Household Social Capital and Health Care Utilization and Expenditures in India: Does Caste Make a Difference?

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PAA 2019 Extended Abstract

Social capital, a term often defined as the resources to which individuals and groups have access through their social networks, has become an established social determinant of health (Agampodi et al. 2015; Moore and Kawachi 2017; Vikram 2018). However, the associations between social capital and health-related outcomes are not always identical across all social groups and may vary by ascribed or constructed characteristics such as race, gender, religion, or caste. Therefore, moving beyond the link between social capital and health, it has been argued that inequality in social capital, that is how different social groups may be embedded in different social networks and/or unequal returns of social capital for members of different social groups, deserves further exploration (Lin 2000). In this paper, we are interested in investigating how the household social capital is distributed across caste groups in India and further examining the role of social capital in ill household members' health care utilization and expenditures.

Health care utilization/access to health services has been suggested as a primary pathway by which social capital influences various health outcomes (Pitkin Derose and Varda 2009). Social capital, especially social connections to people of power and authority in society, can help leverage resource, ideas, and information, and also provide access to productive social resources including health care services. Social capital has been suggested especially important in low- and middle-income countries (LMICs) and poor communities due to its potential to reduce health disparities by establishing social ties between disadvantaged groups and people with power and influence (Agampodi et al. 2015; Story 2013; Story and Carpiano 2017). Yet, the majority of research on associations between social capital and health care utilization has focused on developed countries. Only a few have studied such research questions in developing countries and found that social capital is closely associated with maternal health services use (Story 2014), child immunization (Vikram, Vanneman, and Desai 2012), and child nutrition (Vikram 2018).

This paper is set in India, where the access to productive resources remain closely associated with socioeconomic status such as caste, and health care services are no exception (Desai and Dubey 2012). Like other developing countries, India also suffers from inequalities in health care access and uses (Balarajan, Selvaraj, and Subramanian 2011). Insufficient public health care and unequal distribution of health care resources lead to a lot of individuals with great need for health care are not able to get access to affordable and quality health care and have to seek care in unregulated health care facilities (Patel et al. 2015). Health care in India is also featured as high out-of-pocket expenditures of health spending (Balarajan et al. 2011). Annually, about 7% of the population in India is pushed below the poverty due to the burden of health care payments (Pandey et al. 2018).

Using a nationally representative data of Indian households, this paper tries to get a comprehensive understanding of caste inequalities in household social capital in India and

further examines how they are associated with the health care utilization and expenditures. We start with examining whether different caste groups possess different amounts of social capital. Instead of measuring social capital in a monolithic way, we distinguish between within-caste social capital and outside-caste social capital, where the former refers to social connections with people of their own caste, and the latter measures social capital outside their caste. We proceed to explore whether households from different castes gain different returns from what social capital they have with regard to health care outcomes. For the next step of this project, we are also interested in studying how the household social capital is associated with adult mortality within households and whether it varies across castes. We suggest that social differentials embedded in the caste stratification system may extend to inequalities in social capital.

Data

We use data from the *India Human Development Survey* (IHDS), an ongoing longitudinal study documenting changes in the daily lives of Indian households. It is a nationally representative, multi-topic survey of 41,554 households in the first wave, and 42,152 households in the second wave. In the second wave of this survey (IHDS-II), it included information about the household social capital regarding connections to various formal institutions and further differentiated sources of the social capital by caste. For this study, we restrict our sample to household members who were diagnosed as having any major chronic diseases (e.g., cataract, heart disease, diabetes), and received any medical treatment or advice during the last 12 moths of the survey, which yielded an analytical sample of approximately 16,477 individuals. Further omitting those with item missing data yielded a final analytical sample of 16,107 individuals in 13,034 households.

Measures

In this study, we measure health care utilization and expenditures using two variables: first, whether ill members of household chose to seek health care at a public or private sector health center, and second, out-of-pocket payments made on all episodes of health care (in *rupees*), excluding any payments that were later reimbursed by insurances. Utilization of public health care services was measured as a binary outcome (public = 1), and the expenditure variable was transformed using the natural logarithm and treated as a continuous outcome.

Our key independent variable, which is social capital, was measured via the variety of contacts that a household had in formal sectors, including health care, education, government, politicians, and policy/military. We measure whether a household had at least one contact in each of these five institutions/occupations and aggregate these measures to create a 0 to 5 scale that we treat as a continuous variable. This measurement derives from the network-based approach of social capital (or the position generator method) which asks respondents to identify contacts associated with a sample of occupational positions (Song 2011) and has been widely used in previous studies (Myroniuk, Vanneman, and Desai 2017; Song and Lin 2009; Story and Carpiano 2017).

To investigate whether sources of social capital make a difference, we further differentiate between the social capital accessible through connections to people in the same caste and the social capital outside their own caste. Caste was coded using the four common categories of “Forward Caste”, “Other Backward Class (OBC)”, “Scheduled Castes (*dalits*)”, and “Scheduled Tribes (*adivasis*)”. We also control for several variables which may be

related to health care utilization and expenditures in the multivariate analyses, including age, gender, household and individual socioeconomic status, severity of diseases, urbanization levels, and regions.

Methods

To examine how the household social capital is associated with the utilization of public (vs. private) sector health services, we conduct the binary logistic regression models. The association between out-of-pocket health expenditures and social capital is evaluated by linear regression models. Because our sample may include multiple individual from the same household, we further cluster the standard errors to households to allow for within-household correlations.

Our analysis is based on a sample of ill household members in the survey which may be subject to selection bias. In order to tease out selectivity issue, we are in the process of implementing methodologies such as propensity score methods to carefully take into account potential selection bias, and results will be updated in the final paper.

Preliminary Findings

Figure 1 displays the average number of household connections to five types of formal sector institutions by different caste groups, and it also differentiates between within-caste social capital and outside-caste social capital. On average, households of forward castes had 3.9 connections of formal sectors in total, with 1.8 from the caste of their own and 2.1 from different castes. By contrast, other three caste groups only had 2.5-2.8 total personal contacts with formal sectors, and they were also disadvantaged both in within-caste and outside-caste social capital.

-Figure 1 about here-

To examine how the household social capital is associated with health care utilization in Indian households, we conducted a series of multivariate analysis. Table 1 shows descriptive statistics of all variables included in the analysis for the sample as a whole and by four caste groups. Most of the health care services were provided in private sectors (66%), and pubic health care utilization was higher among dalits and advasis than forward castes and OBCs. For health care expenditures, advisis reported a lower level of health spending than other three castes. Other sociodemographic characteristics were similar to persistent caste disparities in the Indian society, with upper castes were more likely to come from rich families, live in urban areas, and advantaged in educational attainments.

-Table 1 about here-

Results from multivariate models predicting public health care utilization and health expenditures are shown in Table 2. Model 1 shows that accessing resources beyond their own castes (outside-caste social capital) was associated with decreasing rates of public health care utilization, and Model 2 shows that this association was especially stronger among advasis. Model 2, however, also finds a positive association between within-caste social capital and using public health care services among advasis. In other words, for advais, their connections to formal sectors through acquaintances of their own caste could help promote their utilization of health services provided by public sectors, while connections outside their caste was associated with the higher probability of reaching private sector health facilities (see Figure 2 for interaction effects in Model 2).

-Table 2 about here-

-Figure 2 about here-

Model 3 and Model 4 from Table 2 show results from models predicting health expenditures. In general, households spent less on their members' health care utilization if they had strong connections to public sectors through people from their own castes, after controlling for potential confounding factors. Model 4, which included interaction terms between social capital and caste, further shows that the association between within-caste social capital and health expenditures was not equally applicable for all caste groups and for OBCs, their health spending was not related to their within-caste connections with formal sectors. In terms of outside-caste social capital, although its main effect was statistically significant in Model 3, that is stronger social connections outside caste was associated with more health expenditures, interaction effects show that it was only applicable for adviasis (see Figure 3).

-Figure 3 about here-

In summary, social connections to formal sectors are not equally distributed across caste groups and returns to social capital also differ by sources and castes. Our study shows that forward castes had the largest social connections to formal sectors, and their connections with people of the same castes working in the public sectors were found to be associated with lower health care expenditures. No such association was found among OBCs. For schedule casts (dalits) and scheduled tribes (adivasis), although they had the least social capital among all castes, they benefited from their within-caste links to formal sectors in terms of health expenditures, similar to forward castes. Moreover, for adivisas, diverse and heterogeneous social connections helped them get access to both public and private health care sectors.

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Figure 1. Household Social Capital by Castes and Sources (IHDS-II)

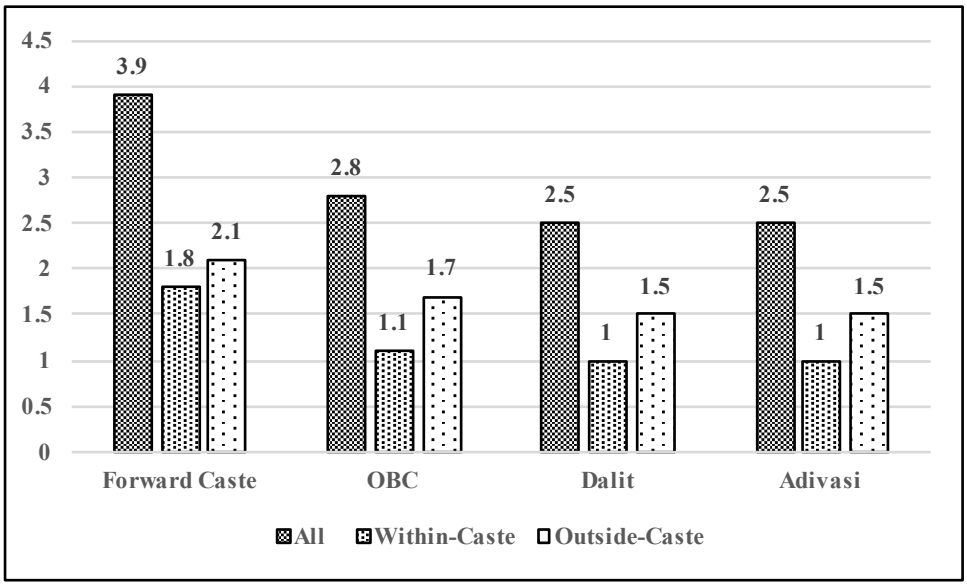

Figure 2. Predicted Probability of Public Health Care Utilization by Castes and Sources

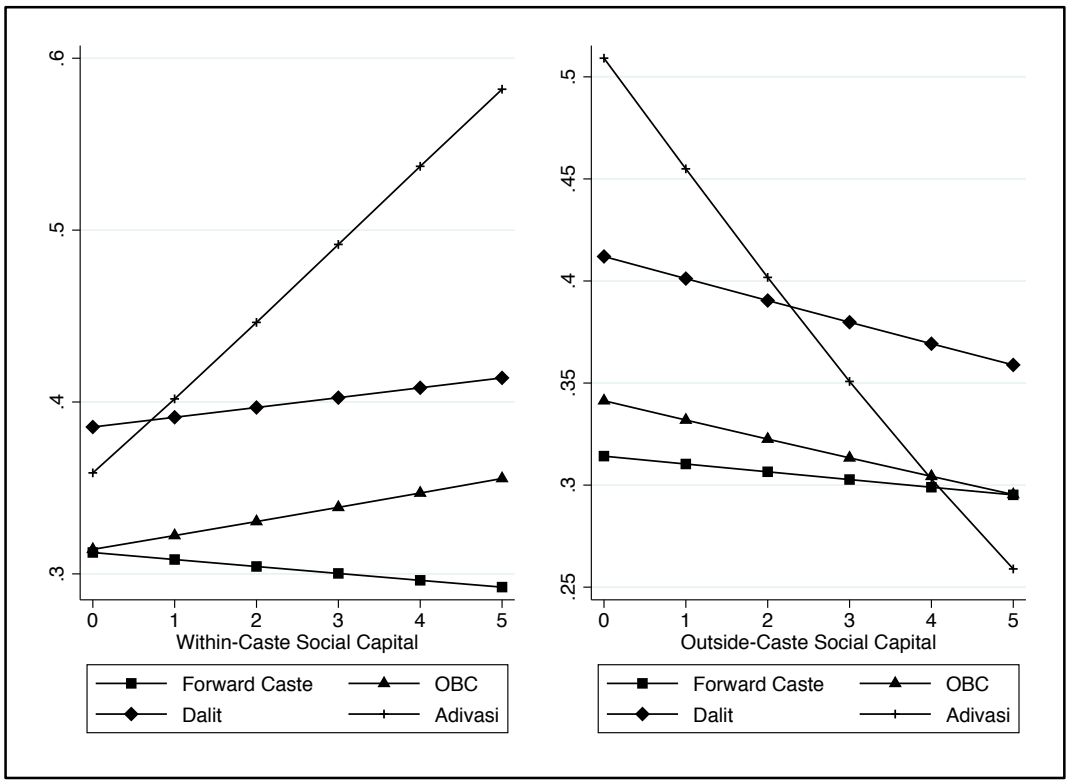

Figure 3. Predicted Health Expenditures by Castes and Sources

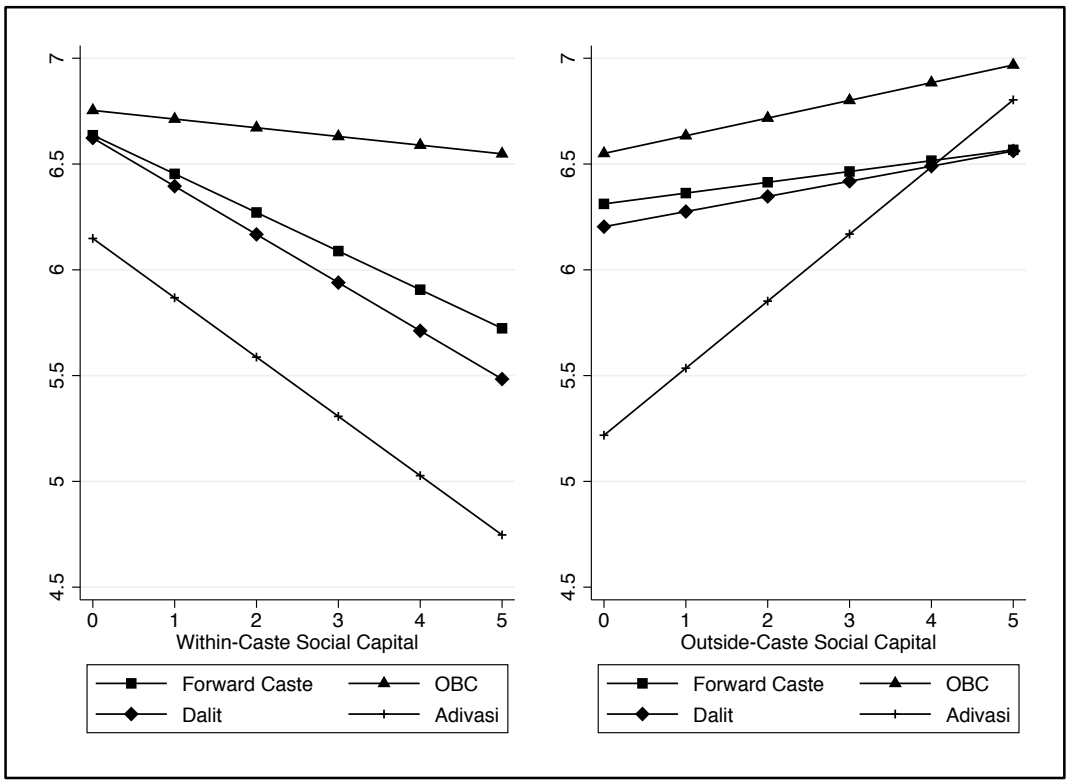

Table 1. Descriptive Statistics of Variables by Castes (IHDS-II)

	Total	Forward Caste	OBC	Dalit	Adivasi	
Public health care (%)	33.8	30.3	32.7	39.2	40.7	*
Expenditure (log+1)	6.5	6.3	6.7	6.4	5.8	*
	(3.7)	(3.9)	(3.5)	(3.7)	(3.9)	
Within-caste social capital (0-5)	1.3	1.8	1.1	1.0	1.0	*
	(1.4)	(1.5)	(1.3)	(1.3)	(1.3)	
Outside-cate social capital (0-5)	1.8	2.1	1.7	1.5	1.5	*
	(1.5)	(1.6)	(1.5)	(1.5)	(1.4)	
Age (0-99)	50.0	52.6	50.1	47.1	45.9	*
	(18.7)	(17.8)	(18.9)	(18.7)	(18.8)	
Female (%)	55.7	56.6	55.4	55.9	52.3	
Education (in years) (0-16)	4.9	6.8	4.4	3.5	3.2	*
	(4.9)	(5.1)	(4.6)	(4.4)	(4.2)	
Sick days in a year (1-365)	39.7	37.0	40.5	41.7	40.3	*
	(77.4)	(76.8)	(77.4)	(77.9)	(77.5)	
Household assets (%)						*
Poorest	14.9	4.9	15.8	21.2	38.0	
Second quantile	14.6	9.0	15.5	19.0	21.2	
Middle quantile	22.5	19.6	23.8	24.5	19.4	
Fourth quantile	21.7	24.7	22.4	19.0	10.6	
Richest	26.3	41.8	22.5	16.3	10.8	
Urban/Rural (%)						*
Metro urban	7.6	11.6	4.7	8.8	1.6	
Other urban	26.5	32.1	25.7	22.4	17.8	
Developed rural	33.1	30.0	34.7	36.2	25.6	
Less developed rural	32.8	26.3	34.9	32.6	55.0	
N of persons	16,107	4,851	6,730	3,715	811	

Notes: Values for categorical variables are in percent (with "%" following the variable labels). The mean values, followed by standard deviations in parentheses, are presented for all other variables.

*$p < 0.05$ (signifies significant differences among different caste groups on the basis of one-way ANOVA test)

Table 2. Multivariate Regression Models Predicting Public Health Care Utilization and Health Expenditures (IHDS-II)

	Public Utilization (Logistic Regression)		Expenditures (OLS Regression)	
Variables	Model 1	Model 2	Model 3	Model 4
Within-caste social capital	0.023	-0.019	-0.144***	-0.182***
	(0.017)	(0.029)	(0.029)	(0.049)
Outside-caste social capital	-0.045**	-0.018	0.076**	0.051
	(0.014)	(0.026)	(0.024)	(0.045)
Caste (ref. = forward caste)				
OBC	0.089	0.052	0.307***	0.059
	(0.049)	(0.078)	(0.083)	(0.135)
Dalit	0.393***	0.375***	-0.018	-0.050
	(0.056)	(0.084)	(0.097)	(0.145)
Adivasi	0.480***	0.563***	-0.608***	-0.969***
	(0.090)	(0.132)	(0.163)	(0.240)
Within-caste social capital x Caste				
Within-caste capital * OBC		0.057		0.141*
		(0.038)		(0.066)
Within-caste capital * Dalit		0.043		-0.045
		(0.045)		(0.079)
Within-caste capital * Adivasi		0.209**		-0.098
		(0.076)		(0.138)
Outside-caste social capital x Caste				
Outside-caste capital * OBC		-0.025		0.032
		(0.035)		(0.057)
Outside-caste capital * Dalit		-0.027		0.020
		(0.040)		(0.068)
Outside-caste capital * Adivasi		-0.205**		0.266*
		(0.070)		(0.118)
Age	0.007***	0.007***	-0.018***	-0.018***
	(0.001)	(0.001)	(0.002)	(0.002)
Female	-0.036	-0.037	-0.307***	-0.307***
	(0.034)	(0.034)	(0.057)	(0.057)
Education	0.011*	0.011*	-0.015	-0.015
	(0.004)	(0.004)	(0.008)	(0.008)
Sick days	-0.000	-0.000	0.006***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)
Household assets (ref. = poorest)				
Second quantile	0.075	0.073	-0.038	-0.051
	(0.068)	(0.068)	(0.112)	(0.112)
Middle quantile	0.246***	0.242***	0.226*	0.208
	(0.064)	(0.064)	(0.106)	(0.106)
Fourth quantile	0.143*	0.137	0.345**	0.319**
	(0.070)	(0.070)	(0.117)	(0.117)
Richest	-0.310***	-0.317***	0.753***	0.729***
	(0.078)	(0.078)	(0.127)	(0.127)
Urban/Rural (ref. = metro urban)				
Other urban	0.245**	0.237**	0.679***	0.645***
	(0.083)	(0.083)	(0.143)	(0.143)
Developed rural	0.095	0.087	1.197***	1.158***
	(0.083)	(0.083)	(0.141)	(0.142)
Less developed rural	0.068	0.057	0.911***	0.875***
	(0.087)	(0.087)	(0.149)	(0.150)
N	16,107	16,107	16,107	16,107

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$ (two-tailed tests)