individuals in centralized systems can express their dissatisfaction and create a *de facto* private market for themselves. However, the continued presence of informal payments across Europe despite the well-developed private markets in most countries demonstrates this is not the case (Dallera et al., 2022).

The wide range of conceptualizations discussed above are reflected in the differences in instruments adopted by organizations measuring informal payments. In Table 2 in Appendix, we summarize questions used in cross-country surveys by different institutions. There are differences across time and organizations. Some have opted for a neutral framing of the question using words such as "additional payments" and "gifts" while others refer to the exchange as a "bribe". Next, we review the literature on framing in surveys to understand how these discrepancies might lead to reporting and comparability issues.

2.2. Understanding framing effects

There are two relevant aspects of the research on survey question framing which we will explore further. First, question wording is particularly important in the measurement of sensitive topics – topics which raise concerns about negative consequences, such as social disapproval (Tourangeau and Yan, 2007). Survey questions using neutral, comparable to forgiving language minimize some of this stigma and increase the likelihood of recounting one's experiences honestly (Charles and V. Dattalo, 2018). These effects have been explored in the context of how sensitive topics such as harassment and discrimination are measured (McNeeley, 2012). Corruption and informal payments are understood to be examples of sensitive topics, which pose measurement difficulties due to the potential reluctance of respondents to share their truthful experiences (Agerberg, 2022). However, the effect of question wording has not been explored further.

Second, question framing impacts the measurement of socially constructed concepts which might carry different meanings across settings, such as gender, class and ethnicity (Durand, 2016). A growing literature in survey research analyzes how "cultural mindsets", or frames, affect the comprehension of such concepts (Pennell and Hibben, 2016). For example, Schwarz et al. (2010) find that respondents from collectivist vs individualist backgrounds differ in their inferences from survey questions according to these norms. In the case of corruption and informality, especially, the background of a respondent might dictate their understanding of the line between informality and corruption (De Sousa, 2008). Informal practices are often rooted in highly localized historical context resulting in specific terminology only understood by the relevant population (Ledeneva, 2018). As such, words used in one setting might not appropriately refer to the equivalent practices in another (Pennell and Hibben, 2016). This impact of framing has been explored in its relation to tolerance towards different practices. For example, civil servants view corruption more favorably when it is presented as a matter of institutional flexibility versus a quid pro quo exchange (Zizumbo Colunga and Meza, 2023). Similarly, members of the general population condemn petty corruption but support and participate in the use of personal connections, influence and favors in order to gain preferential access to public services or obtain a job (De Sousa, 2008).

Given the range of conceptualizations of informal payments, it is imperative to understand how applying different labels in survey measures affects respondents' willingness to share. Both the cultural mindset as well as the sensitivity of the topic could be drivers of a potential framing effect. To test the presence of such an effect, we exploit questions used in the Eurobarometer survey and then zoom in on two culturally differing countries with varying levels of corruption and informality.

3. Study 1 - Eurobarometer survey analysis

3.1. Data and methods

3.1.1. Sample description

The Special Eurobarometer survey is a thematic in-depth study collecting data from nationally representative samples of no less than 1000 people of the adult population in each of the European Union Member states. The aim of the Eurobarometer is to monitor public opinion and attitudes on various subjects, including corruption. It is a key source of information since it allows policymakers, researchers, the media and the public to track the development of these views and attitudes across time and countries (Schmitt, 2003). The Eurobarometer has provided measures of the perceptions and experiences of corruption in healthcare specifically over the past two decades. In this study, we use the Special Eurobarometer 397 survey, which was fielded in 2013 in 28 countries,[1] for a total sample of 27,786 respondents interviewed face-to-face at home in their mother tongue (Köbis et al., 2020) (see Table 1A in Appendix for the list of countries and their sample size).

3.1.2. Corruption measurement

The design of the Special Eurobarometer surveys on corruption has changed over time. In particular, the wording of questions relating to informal payments in health has markedly changed over time. In Table 1, we list the main changes in survey questions measuring corruption in healthcare (see Appendix Table 2A for a complete list of questions related to bribery across cross-country surveys led by different organizations starting from 2004). Until 2014, the survey was using questions labelling informal payments as "bribes" (a 'loaded' framing). Since 2014, the Eurobarometer has adopted a neutral wording referring to these exchanges as "extra payment", "valuable gift" or "donation".

3.1.3. Statistical strategy

To understand the potential consequences of this change, this paper uses Special Eurobarometer wave 397 which has the unique characteristic of including both questions. In that survey, respondents were asked

Table 1
Eurobarometer survey questions on corruption in healthcare, 2004 - present.

Year	Survey question	Eurobarometer wave
2004–2011	Over the last 12 months, has anyone in [COUNTRY NAME] asked you, or expected you, **to pay a bribe** for his or her services?	64.3, 68.2, 72.2, 76.1
2014	Apart from official fees did you have to **give an extra payment or a valuable gift** to a nurse or a doctor, **or make a donation to the hospital**?	79.1
2014	Thinking about these contacts in the past 12 months has anyone in [COUNTRY NAME] **asked you or expected you to pay a bribe** for his or her services?	79.1
2017 - onwards	Apart from official fees did you have to **give an extra payment or a valuable gift** to a nurse or a doctor, or **make a donation to the hospital**?	88.2, 98.4, 97.2
2017 -onwards	Thinking about these contacts in the past 12 months has anyone in [COUNTRY NAME] asked **you or expected you to give a gift, favour, or extra money** for his or her services?	88.2, 98.4, 97.2

two distinct questions about their use of healthcare services in the past year. Users were then asked if they had made any informal payments. The survey flow is presented in Fig. 1. To assess the effect of framing on responses, we restrict the sample to respondents who identified as users in both questions and were therefore asked about informal payments twice. This sample includes N = 16,051 respondents. We test whether the difference in the self-reported prevalence of informal payments with the two different questions is significantly different by plotting the 95 % confidence intervals of each estimate.

3.2. Results

We first look at the prevalence of bribery as measured by the two different question wording. Overall, 5.05% (n = 805) indicated making an informal payment when the question was 'neutrally' phrased, 4.29% (n = 684) with the loaded wording.[2] 2.59% (n = 413) indicated making an informal payment only when asked the neutrally worded question and 1.83% (n = 292) reported bribery as a result of the loaded question. A breakdown of the prevalence across each country can be found in Appendix Table 3A.

For most countries, there is a statistically significant difference in the responses given depending on the question framing. Fig. 2 illustrates, for each country, the difference in the prevalence of reported corruption measured by the neutral question minus that reported in the loaded question. The figure highlights two main results. First, we find that question wording matters when measuring the prevalence of corruption. There is a difference in estimated prevalence in all but one country (Cyprus). Furthermore, in 56.7% (n = 17) of the countries there is a significant difference in the prevalence estimated by the two questions.[3]

Second, in most cases neutral framing is linked to higher reported prevalence of corruption. We find that the difference illustrated in Fig. 2 is positive in 73.3% (n = 22) of the country-observations and significantly so in 43.3% (n = 13) of the countries.

3.3. Discussion

We demonstrate that the wording used in Eurobarometer questions is associated with discrepancies in the reported prevalence and draw two important implications from this result. First, changes to repeated cross-sectional surveys such as the Eurobarometer should be implemented with caution. This is true especially when comparing estimates between years. For example, the report on the Special Eurobarometer 88.2 shows
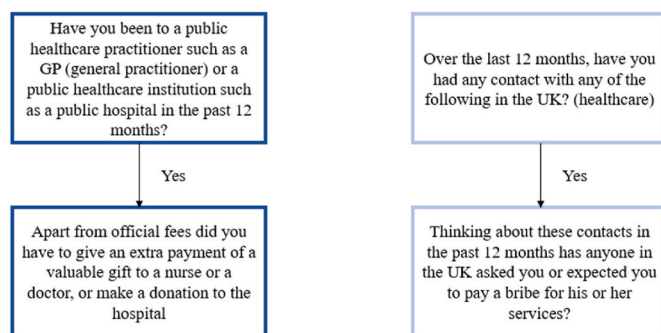
substantial double-digit changes in the incidence rate of these exchanges across several countries (European Commission, 2017, p. 81) but does not indicate or discuss the switch from "bribe" to "gift, favour, or extra money" in the questionnaire between the two waves (European Commission, 2017). Second, our findings underscore the influence of contextual and cultural factors on the distinction between a bribe and a gift or additional payment leading to measurement inconsistencies (Rose and Peiffer, 2016). As highlighted in Section 2, there are discrepancies in the perception of the meaning behind words used to describe socially constructed concepts, such as corruption and informal payments (Pennell and Hibben, 2016) This might explain the higher prevalence obtained by asking a loaded question in some countries compared to others.

Despite the heterogeneity presented in Fig. 2, the design of the Eurobarometer survey and the data availability limit our ability to infer any causal effects. Firstly, survey respondents were not randomly assigned a framing treatment, and respondents were exposed to both framings. Therefore, we cannot reject the possibility of respondents being primed by being asked one of the questions first. Moreover, we cannot conclude that the results observed a causal due to the lack of randomization. Although we restricted the sample to respondents who answered both questions, the preceding (filtering) question about use of services was not completely identical. Specifically, the neutrally framed question is asked to individuals who said they used the *public healthcare system* ("GP (general practitioner) or a public healthcare institution such as a public hospital") while the loaded question is asked to respondents who have used the "*healthcare*" system, a broader term which arguably could include private and public providers. Therefore, it is possible that respondents were not primed about the same experience. While outside the scope of this paper, there could also be additional priming biases triggered by the corruption-related statement read to participants before the loaded question but not the neutral one.

To isolate more neatly the effect of question framing, we designed a survey experiment where respondents would face one of the two wordings from the Eurobarometer survey, but everything else would remain the same.

4. Study 2 – A survey experiment on the effect of wording on corruption measures

4.1. Data and methods

4.1.1. Sample and participant recruitment

As it was not feasible to reproduce a survey on the scale of the Eurobarometer, we recruited respondents from two countries: Bulgaria and the UK.

We chose these two countries to assess how the wording effect differs across two settings with different levels of corruption. While corruption levels in the UK are low relative to other European countries, Bulgaria is one of the most corrupt countries in the EU.[4] Moreover, the two countries have different legal approaches to regulating informal payments. In the UK, the General Medical Council (GMC) (the independent regulator of doctors) introduced a new guidance in 2024 in relation to managing physicians' conflicts of interest. According to their recommendations, medical practitioners must discuss all costs borne by the patient transparently, before the treatment has taken place (General Medical Council, 2024). In relation to gifts, physicians cannot solicit or accept monetary donations from patients, and any unsolicited in-kind gift over a certain value (GBP 25–100) must be registered by the practitioner (General Medical Council, 2024). Notably, this legislation was enacted after our fieldwork had concluded. Meanwhile, under the Bribery Act (Ministry of Justice of the United Kingdom, 2010) in the UK, it is a criminal offence

Fig. 1. Survey flow of the 2014 wave of the Eurobarometer.

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[2] 6.88% (n = 1,097) of respondents reported making informal payments in at least one of the two questions but only 2.46% (n = 392) reported it for both framings.

[3] The Eurobarometer has two observations for Germany (West and East) and the UK (Great Britain and Northern Ireland). Therefore, the country-level observations are 30 in total.

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[4] As per the 2023 Corruption Perception Index of Transparency International (https://www.transparency.org/en/cpi/2023 accessed April 1st, 2024).
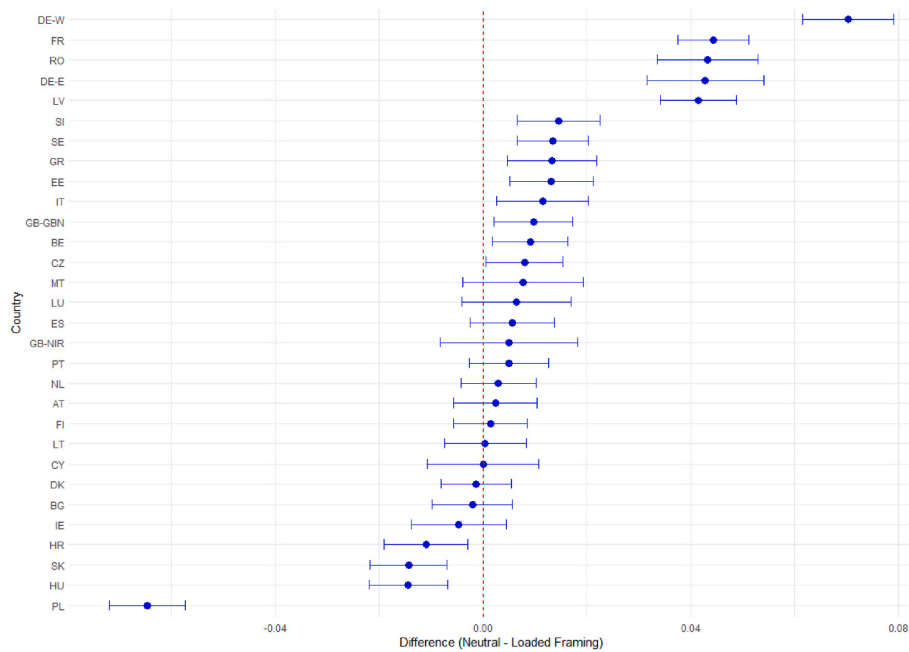
Fig. 2. Difference (neutral-loaded) in share of respondents who have reported experiencing informal payments in healthcare in the past 12 months by country with 95% confidence intervals.

for a person in an official capacity to accept any gift or consideration as an inducement or reward for showing favour or disfavour to any person. While the GMC guidance is not directly linked to the Bribery Act, there are some overlaps in their conceptualization of influencing one's behavior through monetary and non-monetary channels. We could not find a direct description of any punitive measures taken by the GMC in the case of non-adherence to the gifts registration policy. Therefore, there have not been many documented cases of severe repercussions of physicians' based in the UK who might have not complied with the registering of patient gifts.

In Bulgaria, Section IV Article 301 of the Penal Code states that "an official who requests or accepts a gift or any other benefit whatsoever, which is not due, in order to perform or not an act on business or because he has or has not performed such an activity shall be punished for bribery by imprisonment of up to six years and a fine of up to five thousand leva" (State Gazette, 2023, p. 120). Although the Penal Code does not mention doctors when listing various professions in subsequent relevant articles, the Code of Professional Ethics of Physicians in Bulgaria mentions "gifts", "favors", "bribes", "donations", "patient payments" (or any phrases carrying a similar sentiment (Ministry of Health of the Republic of Bulgaria, 2013).

It is important to note that while bribery is illegal in both countries, there is no specific legislation addressing informal payments or gifts to doctors. Moreover, bribery is not specifically included in any professional Code of Ethics or Conduct targeting medical workers in either country in our sample. Because of this there is also no legal definition of informal payment likening or differentiating the practice from a bribe and creating a shared understanding of what is legally prohibited. Lastly, the lack of any mechanism tracking the exchange of gifts and donations between patients and doctors in Bulgaria points further to the differences in permissibility of such practices in the two countries.

By choosing these countries, we explore whether framing effects are somehow related to corruption levels. Participants were recruited between November 2023 and February 2024 through a commercial panel company (TGM). Eligible participants included only nationals of the two countries because of our aim to capture country-specific effects. We also imposed socio-demographic quotas to ensure that the samples were representative in terms of age and gender. The descriptive statistics of these sample show that respondents are broadly representative of the population of each country (Appendix Tables 4A and 5A). Yet, the limitations of using a commercial panel provider for participant recruitment are presented in the discussion. Our analytical sample consists of N = 428 respondents in Bulgaria and N = 424 in the UK and only includes respondents who reported using the healthcare system in the past 12 months. In total there are 71% (N = 605) of health care users overall, representing 75% (n = 321) of the sample in Bulgaria and 67% (n = 284) in the UK. We compare the samples of healthcare users and non-users overall and by country in Appendix Table 6A.

4.1.2. Experimental design

To isolate the impact of question wording on self-reported informal payments, respondents were randomly assigned to either the loaded or neutrally framed question used in the Eurobarometer survey (See Fig. 3). Note that we overcome the main weakness of the Eurobarometer survey, in that all respondents see the following unique filtering question: "Have you been to a public healthcare practitioner such as a GP (general practitioner) or a public healthcare institution such as a public hospital in the past 12 months?". We also avoid potential priming and do not use the corruption prompt used in the Eurobarometer survey. This allows us to isolate the effect of the framing only.

We also collect information about respondents' socioeconomic status and elicit respondents' empirical beliefs about the behaviors of others. These beliefs form descriptive social norms on bribery (Bicchieri, 2016). Descriptive norms are the beliefs an individual holds about the behaviors of others *like them* and are significantly associated with higher prevalence of informal payments, as demonstrated in Parvanova (2024). Given their importance as a driver of the practice, it is important to understand how the design of questions about one's beliefs affect respondents' willingness to share their views. Therefore, we ask respondents how often they think people like them pay informally when trying to obtain healthcare services using the same framing treatment as in the question about experiences with informal payments.

The survey was administered using Qualtrics between November 2023 and February 2024. The balance checks presented in Table 2 confirm the validity of the randomization. Using the relevant parametric (*t*-test) and non-parametric tests (Wilcoxon rank-sum test) we evaluate the differences across treatment arms. The only significant difference in the pooled sample is the share of respondents who experienced difficulty
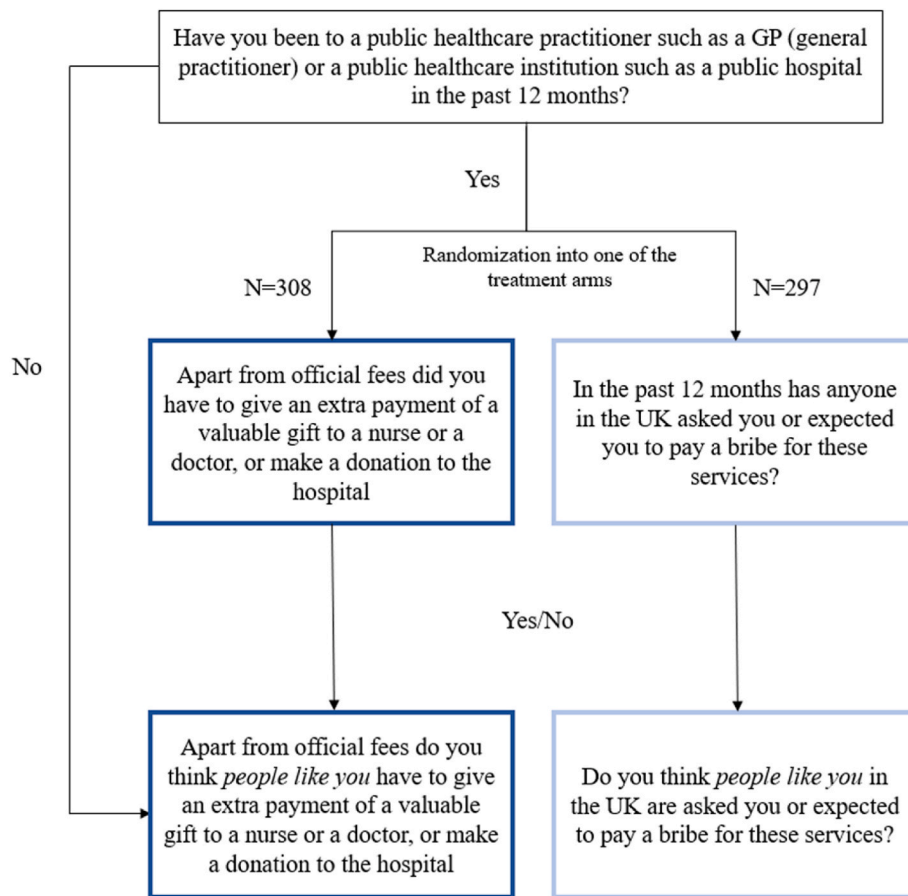
Fig. 3. Experimental survey flow.

Table 2
Descriptive statistics and baseline checks.

	Pooled sample				Bulgaria				United Kingdom			
	Total	Neutral	Loaded	p-value	Total	Neutral	Loaded	p-value	Total	Neutral	Loaded	p-value
Female	0.57	0.55	0.60	0.21	0.56	0.51	0.60	0.12	0.59	0.58	0.59	0.87
	0.02	0.03	0.03		0.03	0.04	0.04		0.03	0.04	0.04	
Age	41.61	41.02	42.21	0.27	42.03	41.51	42.57	0.47	41.12	40.46	41.81	0.40
	0.54	0.79	0.74		0.74	1.06	1.03		0.80	1.19	1.07	
University degree	0.53	0.52	0.54	0.76	0.62	0.62	0.62	0.88	0.43	0.42	0.44	0.75
	0.02	0.03	0.03		0.03	0.04	0.04		0.03	0.04	0.04	
Unemployed	0.19	0.20	0.19	0.62	0.15	0.15	0.14	0.76	0.25	0.26	0.24	0.68
	0.02	0.02	0.02		0.02	0.03	0.03		0.03	0.04	0.04	
Social status	6.60	6.68	6.51	0.25	6.61	6.64	6.58	0.76	6.58	6.73	6.43	0.19
	0.08	0.10	0.11		0.10	0.14	0.14		0.11	0.15	0.17	
Ability to pay bills	0.49	0.51	0.47	0.31	0.50	0.56	0.44	**0.03**	0.48	0.46	0.51	0.41
	0.02	0.03	0.03		0.03	0.04	0.04		0.03	0.04	0.04	
N	605	308	297		321	164	157		284	144	104	

Notes: Reporting mean values across all variables with standard errors in brackets. Age is the respondent's age in years. Higher education is 1 if the respondent has a higher education degree and 0 otherwise. Unemployed is 1 if the respondent is unemployed, in full-time education or on disability benefits and not in any type of employment, and 0 otherwise. Social status is a self-assessed social status on a scale from 1 to 10. Difficulty paying bills is 1 if the respondent has had difficulty paying their bills in the past 12 months (occasionally or most of the time) and 0 otherwise (never or almost never). The p-values reported is the result of a Wilcoxon rank-sum test between treatment arms for all binary variables and t-tests for age and social status.

paying their bills in the past 12 months. The balanced randomization generally holds within countries as well, except for the share of respondents who had difficulty paying their bills in Bulgaria (p-value = 0.03).

4.1.3. Research hypotheses and statistical strategy

Following the empirical findings from the paper, we focus on testing three hypotheses using experimental data.

The first step in our analysis is confirming that the levels of our two outcomes vary across the two countries. We hypothesize that Bulgaria has higher levels of self-reported experience with informal payments and share of individuals who believe that others like them engage in such payments (**Research Hypothesis 1**). Confirming discrepancies across between the two countries will help us infer whether there are differential treatment effects across different settings.

Most countries in the Eurobarometer sample exhibit a higher

prevalence of informal payments in the neutral framing. We hypothesize that the survey experiment will provide causal evidence that the neutral framing increases self-reported prevalence (**Research Hypothesis 2**).

First, we assess the impact of framing by comparing the reported prevalence of informal payments in the two different wordings. We test the difference with a non-parametric rank-sum test and linear probability models. We perform this analysis for our pooled sample and the two country-specific subsamples.

To test this Research Hypothesis, we estimate the following linear probability regression equation:

$$IP_i = \beta_0 + \beta_1 * T_{Loaded i} + \epsilon_i$$

In our model IP_i is a binary outcome measure showing whether respondent i has reported having experience with informal payments or not. The regression coefficient β_1 is the effect of being in the loaded framing treatment arm. $T_{Loaded i}$ is a binary indicator which takes the value 0 when respondent i is in the neutral treatment group, and 1 otherwise. It shows the change in the probability of reporting experiences with informal payment relative to the reference group, which in this case is the neutral framing group. The mean prevalence in the latter is therefore given by the constant coefficient β_0 and determines the outcome IP_i when $T_{Loaded i} = 0$. We estimate robust standard errors.

Next, we will explore how framing shapes respondents' beliefs about others' experiences with informal payments. Parvanova (2024) establishes the importance of understanding norms about these payments. Therefore, it is essential to understand how framing affects the elicitation of these beliefs. We hypothesize that being exposed to neutral wording will increase the belief that others engage with informal payments (**Research Hypothesis 3**).

We test our hypothesis regarding empirical beliefs about the behavior of others as a driving mechanism for paying informally. To do this, we test the effect of framing using non-parametric tests and formal regression analysis. We estimate a regression of the form:

$$Beliefs_i = \beta_0 + \beta_1 * T_{Loaded i} + \epsilon_i$$

The components of the model are the same as above with the exception of the outcome variable $Beliefs_i$ which in this case refers to reported beliefs about the behaviors of others.

4.2. Results

4.2.1. Impact of question wording on reported beliefs about informal payments

Next, we find that framing also impacts the empirical beliefs about the experience of others with informal payments. The results from this analysis are reported in Fig. 4 and Table 3.

Two important results emerge. First, the overall difference in share of respondents who believe others like them engage in informal payments is almost 6 sixfold between Bulgaria (43.9%) and the UK (7.74) independent of framing. The result of a non-parametric Mann-Whitney U (MWU) test shows that this difference s significant (p-value <0.0001). This discrepancy mirrors differences in the overall corruption level we discussed in the sections above.

Next, we find that using neutral framing results in higher prevalence of informal payments-related beliefs across our three samples compared to the loaded framing. In Table 3 we report the mean prevalence of these beliefs in the neutral framing groups across the three samples. 30.8% of all respondents reported making an informal payment. These estimates were 49.4% and 9.7% in Bulgaria and the UK, respectively.

In Table 3 we also demonstrate that the treatment effect is negative across all three samples. We find it to be significant in Bulgaria (−0.112, p-value = 0.044) and in the pooled sample (−0.079, p-value = 0.027). Importantly, these trends mirror our results from our analysis of reported prevalence and provide support for **Research Hypothesis 3.**
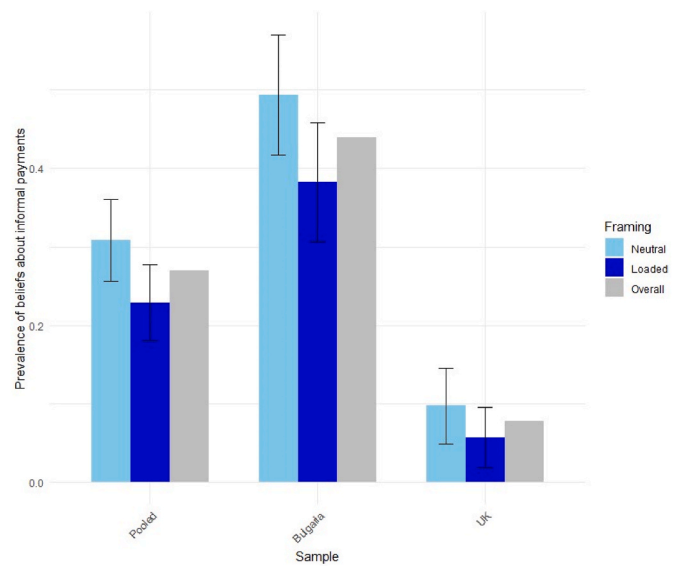

Fig. 4. Share of respondents who believe that others like them make informal payments across samples and by treatment group.

Table 3
Linear regression results about the effect of framing on beliefs prevalence across samples.

	Pooled	Bulgaria	United Kingdom
Loaded framing	−0.079**	−0.112**	−0.040
	(0.036)	(0.055)	(0.032)
Mean (Neutral framing, Prevalence of beliefs about the experience of others)	0.308	0.494	0.097
	(0.026)	(0.039)	(0.025)
N	605	321	284

Notes: Robust standard errors are reported in brackets. Significance stars levels - "***" < 0.01, "**" < 0.05, "*" < 0.1.

4.2.2. Impact of question wording on reported prevalence of informal payments

To study the effect of framing on reported prevalence of payments, we utilize non-parametric tests and linear regression analysis, see Fig. 5 and Table 4. We find that the levels of self-reported experience of informal payments depend on the wording of the question.

First, there is a lot of heterogeneity in the levels of experienced corruption regardless of treatment groups (see Fig. 5). While overall 15.7% (n = 95) of participants reported having experience informal payments in the pooled sample, this proportion is 24.3% (n = 78) in
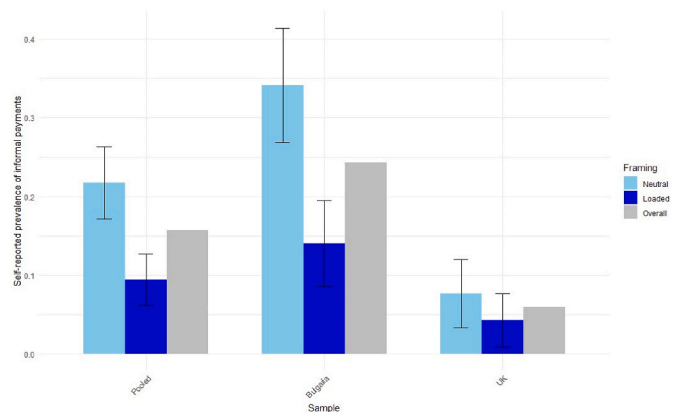

Fig. 5. Self-reported prevalence of informal payments across samples and treatment groups.

Table 4
Linear regression results about the effect of framing on reported experiences across samples.

	Pooled	Bulgaria	UK
Loaded Framing	−0.123***	−0.201***	−0.034
	(0.029)	(0.046)	(0.028)
Mean (Neutral framing, prevalence of self-reported experiences)	0.218	0.341	0.076
	(0.024)	(0.037)	(0.022)
N	605	321	284

Notes: Robust standard errors reported in brackets. Significance stars levels - "***" < 0.01, "**" < 0.05, "*" < 0.1.

Bulgaria compared to 5.9% (n = 17) in the UK. Using a non-parametric MWU test we confirm that this difference is statistically significant (p-value <0.001). These trends are aligned with the levels of corruption in both countries reported elsewhere (Transparency International, 2016) and provide evidence in support of **Research Hypothesis 1**.

Second, we find that 21.8% of all respondents in the neutral framing treatment arm report making an informal payment. Breaking these results down by country, we estimate that 34.1% and 7.6% of respondents paid informally in Bulgaria and the UK, respectively.

In Table 4 we report the results of a linear regression model showing the negative effect of using loaded framing on the self-reported prevalence of informal payments. The effect of the loaded framing is negative and significant in the pooled sample (−0.123, p–value <0.001) and Bulgaria (−0.201, p-value <0.001).

Overall, our regression analyses show that across samples loaded framing reduces mean self-reported experience. These results lend support for **Research Hypothesis 2.**

4.3. Discussion

Our experimental analysis demonstrates the causal link between question framing and respondents sharing their experiences with bribery in healthcare mirroring the overall trends discussed in Study 1. First, we show that framing a question neutrally leads to higher reported prevalence of informal payments. However, this relationship was only documented in the case of Bulgaria underscoring that these effects are context specific. Importantly, we also show that in Bulgaria the framing effects do not only determine how participants discuss their own experiences but also their beliefs about others'. The share of respondents who believe that others like them paid informally was significantly lower for the group receiving a loaded question.

Notably, our results are significant only among our respondents in Bulgaria. This could be driven by the small number of participants in the UK who had reported making an informal payment, making it impossible to detect any effect. Alternatively, there are underlying differences in the sensitivity of respondents to framing changes in different contexts. Further research could establish how this sensitivity varies not only between settings but also within them.

The results in Study 2 are based on an online survey experiment using a commercial panel provider for the recruitment of participants. These come with several limitations. First, the pool of participants in such companies is often used for multiple studies which might lead to lack of attention and fatigue. To circumvent this, we excluded observations which had response time lower than a minute. Using a panel provider for survey experiments poses a threat to the external validity of our findings. However, we have ensured that our samples are representative in terms of age and gender for each of the respective populations they represent. Moreover, drawing inferences about the effects of framing in the UK is difficult due to the small number of respondents who had any experience with informal payments.

5. General discussion

Overall, we report the results of two separate analyses (descriptive

and causal) exploring framing effects in measuring informal payments in healthcare and the impact this has on its estimated prevalence. We show that neutral framing of informal payments (*additional payments and gifts*) is associated with a significantly higher estimate of their prevalence compared to the loaded framing (*bribe*) across most countries in the Eurobarometer sample and in our experimental analysis. We find that framing impacts not only self-reported prevalence but beliefs about others' engagement with informal payments as well.

In this study we present the first causal analysis of framing effects on self-reports of informal payments. Our findings provide supporting evidence to the suggestions made by the United Nations Office for Drugs and Crime's Manual on Corruption surveys (UNODC, 2018). Specifically, they suggest using neutral words in questions about experience with corruption (i.e. removing loaded words) and formulating the question in a *forgiving* way, absolving the respondent of any potential guilt. These suggestions are grounded in the literature on measuring sensitive topics which posits that neutral language reduces social desirability bias and increases the likelihood of truthful responses (Stalans, 2012). Building on findings from Parvanova (2024) and the wider literature on corruption and social norms (Köbis et al., 2020), we demonstrate that framing also impacts the elicitation of underlying beliefs about the behaviors of others. Our results show that beliefs, as well as the norms they inform, could represent a mediator between question wording and self-reported experience (MacKinnon et al., 2002). In other words, framing affects prevalence measures through its impact on the beliefs respondents hold about others like them. Further analysis is needed to assess the significance of this mediation effect.

The impact of neutral wording demonstrates another important aspect in the study of informal activities – "the aesthetics of deception" referring to respondents' ability to dissociate from their actions (Fridell et al., 2008). The language used by people to describe petty corruption often provides morally positive frames, linked to gratitude, charity, and gifting fundamentally stripped of any connection to potential wrongdoing (Ledeneva, 2018). This allows individuals to distinguish their actions from the actions of others they might disapprove of (Fridell et al., 2008). "Gratitude payments" are used in the context of informal payments in healthcare as a "myth" making an unacceptable practice more acceptable (Gaal, 2006). While using neutral wording allows us to capture a higher prevalence of informal payments, further research is necessary to understand whether such framing might in turn be increasing the moral permissibility of certain actions (Fridell et al., 2008).

In our descriptive analysis we also find that there are several countries (Poland, Hungary, Slovakia and Croatia) where the loaded framing results in higher reported prevalence. This result illustrates the varying effects of corruption framing in different countries which complicate large cross-country measurement efforts. While designing surveys used for comparisons across time and countries, such as the Eurobarometer, there is an important trade-off between measures grounded in universalism, i.e. using the same definition and measures across contexts for the purpose of comparability, or particularism (Rothstein, 2014). In other words, using neutral questions which might elicit higher prevalence in some countries could mean underreporting in others. As we have demonstrated in Table 1, in recent years the Eurobarometer has shifted towards using neutral framing only. Notably, the countries in our analysis where reported prevalence is higher after the loaded question are all associated with relatively high underlying levels of corruption and would yield high social benefit form accurate measures of corruption incidence. However, there are several high corruption countries where neutral framing is associated with higher prevalence. Therefore, we cannot ascertain that underlying corruption levels are the only driver of the framing differences we capture in our Eurobarometer analysis.

We have already listed some of the limitations associated with the Eurobarometer data – lack of randomization, potential priming, and differing filtering questions. We have also listed the limitations of Study 2, especially associated to the use of a commercial panel provider when

recruiting our experimental sample including both internal and external validity concerns. While we were able to overcome or address these shortcomings, further research is needed to circumvent some of the inherent difficulties of studying informal payments. As discussed, corruption is not the seeming driver of the discrepancies reported in Fig. 2. Future experimental studies could establish the latent factors driving this grouping. Our experimental sample comprised of respondents from Bulgaria and the UK. While these countries have varying degrees of petty corruption, they do not encompass the three types of settings described through the Eurobarometer. Including more and different countries in an experimental sample could help test and determine the drivers of these framing effects.

6. Conclusion

In conclusion, we find that using neutral wording in surveys measuring corruption in healthcare leads to higher self-reported prevalence across countries with varying underlying levels of corruption. Given the difficulties in circumventing biases in corruption measurement, our results provide meaningful implications for academic research and policy organizations working on understanding and fighting corruption. It is, however, important to underline that the neutralization of practices such as informal payments can be another way to normalize them. In the long run, this might prove to create an even more robust norm in societies where such exchanges have become an inevitable part of the doctor-patient relationship. Therefore, it is important to understand how creating and exacerbating narratives around informal payments not only affect short term measures but potentially long-term attitudes. Additional research could shed light on the link between country-specific framings of informal payments for healthcare. It is important to understand how framing informal payments with terms not directly linked to corruption (e.g., *všimné* (*expressing gratitude with a small gift*) in Slovakia, *Biombo medico* (*bamboo curtain*) in Costa Rica or *aploksne* (*envelope*) in Latvia) affects individuals' descriptive (*what others do*) and injunctive (*what others think is the moral thing to do*) norms regarding the practice as there has been evidence of these norms' effect on actual behavior.

CRediT authorship contribution statement

Iva Parvanova: Writing – review & editing, Writing – original draft, Visualization, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Mylene Lagarde:** Writing – review & editing, Supervision, Methodology, Investigation.

Ethics statement

Funding declaration

Declaration of competing interest

The authors declare no conflicts of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2024.117521.

Data availability

Data will be made available on request.

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