

# Trust as Key to Health Sector Reforms

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Globally, the coronavirus disease (COVID-19) pandemic has sparked unexpected and violent outbursts against doctors, nurses, and other health personnel. In the Indian context, studies on violence against doctors and other medical staff largely focus on supply–demand imbalances in health care, overcrowding, drug shortages, negligence of critical care patients, lack of diagnostic and other essential devices (e.g., X-ray and ultrasound equipment and oxygen cylinders), deaths of patients, and bribery and corruption (collusion between doctors and pharmaceutical companies). While these factors explain such violence against medical personnel partly, we argue that it is largely rooted in a lack of trust in doctors and hospitals, which eroded rapidly during the COVID-19 pandemic. We analyze the covariates of trust in public and private health-care providers based on an all-India panel survey and delineate policies to rebuild trust, especially in public health care.

*Keywords:* COVID-19 pandemic, health personnel, India, trust, violence

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## I. Introduction

Globally, the coronavirus disease (COVID-19) pandemic has resulted in massive deaths, unimaginable pain and misery, and immense economic hardship. It has also sparked unexpected, violent outbursts against doctors, nurses, and other health personnel across the world, triggered by the deaths of COVID-infected patients. As observed by McKay et al. (2020, p. 1743): “Nurses and doctors have been pelted with eggs and physically assaulted in Mexico. In the Philippines, a nurse was reportedly attacked by men who poured bleach on his face, damaging his vision. Across India, reports describe health-care workers being beaten, stoned, spat on, threatened, and evicted from their homes.” These are but a few examples of the horrific violence the health-care personnel have experienced across numerous countries since 2020.

Pervasive evidence of citizens’ declining trust in health-care providers during the COVID-19 pandemic—fueled by reports of excess deaths and amplified by misinformation, fear of contagion, misplaced anger, and the consequent brutal attacks on health-care providers—warrant scrutiny of health system failures. Although multiple reforms have been proposed, in our view, trust is key among them. To rebuild trust, we must first understand the covariates of trust in public and private hospitals. To address this gap, we conducted a detailed econometric analysis.

In the Indian context, studies on violence against doctors and other medical staff largely focus on supply–demand imbalances in health care, overcrowding, drug shortages, negligence of critical care patients, lack of diagnostic and other infrastructural facilities (e.g., X-ray and ultrasound equipment and oxygen cylinders), deaths of patients, and bribery and corruption (collusion between doctors and pharmaceutical companies and between the latter and politicians). While these factors offer some explanation, following the research of Tucker et al. (2015) and Nie et al. (2018), we argue that such violence is largely rooted in a lack of trust in doctors and hospitals.

This paper has three research questions: (i) What is the root cause of the violence that erupted during the COVID-19 pandemic? (ii) If the answer is a lack of trust in doctors and hospitals, what are the reasons for this lack and/or erosion of trust? (iii) If trust varies between private and public health-care providers, what are the reasons for this? We address these questions by analyzing a unique all-India panel survey, the India Human Development Survey (IHDS) released in 2015, and other recent evidence reported in the media.

Although there is abundant literature on the factors associated with trust and health outcomes in low- and middle-income countries, there are just a few studies based on India. As our literature survey shows, important contributions have been

made, but several rely on small surveys and ethnographic research (e.g., Gopichandran and Sakthivel 2021). We attempt to fill this gap.

We have used an ordered probit (OP) model to analyze the covariates of trust in public and private hospitals based on two waves of a panel survey. We have not used instrumental variable regression;<sup>1</sup> nor could we use fixed or random effects.<sup>2</sup> Therefore, the findings are essentially associations. With regard to the issue of reverse causality, if trust in public hospitals in 2012, for example, is associated with per capita income in 2005, the priority in time of the latter rules out reverse causality. In any case, a rich set of covariates in this study allows us to capture variation in the trust variable.

We found that the lower socioeconomic strata in India—including the least wealthy, lower castes, and those not highly educated—display high confidence in public health care. As these strata are also more vulnerable to impoverishment due to exorbitant medical costs, enhancing efficiency through the reduction in waiting times, appropriate utilization of equipment and other facilities, quick diagnosis, periodic follow-ups, and maintenance of a hygienic environment would reinforce their trust. At the same time, the affluent, better educated, and better networked remain skeptical of and show low trust in public health care. Enhanced efficiency in public health care and greater transparency in medical procedures and services would help build trust among them.

The rest of the paper is organized as follows. In section I.A, we review the relationship between trust in health care and health outcomes through different processes (e.g., adherence to the prescribed treatment). Section I.B offers a review of the salient features of India's health system, including the growing prominence of private health care and failures in the provision of satisfactory health care in both the private and public sectors. Section I.C examines the close correspondence between trust and confidence, and the reliability and validity of these measures. Section II focuses on the materials and methods used for the analysis. Section II.A reviews the salient features of IHDS that is the basis of our econometric analysis. Section II.B offers a brief exposition of the OP analysis since the trust variable has three ordinal levels. Section II.C broadly explores how trust in public and private hospitals varies by age, gender, assets, rural or urban location, caste, education, the

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<sup>1</sup>It is not for lack of trying various instruments in a two-stage least squares specification. In the reduced form equation, the dependent variable was “different levels of trust and confidence in public and private hospitals.” This was instrumented by “cost/fee of treatment” and “waiting period for outpatient services.” However, neither worked. Thus, we use a lagged dependent variable and other explanatory variables.

<sup>2</sup>If there were three waves of the panel survey, it would have been feasible to use fixed or random effects.

presence of noncommunicable diseases (NCDs) and disabilities, social networks, state-level affluence, and a measure of extreme inequality. Section III focuses on the interpretation of the econometric results and their significance. Section III.A examines the divergences and similarities in the covariates associated with trust in public and private hospitals. Section III.B discusses the findings from a policy perspective. Section III.C focuses on the potential regulation of imperfect health-care markets. Section III.D outlines the limitations of this analysis. Section IV offers a concise summary of our main findings and explores the formidable challenge of rebuilding the trust in health care that eroded rapidly during the COVID-19 pandemic.

### **A. Trust and Health Care**

In this subsection, we discuss briefly whether trust takes a particular form in health care.

The literature on trust focuses on its two types—institutional and interpersonal (Luhmann 1990, Giddens 1994). Accordingly, analyses of trust in health systems highlight the nature of trust in health-care institutions and their representatives. For instance, Gilson (2003) drew attention to the key role of trust in health-care personnel and health systems. She elaborated on this further in her editorial in Gilson (2005), which reviewed debates on trust as well as its impact on the performance of health systems.

Health systems are inherently relational; therefore, many of the challenges they face are relationship problems. Indifferent or rude staff behavior toward patients causes dissatisfaction that even competent technical care cannot offset. Thus, trust is a relational notion: It generally lies between people, people and organizations, and people and events—and evolves over time.<sup>3</sup>

Our literature review suggests that trust (i) is associated with better access to and utilization of medical care; (ii) increases the likelihood that patients recommend a particular treatment to others; (iii) may affect the effectiveness of and adherence to treatment; (iv) favorably influences the quality of interactions, degree of disclosure, amount of autonomy in decision-making, continuity of care, and level of engagement in behavioral change; and (v) is associated with better self-reported health (Ozawa and Sripad 2013).

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<sup>3</sup>Public trust in health systems includes experiences with, and perceptions of, clinicians, as they are the face of health services at the local level. But public trust may also be broader than the relationships between patients and providers and include health-care systems and sociopolitical systems that shape cultural beliefs and values about health and health care (Calnan and Kane 2018).

Based on a 2008 household survey in the People's Republic of China, Tang (2011) examined whether patients' trust in medical services and their attitude toward the country's health policy have a significant influence on their overall satisfaction with medical services and subsatisfaction with their current medical experience. The analysis used OP models to test the different correlations between these factors.<sup>4</sup>

As Russell (2005) illustrated, the level of trust in patient–provider relationships influences health-seeking behaviors in urban low-income settings (e.g., Colombo, Sri Lanka). Mistrust of public providers increases the financial burden associated with illness and impoverishment by discouraging patients from seeking public health care.

Another important aspect is understanding the role of trust in health outcomes (Lee and Lin 2009). Their analysis supported the instrumental role of trust in clinical outcomes. Further, they found that trust mainly has an indirect impact on clinical outcomes—through the mediating process of patient adherence. To explore this link, the cognitive factors underlying this mediating process are investigated. This confirmed the motivating value of the two cognitions—self-efficacy and outcome expectations—as important antecedents of adherence.

How do patients choose between public and private health-care providers? A study of health-care providers in Cambodia suggests that people trust public providers for their medical skills, the transparency of the referral system, and lack of corruption in patient interactions, while private providers are trusted to deliver comfortable and easy treatment at patients' homes (Ozawa and Walker 2011).

There is a significant association between public spending on health per capita and the choice of medical provider (Mulcahy et al. 2021). Particularly, higher public health spending is associated with a greater reduction in the odds of choosing a private clinic (outpatient) compared to a government clinic (outpatient) among the most deprived as compared to the most affluent. These results suggest that in India, policies that increase public health expenditure are associated with a shift in health-care-seeking behaviors toward greater uptake of government medical services. Moreover, Mulcahy et al. (2021) proposed that improving the quality of public health-care providers will eventually lead to an improvement in the quality of private

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<sup>4</sup>Health-care markets have developed differently in the People's Republic of China and India, which is an important reason for the different regulatory pathways taken. However, a striking similarity is that neither country has an overarching strategy for regulating its health-care markets. A high proportion of the health-care financing in both countries is attributed to private and out-of-pocket payments, which is a sign that health-care markets have been left to grow on their own and have underused financing mechanisms to pursue regulatory objectives (Bloom, Kanjilal, and Peters 2008). Therefore, the inclusion of this study is relevant to learn from the People's Republic of China's experience despite the differences in health-care systems.

health-care providers through increased competition. This is plausible but has not been established empirically.

Institutions identified as important to fostering patient trust range from ethical commitment and ownership (Tanzania) to effective complaint and accountability and scrutiny mechanisms (South Africa, Tanzania) and organizational arrangements that support providers through the provision of equipment and drugs (Sri Lanka, South Africa) (Gilson 2005).

## **B. Salient Features of India's Health System**

The demand for health care in India grew over the 2004–2014 period, but it has not been matched by higher government spending on hospital care and increased insurance coverage. As a result, households in India have remained the main source of health-care financing at 67.7% of total health-care expenditure in 2014, slightly lower than the share of 71.1% a decade earlier.<sup>5</sup>

As a consequence, a greater proportion of households now face catastrophic hospital care bills. In 2014, of the households that incurred health expenditure amounting to at least 40% of their average consumption expenditure, about 30% were in the bottom average consumption expenditure quintile, while only about 12% were in the top quintile. Besides, the distribution of health expenditure across average consumption expenditure quintiles has worsened over time, as the shares of the lower quintiles have increased faster than the shares of the higher quintiles (Almeida et al. 2017).

The National Sample Survey reveals a steady decline in the use of public hospitalization services in the past 2 decades (1995–2014), with a greater decline seen in urban areas. When analyzed by wealth quintile, we see that richer households use public services less in both urban and rural areas. Thus, the poor bear the brunt of largely unsatisfactory public health services.

In 2014, the private sector provided more than 70% of the outpatient care and more than 60% of the inpatient care in India. Thus, private practitioners are the first point of contact in both rural and urban areas. However, there are glaring heterogeneities. For example, a high proportion, and in some areas even the majority, of private providers are unqualified or underqualified (Patel et al. 2015).<sup>6</sup>

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<sup>5</sup>For a more detailed description of India's health system, see Kulkarni, Kulkarni, and Gaiha (2019).

<sup>6</sup>There is evidence that the frontline market often acts as a prohibitively high barrier to access services from private providers, forcing the poorest users to seek treatment from unqualified providers (for outpatient care) and public hospitals (for inpatient care). Since public hospitals function poorly in many areas, a large segment of the poor has to seek admission to private hospitals even at the risk of impoverishment (Bloom, Kanjilal, and Peters 2008).

In 2014, the Ministry of Health and Family Welfare launched the National Urban Health Mission to address the health needs of the urban poor and subsequently merged the National Rural Health Mission and the National Urban Health Mission. The expansion of public health services has been distributed inequitably and with glaring disparities between states and across urban and rural areas. Moreover, the quality of health care offered at public health facilities is often uneven and sometimes abysmal (Patel et al. 2015).

With a few exceptions, the quality of care in the organized private sector is unsatisfactory as well. Dishonest practices, such as overbilling and the prescription of unnecessary procedures and diagnostic tests, abound. Kickbacks from referrals to other doctors and pharmaceutical companies and suppliers of medical devices are also rife. Such practices remain unchecked because of weak regulatory systems due to which citizens' trust in private health care has eroded.

At the high end of the market, the private sector offers state-of-the-art services. Taking advantage of comparatively low labor costs, "5-star" hospitals, with facilities comparable to the most advanced hospitals in Organisation for Economic Co-operation and Development countries, have thrived. However, misdiagnosis, negligence, and overbilling are not uncommon in these institutions despite their exorbitant fees (e.g., Almeida et al. 2017).

A recent study in India traces a familiar line of investigation: (i) patients' grievances (e.g., withholding a dead body until a final settlement of bills); (ii) doctors' grievances (e.g., corporate hospitals have a set protocol of how to proceed with a patient of a given disease even if a simple protocol will do); and (iii) doctors' hesitation in filing a complaint or a first information report against the accused or angry relative as the resolution is unusually slow—especially when assault cases are driven by mob violence—and workplace factors including communication barriers, political pressure, and heavy workload (Bhattacharya, Kaushal, and Singh 2018).

### **C. Definition of Trust**

Trust is ambiguous and fuzzy and, thus, difficult to define. Trust in medical services can be seen as trust in a physician and the medical institutions, which involves two questions: "Whether the physician and medical institutions are competent to make a diagnosis and provide treatment" and "whether the physician and medical institution will act in the best interest of the patient" (Hall et al. 2001, Tang 2011, Ozawa and Sripad 2013). It is also argued that trust is inseparable from vulnerability, in that there is no need for trust in the absence of vulnerability (Hall et al. 2001). Broadly, the extent of trust depends greatly on the patients' circumstances, the extent of risk, the

characteristics of their illness and needs, and their access to information. In particular, significant variations in trust are observed across major illnesses (breast cancer, Lyme disease, and psychiatric disorder) (Mechanic and Meyer 2000).<sup>7</sup>

A patient's overall satisfaction with a medical service is driven by their satisfaction with doctor–patient interactions, the treatment process, the waiting time at the hospital, the medical facilities and hospital environment, and the medical costs (Hall et al. 2001, Tang 2011). However, the extent of trust in a known physician is driven by different factors than trust in a medical institution. The former is based mainly on personal experience and individual personality, while the latter depends more on the aforementioned factors as well as on legal and regulatory protection and media exposure.

However, there are some commonalities in the basis of trust across both individual physicians and hospitals. Since there are interactions between trust in a physician and in a hospital, due to a possible halo effect, a patient's trust in their personal physician may influence their trust in a hospital or a health plan affiliated with the physician. The reverse may be true as well (i.e., institutional trust may influence individual trust) (Hall et al. 2001).<sup>8</sup>

In the measurement of trust, it is commonly used synonymously with confidence (Baker 2020). Global and regional surveys follow this norm as well. As González and Smith (2017) noted, in the case of institutional trust, questions traditionally follow a template (e.g., “Do you have confidence in your...”), followed by a list of institutions such as government, legislature, judiciary, and police. The wording across surveys varies considerably in terms of the general construction of the questions and in the use of the term “trust” or one of its synonyms (e.g., confidence). As described in section II, two rounds of IHDS follow this prevalent convention of using trust and confidence synonymously. To assess the quality of the medical treatment received, the respondents were asked to rank hospitals and doctors in terms of their level of confidence: “hardly any confidence,” “only some confidence,” and “a great deal of confidence.”

Based on IHDS data, our descriptive statistics illuminate these aspects of trust and confidence with the caveat that we have not controlled for confounding variables.

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<sup>7</sup>Drawing upon Kane, Calnan, and Radkar (2015), trust is made up of intentional trust and competence trust, with the latter being embedded in the former. The trustor or patient harbors positive expectations regarding the competence of the trustee (competence trust); the trustor also expects that the trustee will work in his or her best interest (intentional trust). Thus, the trustor and trustee have allied interests. Communicating well and in a timely manner are identified as critical factors for the development and maintenance of trust-based relations between doctors and patients (and communities).

<sup>8</sup>How system trust and interpersonal trust relate to each other is complex. Trust in a particular care provider does not necessarily translate into trust in the medical profession or in the system as a whole or vice versa (Kane and Calnan 2016).



Typically, accuracy has two dimensions: reliability and validity. The reliability of a metric is the degree to which repeated measures of the same subject produce the same results. In other words, a reliable measure involves minimal “noise” or random errors in the process. On the other hand, validity depends on whether the measure in question is biased or whether it displays correlations with variables that are plausible proxies.

As far as the reliability of trust and confidence in hospitals is concerned, between 2005 and 2012, we find that a large share remained at the same level of trust.<sup>9</sup> Besides, as trust and confidence build over time, we find large fractions of those with “only some confidence” and those with “hardly any confidence” experienced an increase in trust.

Following the distinction between reliability and validity of the trust and confidence metrics, what is indeed striking is that households with the highest prevalence of NCDs show greater confidence in public health care than those without NCDs. Moreover, it is found that households with low assets are highly disinclined to trust public health care and government hospitals. As these correlations from cross-tabulations are plausible, the validity of our measure of trust and confidence in health care cannot be rejected out of hand.<sup>10</sup>

## II. Materials and Method

What does this study aim to accomplish? In light of our review of the extant literature on the covariates of trust in health care and whether trust influences health outcomes, we admit that our study has modest aims. Our focus is confined to factors associated with trust and confidence in public and private hospitals, drawing upon two rounds of IHDS conducted in 2005 and 2012. Our inability to link trust in health care to health outcomes is, in part, a result of data constraints that do not allow us to examine who was admitted or examined for which ailment and the period of recovery. However, this does not detract from the usefulness of this study as it is the first of its kind, based on an all-India panel survey. Moreover, it yields useful policy insights in the context of the violence during the COVID-19 pandemic, stemming from the

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<sup>9</sup>Trust and confidence in 2005 were not disaggregated into public and private health care. However, this distinction was made in 2012. This makes it hard to examine the evolution of trust in private and public health care in IHDS accurately.

<sup>10</sup>A descriptive analysis of trust and confidence in private health care is available upon request. However, OP results with control for other covariates yield marginal associations that differ from the average relationships reported here.

erosion of trust in health care and its providers—especially in government hospitals. Thus, our study promises to make a substantial contribution in the Indian context.

### **A. Data**

Our analysis draws upon two rounds of the nationally representative IHDS, conducted in 2005 and 2012 by the University of Maryland in the United States and the National Council of Applied Economic Research in New Delhi. The data were uploaded to the National Council of Applied Economic Research–University of Maryland website in 2015 (Desai, Vanneman, and National Council of Applied Economic Research, New Delhi 2018). The first round (IHDS-I) covered 41,554 households during 2004–2005. The second round (IHDS-II) involved reinterviews with 83% of the original households, as well as split households residing within the same locality, and an additional sample of 2,134 households, for a total of 42,152 households covered. This is the only all-India panel survey that has familiar merits.

The classification of hospitals and doctors into public and private is somewhat arbitrary, as there is considerable heterogeneity in health-care providers. One of the difficulties is that a nonnegligible share of doctors and other health personnel in public hospitals also engage in private practice. Another and perhaps a more serious concern is the large number of so-called medical practitioners who are more often than not “quacks”—unqualified and unlicensed—who are predominant in rural areas (Das 2016).

To assess the quality of medical treatment received, the respondents were asked to rank hospitals and doctors in terms of their level of confidence: “hardly any confidence,” “only some confidence,” and “a great deal of confidence.” “A great deal of confidence” is used interchangeably with “high confidence.”

To avoid reverse causality, trust in public and private hospitals in 2012 was attributed to general trust in 2005 and other explanatory variables, including socioeconomic characteristics (e.g., caste, assets and wealth, rural or urban residence, and education); demographic characteristics (e.g., age, gender, and marital status); social networks; exposure to mass media; and macroeconomic variables (e.g., state affluence, extreme inequality).<sup>11</sup>

### **B. Methods**

We have used a probit specification to obtain marginal associations of an explanatory variable with an ordered dependent variable. In the probit model, the

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<sup>11</sup> Refer to Table 1 for the detailed definitions used.

inverse standard normal distribution of probability is modeled as a linear combination of the predictors. OP is a generalization of the widely used probit analysis to the case of more than two outcomes of an ordinal dependent variable (a dependent variable for which the potential values have a natural ordering, as in health status: bad, satisfactory, or excellent).

Let us begin with a latent variable specification:

$$y^* = \beta'x + \varepsilon,$$

where  $y^*$  is unobserved. What we do observe is the following:

$$y = \begin{cases} 0 & \text{if } y^* \leq 0, \\ 1 & \text{if } 0 < y^* \leq \mu_1, \\ 2 & \text{if } \mu_1 < y^* \leq \mu_2, \\ J & \text{if } \mu_{j-1} \leq y^*. \end{cases}$$

The  $\mu$ s are unknown parameters to be estimated with  $\beta$ . Suppose there is a health survey to assess the health status of an individual. The respondents have preferences, which depend on certain measurable factors—such as age, gender, and wealth—and some unmeasurable factors distributed independently of the observed factors,  $\varepsilon$ . The essential ingredient is the mapping from an underlying naturally ordered preference scale to a discrete-ordered observed outcome, in terms of ordinal measures of health status (e.g., bad, satisfactory, or excellent). Given only, say, three possible answers, they choose the cell that most closely represents their preferences (Greene 2003).

It is assumed that  $\varepsilon$  is normally distributed. The mean and variance are normalized to 0 and 1, respectively.

The marginal effects and associations are different from the OP regression coefficients. Both the sign and magnitude of marginal effects and associations vary with the ordered outcome. As Greene (2003) offered a detailed account of how the marginal effects and associations are calculated, we have refrained from an exposition here.<sup>12</sup> Note that in this context, marginal effects are synonymous with marginal associations.

The Wald test examines the linear restrictions  $\beta_1 = \beta_2 = \dots = \beta_{j-1}$  or  $H_0: \beta_q - \beta_1 = 0, q = 2, \dots, J - 1$ .

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<sup>12</sup>The OP model ensures that the aggregate probabilities of the three trust outcomes equal 1 (Greene 2003).

### C. Descriptive Statistics

Table 1 gives the means, standard deviations, and ranges of variables used in our econometric analysis. Note that without any control for confounding variables, these relationships are merely descriptive. With controls, some associations may change.

A comparison across asset quartiles in 2005 showed that the most affluent (i.e., those in the fourth quartile) have the lowest share of “high confidence,” and the least affluent have a higher share (but still a majority) of “high confidence” in the public provision of health care. In sharp contrast, in 2012, the most affluent have a

Table 1. List of Variables, Definitions, and Descriptive Statistics

Variable	Mean	Std Dev	Minimum	Maximum
Confidence: private hospitals and doctors (2012)	1.691	0.546	0	2
Confidence: government hospitals and doctors (2012)	1.415	0.680	0	2
Confidence: medical services (2005)				
Hardly any confidence at all	0.092	0.289	0	1
Only some confidence	0.284	0.451	0	1
Health insurance (2005)				
Yes	0.023	0.151	0	1
Asset quartile (2005) (Based on PCA)				
Q2	0.249	0.433	0	1
Q3	0.267	0.442	0	1
Q4	0.236	0.424	0	1
Sector				
Urban	0.274	0.446	0	1
Caste				
General	0.258	0.437	0	1
SC	0.229	0.420	0	1
ST	0.085	0.279	0	1
Highest education (2005)				
Illiterate	0.235	0.424	0	1
Classes 1–5	0.163	0.369	0	1
Classes 11–14	0.112	0.316	0	1
Graduate	0.123	0.328	0	1
Average NCD HH (2005) (Incidence)				
0–0.2	0.081	0.272	0	1
0.2–0.25	0.027	0.162	0	1
>0.25	0.053	0.224	0	1
Average disability HH (2005) (Incidence)				
0–0.31	0.019	0.136	0	1
0.31–0.6	0.016	0.127	0	1
>0.6	0.022	0.146	0	1
Conflict in the village (2005)				
Yes	0.472	0.499	0	1

*Continued.*

Table 1. *Continued.*

Variable	Mean	Std Dev	Minimum	Maximum
Proportion of members in the household aged 60 and 60+	0.086	0.211	0	1
Number of married women in the household	1.378	0.807	0	8
Number of married men in the household	1.319	0.777	0	8
Radio (men) (2005)				
Regularly	0.140	0.347	0	1
Radio (women) (2005)				
Regularly	0.115	0.319	0	1
Newspaper (men) (2005)				
Regularly	0.171	0.377	0	1
Newspaper (women) (2005)				
Regularly	0.086	0.281	0	1
TV (men) (2005)				
Regularly	0.317	0.465	0	1
TV (women) (2005)				
Regularly	0.375	0.484	0	1
Social network (2005) (membership)				
1	0.179	0.383	0	1
>1	0.169	0.375	0	1
Ratio of the share of the top 1% to the bottom 50% in total income	0.462	0.121	0.2255	0.8582
Net state domestic product (2005) (INR)	22,420	9,071	7,914	63,877

HH = household, INR = Indian rupee, NCD = noncommunicable disease, PCA = per capita assets, Q = quarter, SC = scheduled caste, ST = scheduled tribe, Std Dev = standard deviation, TV = television. Source: Authors' computations based on the India Human Development Survey.

substantially higher share of “high confidence” in the private provision of health care than in public health care, which is slightly higher than among the least affluent.

An important marker of socioeconomic status is educational attainment. We focus on the highest educational level attained by an adult in a household. The categories used comprise illiterates, those with a primary education or less (1–5 years), middle school and above (6–10 years), matriculates and above (11–14 years), and graduates. Somewhat surprisingly, graduates have the lowest share of “high confidence” in public medical services (just above 50%), while those with primary education or less have the highest share. However, there is a reversal in private health care. Graduates have the highest share of “high confidence” and those with primary education or less have the lowest share.

What is striking is that those with the highest prevalence of NCDs display a higher share of “high confidence” in public health care than those without NCDs, though the difference is small. A similar pattern is observed in private health care, with those (households) with the highest prevalence of NCDs comprising a slightly

higher share of “high confidence” than those without NCDs. However, the highest share belongs to those with the lowest burden of NCDs.

### III. Results and Discussion

As argued, trust in health care is key to preventing violence against health personnel, which is sudden, unimaginable, and widespread. To develop this argument, we conducted a detailed econometric analysis of the covariates of trust in public and private health care. Here, we interpret and reflect upon key findings from a broad policy perspective, focusing mainly on areas where building trust would be rewarding.

We begin with a brief and selective discussion of the covariates of trust in public hospitals and doctors, and their significance.

#### A. Public Health Care versus Private Health Care

The overall specification for trust in both public and private health care is validated by the Wald test. Our comments are confined to marginal effects and associations based on the OP specification, as these are of considerable policy interest. The results for public and private health care are given in Tables 2 and 3, respectively.

Table 2. **Marginal Effects and Associations from the Ordered Probit Regression of Confidence: Government Hospitals and Doctors (2012)**

	Hardly Any Confidence	Some Confidence	A Great Deal of Confidence
	<i>dy/dx</i>	<i>dy/dx</i>	<i>dy/dx</i>
Confidence: medical services (2005)			
Hardly any confidence at all	0.0118** (0.0059)	0.0126** (0.0060)	-0.0243** (0.0118)
Only some confidence	0.00163 (0.0036)	0.00184 (0.0040)	-0.0034 (0.0076)
Health insurance (2005)			
Yes	0.0111 (0.0096)	0.0117 (0.0096)	-0.0228 (0.0192)
Asset quartile (2005)			
Q2	0.0108** (0.0047)	0.0123** (0.0054)	-0.0231** (0.0101)
Q3	0.00614 (0.0048)	0.00714 (0.0056)	-0.0133 (0.0103)
Q4	0.00737 (0.0055)	0.0085 (0.0064)	-0.0159 (0.0119)

*Continued.*

Table 2. *Continued.*

	Hardly Any Confidence	Some Confidence	A Great Deal of Confidence
	<i>dy/dx</i>	<i>dy/dx</i>	<i>dy/dx</i>
Sector			
Urban	0.0147*** (-0.0038)	0.0158*** (-0.0040)	-0.0306*** (-0.00775)
Caste			
General	0.000388 (0.0040)	0.000418 (0.0043)	-0.0008 (0.0084)
SC	-0.0143*** (0.0041)	-0.0169*** (0.0050)	0.0312*** (0.0091)
ST	-0.00233 (0.0063)	-0.00255 (0.0069)	0.00489 (0.0132)
Highest education (2005)			
Illiterate	0.00205 (0.0047)	0.00237 (0.0054)	-0.00442 (0.0101)
Classes 1–5	-0.00329 (0.0048)	-0.00391 (0.0058)	0.0072 (0.0106)
Classes 11–14	0.0122** (0.0054)	0.0133** (0.0057)	-0.0256** (0.0111)
Graduate	0.0165*** (0.0058)	0.0175*** (0.0058)	-0.0340*** (0.0116)
Average NCD HH (2005)			
Min<0.2	2.73E-06 (0.0061)	3.04E-06 (0.0068)	-5.77E-06 (0.0130)
0.2–0.25	-0.0165** (0.0077)	-0.0204** (0.0104)	0.0369** (0.0181)
>0.25	-0.000711 (0.0076)	-0.000796 (0.0085)	0.00151 (0.0160)
Average disability HH (2005)			
Min<0.31	-0.0157* (0.0090)	-0.0193 (0.0121)	0.0349* (0.0211)
0.31–0.6	0.0154 (0.0137)	0.0157 (0.0128)	-0.0311 (0.0266)
>0.6	-0.00545 (0.0088)	-0.0063 (0.0105)	0.0117 (0.0193)
Conflict in village (2005)			
Yes	-0.0138*** (0.0032)	-0.0155*** (0.0037)	0.0293*** (0.0069)
Proportion of members in the household aged 60 and 60+	-0.00287 (0.0082)	-0.00322 (0.0092)	0.00609 (0.0174)
Number of married women in the household	-0.0133*** (0.0050)	-0.0150*** (0.0056)	0.0283*** (0.0106)
Number of married men in the household	0.0159*** (0.0050)	0.0178*** (0.0056)	-0.0337*** (0.0106)

*Continued.*

Table 2. *Continued.*

	<b>Hardly Any Confidence</b>	<b>Some Confidence</b>	<b>A Great Deal of Confidence</b>
	<i>dy/dx</i>	<i>dy/dx</i>	<i>dy/dx</i>
Radio (men) (2005)			
Regularly	0.0119* (0.0072)	0.0127* (0.0073)	-0.0246* (0.0144)
Radio (women) (2005)			
Regularly	-0.0119* (0.0070)	-0.0140 (0.0087)	0.0259* (0.0157)
Newspaper (men) (2005)			
Regularly	-0.0134*** (0.0052)	-0.0159** (0.0064)	0.0293** (0.0115)
Newspaper (women) (2005)			
Regularly	0.00935 (0.0065)	0.0100 (0.0067)	-0.0194 (0.0132)
TV (men) (2005)			
Regularly	0.00672 (0.0053)	0.00743 (0.0058)	-0.0142 (0.0111)
TV (women) (2005)			
Regularly	0.00313 (0.0054)	0.00349 (0.0060)	-0.00662 (0.0114)
Social network (2005)			
1	0.0211*** (0.0046)	0.0231*** (0.0047)	-0.0442*** (0.0093)
>1	0.0277*** (0.0045)	0.0293*** (0.0043)	-0.0570*** (0.0087)
Proportion of members in the household aged 60 and 60+	-0.0667*** (0.0111)	-0.0748*** (0.0123)	0.1420*** (0.0233)
Net state domestic product (2005) (INR)	-3.03E-06*** (0.0000)	-3.40E-06*** (0.0000)	6.44E-06*** (0.0000)
Number of observations	34,961		

*dy/dx* = derivative of *y* with respect to *x*, HH = household, INR = Indian rupee, NCD = noncommunicable disease, Q = quarter, SC = scheduled caste, ST = scheduled tribe, TV = television.

Notes: \*\*\**p* < 0.01, \*\**p* < 0.05, and \**p* < 0.1. Numbers enclosed in parentheses are standard errors.

Source: Authors' computations based on the India Human Development Survey.

Due to the absence of disaggregated data on confidence in public and private hospitals and doctors in 2005, we use the combined measure of confidence as an explanatory variable.

Relative to “high confidence” in 2005, “hardly any confidence” has a significant positive association with “hardly any confidence” and “some confidence,” but a negative association with “high confidence” in public health care in 2012. Thus, those with “low confidence” in 2005 are more likely to show “low confidence” and “some



Table 3. Marginal Effects and Associations from the Ordered Probit Regression of Confidence: Private Hospitals and Doctors (2012)

	Hardly Any Confidence	Some Confidence	A Great Deal of Confidence
	<i>dy/dx</i>	<i>dy/dx</i>	<i>dy/dx</i>
Confidence: medical services (2005)			
Hardly any confidence at all	0.0009 (0.0031)	0.0026 (0.0084)	-0.00358 (0.0115)
Only some confidence	0.0047** (0.0019)	0.0121** (0.0049)	-0.0168** (0.0069)
Health insurance (2005)			
Yes	-0.0005 (0.0050)	-0.0012 (0.0130)	0.00174 (0.0183)
Asset quartile (2005)			
Q2	-0.00255 (0.0025)	-0.0066 (0.0066)	0.0091 (0.0091)
Q3	0.00111 (0.0027)	0.0028 (0.0068)	-0.0039 (0.0095)
Q4	-0.0079*** (0.0030)	-0.0215*** (0.0081)	0.0294*** (0.0110)
Sector			
Urban	-0.0011 (0.0020)	-0.0030 (0.0052)	0.0042 (0.0071)
Caste			
General	0.0031 (0.0021)	0.0083 (0.0056)	-0.0114 (0.0076)
SC	0.0091*** (0.0024)	0.0237*** (0.0060)	-0.0328*** (0.0084)
ST	0.00391 (0.0031)	0.0106 (0.0082)	-0.0145 (0.0112)
Highest education (2005)			
Illiterate	-0.0004 (0.0025)	-0.0009 (0.0065)	0.0013 (0.0090)
Classes 1-5	0.0003 (0.0026)	0.0007 (0.0068)	-0.0009 (0.0094)
Classes 11-14	-0.0051* (0.0027)	-0.0138* (0.0074)	0.0188* (0.0100)
Graduate	-0.0003 (0.0030)	-0.0007 (0.0080)	0.0010 (0.0110)
Average NCD HH (2005)			
Min-0.2	0.0021 (0.0033)	0.0055 (0.0085)	-0.0077 (0.0117)
0.2-0.25	1.04E-06 (0.0048)	2.75E-06 (0.0128)	-3.79E-06 (0.0176)
>0.25	0.00448 (0.0043)	0.0115 (0.0106)	-0.0160 (0.0148)
Average disability HH (2005)			
Min-0.31	-0.0068 (0.0047)	-0.0190 (0.0139)	0.0259 (0.0186)

*Continued.*

Table 3. *Continued.*

	Hardly Any Confidence	Some Confidence	A Great Deal of Confidence
	$dy/dx$	$dy/dx$	$dy/dx$
0.31–0.6	–0.0092* (0.0049)	–0.0263* (0.0152)	0.0356* (0.0201)
>0.6	0.0005 (0.0049)	0.0013 (0.0127)	–0.0018 (0.0175)
Conflict in village (2005)			
Yes	–0.0011 (0.0017)	–0.0028 (0.0045)	0.0039 (0.0063)
Proportion of members in the household aged 60 and 60+	–0.0025 (0.0043)	–0.0065 (0.0114)	0.0090 (0.0157)
Number of married women in the household	–0.0044 (0.0030)	–0.0117 (0.0078)	0.0161 (0.0108)
Number of married men in the household	0.0018 (0.0029)	0.0047 (0.0077)	–0.0064 (0.0107)
Radio (men) (2005)			
Regularly	0.00545 (0.0049)	0.0139 (0.0120)	–0.0194 (0.0169)
Radio (women) (2005)			
Regularly	0.0006 (0.0048)	0.00145 (0.0126)	–0.0020 (0.0174)
Newspaper (men) (2005)			
Regularly	–0.0056** (0.0028)	–0.0152* (0.0078)	0.0207* (0.0106)
Newspaper (women) (2005)			
Regularly	0.0014 (0.0036)	0.0037 (0.0094)	–0.0052 (0.0130)
TV (men) (2005)			
Regularly	–0.0038 (0.0029)	–0.0101 (0.0078)	0.0138 (0.0107)
TV (women) (2005)			
Regularly	–0.0002 (0.0031)	–0.0005 (0.0081)	0.0007 (0.0111)
Social network (2005)			
1	0.00627*** (0.0023)	0.0166*** (0.0059)	–0.0228*** (0.0082)
>1	0.0113*** (0.0026)	0.0287*** (0.0061)	–0.0401*** (0.0086)
Ratio of the share of the top 1% to the bottom 50% in total income	0.0354*** (0.0056)	0.0934*** (0.0147)	–0.1290*** (0.0203)
Net state domestic product (2005) (INR)	1.04E–06*** (0.0000)	2.73E–06*** (0.0000)	–3.77E–06*** (0.0000)
Number of observations	34,947		

$dy/dx$  = derivative of  $y$  with respect to  $x$ , HH = household, INR = Indian rupee, NCD = noncommunicable disease, Q = quarter, SC = scheduled caste, ST = scheduled tribe, TV = television.

Notes: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ . Numbers enclosed in parentheses are standard errors.

Source: Authors' computations based on the India Human Development Survey.

confidence,” and less likely to show “high confidence” in 2012. This association is also the strongest in absolute magnitude.

“Some confidence” in 2005 is associated positively with “low confidence” and “some confidence,” but negatively with “high confidence” in private hospitals and doctors in 2012. The absolute magnitude is also the highest for the negative association. These results are similar to those for public health care but for (initial) “hardly any confidence.”

Relative to the least affluent (the first asset quartile), households in the second quartile display higher probabilities of “hardly any confidence” and “some confidence,” but a lower probability of “high confidence” in public hospitals. In terms of absolute magnitude, this association is the strongest. The more affluent (i.e., third and fourth quartiles) do not show any significant associations with confidence outcomes.

In contrast to public health care, it is the most affluent (i.e., those in the fourth quartile) who display lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence” in private hospitals and doctors, relative to the least affluent. The absolute magnitude of the positive association is the strongest. Presumably, this reflects their greater affordability of more expensive private health care.

Relative to rural households, those living in urban areas in 2005 show a positive association with “hardly any confidence” and “some confidence,” but a negative association with “high confidence” in public hospitals. This association is also the strongest in absolute magnitude. Thus, relative to rural households, urban ones are more likely to show “hardly any confidence” and “some confidence,” but less likely to show “high confidence” in 2012.

Unlike confidence in public health care, relative to rural households, urban ones do not show any significant associations with varying levels of confidence in private health care in 2012.

Considering caste affiliations, the scheduled castes (SCs) show lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence” in public hospitals, compared to the omitted group of other backward castes. This marginal effect or association is also the strongest in absolute magnitude.

Relative to the other backward castes, the SCs show higher probabilities of “hardly any confidence” and “some confidence,” but a lower probability of “high confidence” in private hospitals. This marginal effect or association is also the strongest in absolute magnitude. Although SCs also show significant associations with confidence in public health care, the signs differ, as there are negative associations with “hardly any confidence” and “some confidence,” but a positive association with “high

confidence.” Since SCs are relatively more deprived, they are likely to have limited access to expensive private health care except for low-quality, unlicensed private practitioners and quacks, resulting in a lower probability of “high confidence.”<sup>13</sup>

Two educational categories possess significant associations with confidence in public health care. Relative to those with an education of 6–10 years, those with 11–14 years of education are more likely to have “hardly any confidence” or “some confidence,” and are less likely to have high confidence in public health care. Similarly, graduates are more likely to have “hardly any confidence” and are less likely to have “high confidence” in public health care. At both levels of education, the strongest association in absolute magnitude is with “high confidence.” If longer years of education impart greater awareness of misdiagnosis and negligence in public health care, it is likely to breed skepticism and, thus, lower trust.

In contrast to public hospitals and doctors, where households with higher levels of education of 11–14 years and graduates show significant associations with different levels of confidence, only those with 11–14 years of education display lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence” in the case of private health care. This marginal effect or association is also the strongest in absolute magnitude. Another contrast is that long years of education imply greater skepticism of the quality of public health care but not private health care. How much of this difference is attributable to better awareness of the quality of private health care for those with long years of education can only be conjectured.

A moderate burden of NCDs (20%–25% of members suffering from NCDs per household) is associated with lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence.” This marginal effect or association is also the strongest in absolute magnitude.

In another contrast to public health care, relative to households without NCD patients, varying shares of NCD burden do not show any significant association with different levels of confidence in the case of private health care.

Relative to those without any disability, the lowest range of disability burden (0%–31%) is associated with a lower probability of “hardly any confidence,” but

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<sup>13</sup>In an interesting comment, Das (2016) was emphatic that there is little difference in the quality of care provided by doctors in public clinics and informal providers. In Madhya Pradesh and West Bengal, for example, fully trained (with a bachelor’s degree in medicine and surgery) doctors are the worst culprits when it comes to giving unnecessary medicines and antibiotics—and even more so when they are in public sector clinics. Given the huge concern about antibiotic resistance in India, this finding comes as a surprise and turns the usual narrative of blame on its head. However, it is not self-evident whether this is a comprehensive critique and is generalizable to other states in India.

a higher probability of “high confidence” in public health care. The former is also stronger in absolute magnitude.

In contrast to public health care, relative to households without any disability, it is households with a high burden of disabilities (31%–60%) who show negative associations with “hardly any confidence” and “some confidence,” but a positive association with “high confidence” in private health care. The lowest range of disability burden shows negative associations with “hardly any confidence” and “some confidence,” but a positive association with “high confidence” in public health care. If the high burden of disabilities involves multiple disabilities (e.g., vision and speech impairments) and private hospitals are better equipped to treat them, this contrast between public and private health care is plausible.

Conflict in a village is associated with lower probabilities of both “hardly any confidence” and “some confidence,” but a higher probability of “high confidence.” This is somewhat surprising as medical supplies and services are likely to be disrupted during a protracted conflict. On the other hand, saving lives and attending to injuries are likely to inspire confidence.

The numbers of married women and men in a household yield contrasting results. The larger the number of married women, the lower the probabilities of “hardly any confidence” and “some confidence,” and the higher the probability of “high confidence.” This marginal effect or association is also the strongest in absolute magnitude.

The larger the number of married men, the higher the probabilities of “hardly any confidence” and “some confidence,” and the lower the probability of “high confidence.” This association is also the strongest in absolute magnitude.

One explanation for this contrast is that if married women are less demanding and less aggressive in their health-seeking behaviors than married men, they are more likely to be satisfied with the medical treatment offered and, thus, display more confidence. Women are also allowed to visit a hospital or doctor only for serious ailments (e.g., cardiovascular disease); therefore, their encounters with hospital staff, including doctors, are likely to be fewer than those of men, and, thus, they are less likely to complain of negligence and mistreatment.

Other contrasts relate to nonsignificant associations of conflict and the numbers of married women and men with varying levels of confidence in private health care. As in public health care, the proportion of old members in a household is unrelated to confidence in private health care.

The role of media is much maligned for amplifying cases of alleged misdiagnosis and deaths and for exaggerating shortages of drugs and diagnostic machines (e.g., X-ray and ultrasound machines). However, there are prominent cases where the

media has exposed corrupt practices and revenue-maximizing procedures—especially in 5-star corporate hospitals—raising the bar of accountability.

In this analysis, we were able to distinguish marginal effects or associations between trust and exposure to media by gender. Relative to “never” or “negligible” radio listenership, regular listenership in men is associated with higher probabilities of “hardly any confidence” and “some confidence,” but a lower probability of “high confidence” in public health care. This association is also the strongest in absolute magnitude. The results for women differ—regular radio listenership is associated with a lower probability of “hardly any confidence” but a higher probability of “high confidence.” To what extent these differences reflect differences in the programs that they listen to requires scrutiny.

Relative to “never” or “negligible” newspaper readership in men, regular readership is associated with lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence.” Much depends on the coverage of radio news channels and local newspapers and whether coverage of health-care episodes is better in the latter. Women’s confidence is unaffected by newspaper readership as they may have fewer opportunities to read the newspaper, considering the typical Indian domestic lifestyle. Somewhat surprising is the lack of a significant association between regular television viewership and confidence in government hospitals and doctors.

The results for media exposure differ too. Relative to “not listening to the radio” or “sometimes,” regular listenership in men is associated with significantly lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence” in private hospitals. This marginal effect or association is also strongest in absolute magnitude. Unlike public health care, regular newspaper readership is not associated with any confidence outcomes. Nor did we find any significant associations for women.

Social networks comprise *mahila mandals* (women’s associations), self-help groups, religious groups, and caste associations, among others. However, we do not know how frequently these associations and groups meet. Broadly, membership in such networks potentially helps in multiple ways: as a source of information on health-care providers, mitigating distress among the old and other vulnerable sectors, and, sometimes, providing limited financing of health-care expenses. Which particular component dominates the confidence outcome is an empirical question. For example, if the quality of public provision of health care is abysmal, social networks may discourage the use of these facilities.

Relative to nonmembership, membership of networks (1 or >1) yields significant and similar associations with confidence outcomes in both public and private health

care.<sup>14</sup> Specifically, membership in networks is positively associated with “hardly any confidence” and “some confidence,” and negatively associated with “high confidence” in private health care.

As noted earlier, social networks add to the awareness of local providers of health care among the poor and old, and occasionally help fund health-care costs for them. If there are shortfalls in health-care delivery and exorbitant costs, social networks are likely to disseminate such information and add to the skepticism of community members about the quality of health care and undermine their trust.

The overall economic environment is of considerable significance too. We used two measures: state affluence—measured in terms of per capita (net) state domestic product—and Piketty’s (2014) measure of inequality in state income distribution in terms of the ratio of the share of the top 1% to that of the bottom 50% in state income.

State affluence is associated with lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence” in public health care. We presume that more affluent states tend to fund public health care better due to larger revenues.

Unlike public health care, state affluence is associated with higher probabilities of “hardly any confidence” and “some confidence,” but a lower probability of “high confidence” in the case of private health care. This negative association is also the strongest in absolute magnitude. Although statistically significant, these associations are economically negligible. If state affluence is associated with better quality of public health care (e.g., through better funding of government hospitals and clinics), it may inspire greater trust in public health care. At the same time, if this raises the bar for health care, there may be greater mistrust in private health care.<sup>15</sup>

We found that the higher the Piketty measure, the lower the probabilities of “hardly any confidence” and “some confidence,” and the higher the probability of “a great deal of confidence” in public health care. One explanation of this is that greater income and wealth tax revenues facilitate the financing of public health care. Another is the tax exemption of private donor funding for specialty centers and hospitals since health is a public good.

While income inequality is associated with lower probabilities of “hardly any confidence” and “some confidence,” and a higher probability of “high confidence,” in public health care, the probabilities for “hardly any confidence” and “some confidence”

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<sup>14</sup>A data limitation is that we do not know whether membership involves regular meetings.

<sup>15</sup>See Almeida et al. (2017).

are higher and the probability of “high confidence” is lower in private health care. Consider hypothetically, two states in India that have the same income levels, but one state has a higher share of the top 1% compared to the other. In this case, the share of the bottom 50% will be lower. Greater deprivation is likely to be associated with a greater reliance on informal providers of health care and a lower probability of “high confidence” in private hospitals. Though this is a plausible scenario, there may be others. Therefore, our finding of a lower probability of “high confidence” in private hospitals deserves further scrutiny.

## **B. Policy Perspective**

Let us now view these results from a broad policy perspective. As noted earlier, drawing upon Mulcahy et al. (2021), policies that increase public spending on health are associated with a shift in health-care-seeking behaviors toward government medical providers in India, across gender and socioeconomic groups. They also conjectured that an improvement in the quality of public health care will eventually lead to improved private health care.

The lower socioeconomic strata—including the least wealthy, lower castes, and those not highly educated—display “high confidence” in public health care. As these strata are also more vulnerable to becoming impoverished due to the exorbitant medical fees charged by private hospitals, enhancing efficiency through the reduction in waiting times, appropriate utilization of equipment and other facilities, quick diagnosis, periodic follow-ups, and maintenance of a hygienic environment in public hospitals would reinforce their trust. At the same time, the affluent, the better educated, and the better networked remain skeptical of and show low trust in public health care. Enhancing the efficiency of this mode of health care and delivering greater transparency in medical procedures and services would help build trust among them.

Though public health care in urban areas enjoys higher confidence relative to rural areas, serious concerns remain in both sectors. While there is easier access to secondary and tertiary services in urban areas, overcrowding, perfunctory attention to and treatment of serious illnesses and complications, acute shortages of basic medical equipment, drugs, and beds, unsanitary conditions, and political interference are rampant. In rural areas, access to secondary and tertiary services is limited, as facilities are sparsely located and bribery of junior staff to get medical attention is not uncommon. Besides, shortages in essential medical equipment and services are just as acute, if not worse. Therefore, public funding has to be judicious and equitable.



What is worrying is that only households with a moderate burden of NCDs enjoy “high confidence” in public health care, while those with a higher burden do not. Many die without any treatment due to a lack of affordable private health care, but for those who can run the risk of impoverishment—the choice is limited and often grim. Equipping public hospitals to provide specialty treatments is a matter not just of providing the required equipment but also of employing specialists with the necessary skills and ensuring easier access to the chronically ill. Whether these will have spillover effects in the form of improved access and affordability of specialty treatments in private health care cannot be ruled out.

Although the ranges of disability burdens differ in their association with trust in public and private health care—moderate in the former and high in the latter—in both cases, the associations with “high confidence” in the absolute magnitude are the strongest, relative to those without any disability. If some disabilities are more prevalent than others, it is not surprising that both public and private providers are associated with “high confidence.” However, it is not unlikely that private providers are better equipped to deal with multiple disabilities. In that case, better-equipped public health care could result in a more competitive health-care market and a greater trust among the disabled.

Whether a household is a member of one or more social networks, the membership is associated with higher probabilities of “hardly any confidence” and “some confidence,” but a lower probability of “high confidence,” relative to nonmember households. The promotion of networks is not expensive as they have strong positive externalities. The creation of a network in one location promotes the creation of another in a neighboring location. There are also threshold effects of collective action (i.e., if the benefits of collective action exceed a certain threshold, the membership of, say, a self-help group may expand).

Our analysis breaks new ground by disaggregating mass media into radio, newspaper, and television—and exposure to them by gender—and examining their association with trust. Although the results vary by medium and gender, there are strong positive associations with regular exposure to media—especially in public health care. While self-censorship of news by the media to preserve their freedom has not been satisfactory, official censorship is risky as it could curb their autonomy and freedom of expression. However, it is arguable that the scope of the Press Council of India—a statutory body—must be broadened to include newspapers, radio, and television.

As health care is a state subject, higher state income facilitates more expenditure on health care (Joumard and Kumar 2014). Therefore, it is not surprising that states with higher incomes show a higher probability of “high confidence” in public health care.

A reversal is found in the association between state affluence and “high confidence” in private health care, that is, the more affluent a state is, the lower the probability of “high confidence.” However, if as a result of improvement in public health-care quality, there is a higher bar on private health care, confidence in private health care could erode. This, of course, does not rule out efficiency gains in the latter in a more competitive health-care market.

State income inequality, quantified using the Piketty measure, shows a striking contrast between public and private health care. In the former, the higher the income inequality, the higher the probability of “high confidence” in public health care. We conjecture that higher tax revenues may help fund better public health care and, hence, the positive association. There is a reversal insofar as states with higher income inequality display a lower probability of households with “high confidence” in private health care. One explanation is that, if higher inequality implies that the bottom 50% have a lower share in state income, there will be more deprived households who are unable to afford expensive but better-quality health care in private hospitals. If they are dissatisfied with public health care, they are likely to turn to the large, informal sector of quacks, unlicensed doctors, and registered medical practitioners with limited skills and expertise. Hence, such households are more likely to remain skeptical of private health care. If taxation of the extremely rich is streamlined (e.g., through plugging of loopholes, allowing them to park their investments in tax havens), extreme inequality may not necessarily be a bad thing from this perspective.

### **C. Regulation of Health Care**

The health-care market is an imperfect market with several public goods, merit goods, and private goods, with positive and negative externalities, all requiring some form of intervention to promote the public interest. Regulations can fail due to many reasons. One reason is that regulations are often influenced by interest group lobbies and that they are sometimes applied selectively, for example, due to bureaucratic self-interest, which undermines the original purpose of the regulation (Calnan and Kane 2018). At the same time, the federal nature of India’s polity adds to the complexity of the regulatory environment; both the central and state legislatures can legislate on most matters related to “health.” Many regulations promulgated at the center may not be affected by the states or may be affected partially or differently.

Over the last 2 decades, the Medical Council of India has been at the center of scandals. Not only has the response been slow, but it has also responded unimaginatively and with tighter controls, which have eventually been of little consequence (Almeida et al. 2017, Calnan and Kane 2018).

Important regulatory laws have been passed in the last decade, such as the Clinical Establishment Act, 2010, which provides for the registration and regulation of clinical establishments and prescribes minimum standards for the facilities and services provided by them. By December 2018, 11 states and all the union territories except Delhi had adopted it. The long-awaited Medical Devices Regulation Bill became an act in 2018. However, its enforcement remains feeble, as the informal medical sector continues to flourish and corruption and malpractices remain unchecked. Thus, the case for greater transparency and accountability is unexceptionable in building trust between doctors and hospitals and their patients.

The law against violence does not protect medical staff. While the Protection of Medicare Service Persons and Medicare Service Institutions (Prevention of Violence and Damage to Property) Act has been adopted by about 23 states in the country, it has not been implemented properly (Nagpal 2017). This is because the act does not feature in the Indian Penal Code, which makes it difficult for victims to approach the police for help (Garg and Datta 2021).

The state plays a central role in all health-care systems regardless of funding arrangements and the configuration of provider networks, but this is contingent on the legitimacy of its actions. A case in point is the complete loss of credibility of the Indian Council of Medical Research for the huge underreporting of COVID-19 cases and deaths.

While the case for greater public expenditure on health is unexceptionable, what is perhaps just as important is the reorganization of the health-care system. As argued emphatically by Patel et al. (2015), it is imperative to develop a fully integrated, population-based health-care system that brings the public and private sectors together with allopathic and indigenous systems and is well coordinated at different levels of service delivery—primary, secondary, and tertiary. A strengthened public health-care system could be the primary health-care provider with a defined role for the private system—especially in the provision of specialized services. *Ayushman Bharat* is a partial response to the glaring lack of medical insurance. Its weaknesses are (i) neglect of primary health care and focus on secondary and tertiary health care and (ii) uncertainty about its funding.

#### **D. Limitations**

Recent evidence confirms our premise that there is a fundamental link between lack of trust and violent attacks on hospitals and doctors during the COVID-19 pandemic. However, we are unable to corroborate it as we lack more recent data on trust in doctors and hospitals and violence against them. The most common trigger is sudden death. Other triggers include denial of admission, delay in giving care,

shortage of equipment and drugs during emergencies, and negligence and abuse by staff. Thus, the two major limitations of this study are that we do not know whether there has been an erosion of trust in health care in more recent years and we do not know how robust the link between mistrust and violence is. Nonetheless, our study offers a robust analysis of the covariates of trust in public and private health care and insights into policy options.

Another limitation is that the IHDS does not provide any data on what goes on inside public and private hospitals. For example, it will be helpful to know the waiting period per patient, the time given for consultation, facilities in the waiting area, the gap between consultation and diagnostic tests, and the availability of vaccines, oxygen cylinders, and beds. We also need to know the injustices within the medical system: the overload of junior doctors, their inability to deal with angry patients, and the lack of coordination between departments. In the absence of such data, processes underlying patient–doctor trust or mistrust cannot be examined.

#### **IV. Conclusion**

Evidence shows that mistrust sparks violence against doctors and other health personnel, frequently triggered by a patient’s death. It is necessary to shift the focus from preventing violence against physicians to restoring doctor–patient trust, as cracking down on violence and enhancing security measures are unlikely to alter the mistrust between patients and doctors and hospitals. Therefore, we focus on the covariates of trust in public and private hospitals to rebuild the trust that likely eroded sharply during the COVID-19 pandemic.

Affluence matters but in different ways. We find that those who are slightly affluent are more likely to show “hardly any confidence” and “some confidence,” and less likely to show “high confidence” in public hospitals. In stark contrast, the most affluent are less likely to show “hardly any confidence” and “some confidence,” and more likely to show “high confidence” in private hospitals and doctors. Thus, there is a clear affluence divide in trust in public and private health-care providers.

Relative to rural households, those living in urban areas in 2005 show positive associations with “hardly any confidence” and “some confidence,” but a negative association with “high confidence.” Unlike confidence in public health care, relative to rural households, urban households do not show any significant associations with varying levels of confidence in private health care in 2012.

Caste hierarchy reflects socioeconomic ranking, with the SCs and scheduled tribes at the bottom rung. Our analysis presents a striking contrast for the SCs. They show

lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence” in public hospitals, compared to other backward castes. In a reversal, the SCs show higher probabilities of “hardly any confidence” and “some confidence,” but a lower probability of “high confidence” in private hospitals. As the SCs are relatively more deprived, they are likely to have limited access to expensive private health care except for low-quality, unlicensed private practitioners and quacks, resulting in a lower probability of “high confidence.”

High radio listenership in men equates to lower “high confidence” in public health, while women are more likely to show “high confidence.” While the same is associated with “higher confidence” in private hospitals in men, it is not so for women. However, regular newspaper readership in men is associated with a greater likelihood of “high confidence” in both public and private health care. As the regular reading of newspapers is a luxury that women cannot afford, the absence of a significant relationship with “high confidence” in either private or public health care is not surprising.

Membership in social networks is potentially useful in several ways. We find that membership of networks (1 or >1) yields significant and similar associations with confidence outcomes in both public and private health care. Specifically, membership in networks is positively associated with “hardly any confidence” and “some confidence,” but negatively with “high confidence.” It seems likely that social networks yield useful information on misdiagnoses, malpractices, and, specifically, high fees in private hospitals that undermine confidence in both public and private hospitals.

It is not surprising that state affluence is associated with lower probabilities of “hardly any confidence” and “some confidence,” but a higher probability of “high confidence” in public hospitals. We presume that more affluent states tend to fund public health care better due to larger revenues. Unlike public health care, state affluence is associated with higher probabilities of “hardly any confidence” and “some confidence,” but a lower probability of “high confidence” in the case of private health care. Good-quality public health care in more affluent states could raise the bar for private hospitals and undermine trust in private health care.

A somewhat surprising revelation is that higher state-level extreme inequality is associated with a “great deal of confidence” in public health care. This is in contrast to the lowest association of extreme inequality with a “great deal of confidence” in private health care. The first finding could be a result of public health care being funded by higher tax revenues in states with higher extreme inequality. As for the second finding, we conjecture that if states with higher extreme inequality are also dominated by 5-star private hospitals, the masses will lack access to basic health care as well as chronic condition care, which will lower their trust.

Several initiatives are required to rebuild this trust. A higher health outlay should be a priority. However, what poses a formidable challenge is the reorganization of health-care provision, mainly through the strengthening of primary health-care facilities, while also monitoring chronic diseases. There are disparities in the access to and facilities for the treatment of chronic conditions between rural and urban areas. While there is easier access to secondary and tertiary services in urban areas, overcrowding, perfunctory attention to and treatment of serious illnesses and complications, acute shortages of basic medical equipment, drugs, and beds, unsanitary conditions, and political interference are rampant.

Yet another priority is to develop a fully integrated, population-based health-care system that brings the public and private sectors and allopathic and indigenous systems together, and is well coordinated at different levels of service delivery—primary, secondary, and tertiary.

The health-care market is imperfect and has many public goods, merit goods, and private goods, with positive and negative externalities, all requiring some form of intervention to promote public interests. However, regulation has been a failure because of the (i) lack of coordination between state and central governments, (ii) “capture” by interest groups, and (iii) selective application of regulations. The question is one of who will regulate the regulators.

Finally, information is a double-edged sword. It may be used for guiding individual choice between public and private health care, and it may also be misused to exaggerate cases of misdiagnoses, negligence in treatment, fatalities, and equipment and other medical supply shortages. Mass media have a potentially important role in correcting information gaps, but self-regulation of the media has been far from a resounding success.

In conclusion, though there are many daunting challenges to rebuilding trust between doctors and hospitals and their patients, they are not insurmountable.

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