Published by Oxford University Press in association with The London School of Hygiene and Tropical Medicine *Health Policy and Planning* 2013;**28**:197–205

doi:10.1093/heapol/czs051

Socio-economic disparities in health system responsiveness in India

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Accepted 5 March 2012

Objective To assess the magnitude of socio-economic disparities in health system responsiveness in India after correcting for potential reporting heterogeneity by socio-economic characteristics (education and wealth).

Methods Data from Wave 1 of the Study on Global Ageing and Adult Health (2007–2008) involving six Indian states were used. Seven health system responsiveness domains were considered for a respondent's last visit to an outpatient service in 12 months: prompt attention, dignity, clarity of information, autonomy, confidentiality, choice and quality of basic amenities. Hierarchical ordered probit models (correcting for reporting heterogeneity through anchoring vignettes) were used to assess the association of socio-economic characteristics with the seven responsiveness domains, controlling for age, gender and area of residence. Stratified analysis was also conducted among users of public and private health facilities.

Results Our statistical models accounting for reporting heterogeneity revealed socio-economic disparities in all health system responsiveness domains. Estimates suggested that individuals from the lowest wealth group, for example, were less likely than individuals from the highest wealth group to report 'very good' on the dignity domain by 8% points (10% vs 18%). Stratified analysis showed that such disparities existed among users of both public and private health facilities.

Conclusion Socio-economic disparities exist in health system responsiveness in India, irrespective of the type of health facility used. Policy efforts to monitor and improve these disparities are required at the health system level.

Keywords Socio-economic differentials, health systems, health services, public/private

KEY MESSAGES

- Accounting for reporting heterogeneity, our statistical models reveal socio-economic disparities in all health system responsiveness domains in India.
- Estimates suggest that individuals from the lowest wealth group, for example, are less likely than individuals from the highest wealth group to report 'very good' on the dignity domain.
- Stratified analysis shows that such disparities exist among users of both public and private health systems.
- Policy efforts to monitor and improve these disparities are required at the health system level.

Introduction

While protection and improvement of population health is the primary responsibility of any health system, another of its intrinsic goals is to be responsive to people's expectations in non-health domains such as dignity, confidentiality, autonomy, prompt attention, quality of basic amenities and choice of provider (World Health Organization 2000). Responsiveness increases patient satisfaction with health care providers (Bleich *et al*. 2009), which in turn may promote greater utilization of services (Anand and Sinha 2010; Bhanderi and Kannan 2010), ultimately promoting health. Although most current research focuses on aggregate responsiveness (Coulter and Jenkinson 2005; Hsu *et al*. 2006; Bramesfeld *et al*. 2007; Valentine *et al*. 2008; Peltzer 2009), it is also imperative to assess whether and to what extent the health system responds differently to various socio-economic groups within a society (Murray and Frenk 2000; Almeida *et al*. 2001). Presence of socio-economic disparities in health system responsiveness may be damaging not only from a human rights perspective but also in sustaining confidence in the system. Identifying the extent of such socio-economic disparity can be the first step in improving the quality of health services and patient satisfaction with services in a given health system.

Populations of rapidly developing economies such as India, having experienced a sharp rise in socio-economic inequalities in the past two decades (Deaton and Dreze 2002), may be especially vulnerable to socio-economic disparities in health system responsiveness. While much of the current health literature on socio-economic disparities in India focuses on health status and mortality (Nandy *et al*. 2005; Subramanian *et al*. 2006), access to health services (Deogaonkar 2004; Mohanty and Pathak 2009; Balarajan *et al*. 2011) and quality of clinical care (Rani *et al*. 2008; Dhar *et al*. 2010), socio-economic disparities in health system responsiveness have received little attention. These differences in responsiveness may exacerbate the existing socio-economic inequity in health care access.

India's health system is a mix of public and private health care facilities; with the majority of its population (about 80%) using private health facilities for outpatient care due to their better perceived quality of care (Levesque *et al*. 2006; Ergler *et al*. 2010; Saksena *et al*. 2010). The public health facilities, offering low-cost health care, are more commonly used by poor individuals who are unable to pay for private health care (Levesque *et al*. 2006; Balarajan *et al*. 2011). In fact, poor responsiveness is known to be a key reason for the current underutilization of primary health care provided by public health facilities (Ministry of Health and Family Welfare and Government of India 2005). Within private health facilities, there is also considerable variation in the cost and quality of health care services provided by facilities/providers, resulting in differences in affordability and health care experience by socio-economic status. On the other hand, the existence of socio-economic disparities in responsiveness of public health facilities is contradictory to the basic principle on which this system was founded, that is, to ensure equity in health care access to all irrespective of ability to pay for health services (Ministry of Health and Family Welfare and Government of India 2005). Hence, determining whether responsiveness of the public health facilities varies systematically by the socio-economic status of individuals provides an assessment of potentially avoidable inequalities in health system responsiveness.

Assessment of health system responsiveness through self reports, however, has its limitations. Self-reported measures of health system responsiveness may be conflated by an individual's expectations of the health system, resulting in biased estimates and limiting their interpretation. Ignoring this bias is likely to underestimate the magnitude of socio-economic disparities, especially since poorer individuals, relative to richer ones, are more likely to have lower expectations of the health system (World Health Organization 2000; Rice *et al*. 2009). One solution, being employed increasingly in surveys, is the use of vignettes to tease out the actual experience of the respondent from his/her expectations and thus reduce the systematic bias due to differential reporting (Salomon *et al*. 2004; Damacena *et al*. 2005; Jones *et al*. 2007; Kapteyn *et al*. 2007; Bago d'Uva *et al*. 2008a; Bago d'Uva *et al*. 2008b; Rice *et al*. 2011). These vignettes, when used in conjunction with statistical models, can allow for better estimation of the magnitude of socio-economic disparities in health system responsiveness.

Utilizing data from a recent survey of six Indian states, we assessed socio-economic disparities in responsiveness of outpatient services after correcting for potential reporting heterogeneity by socio-economic characteristics (education and wealth). Even though the health system refers to '*all the activities whose primary purpose is to promote, restore and maintain health*' (World Health Organization 2000), in this paper we focused exclusively on experience with outpatient services, as outpatient care is the most common form of contact with a health system. We first investigated magnitude of socio-economic disparities in responsiveness of outpatient care, irrespective of the type of health facilities used (public, private or any other). We then separately assessed this magnitude for the users of public and private health facilities.

Methods

Dataset

We used data from Wave 1 of the Study on Global Ageing and Adult Health (SAGE) (2007–08) conducted in the six Indian states of Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal. These six populous states, spread across India, accounted for around 37% of India's population as per the 2011 census (Census India 2011). This was a follow-up survey of respondents involved in the World Health Survey, a household survey conducted in 2002–04, with the vast majority of the respondents (98.6%) being participants of the World Health Survey. The goal of sampling in Wave 1 SAGE was to obtain a nationally representative cohort of individuals aged $\geq$50 years, with a smaller cohort of persons aged 18–49 for comparison purposes. It involved face-to-face interviews with 12 198 individuals; 5048 in the 18–49 years age group (from 4453 households) and 7150 in the 50+ years age group (from 5971 households). All persons aged $\geq$50 years (for example, spouses and siblings) were invited to participate in the survey from the households selected for interviewing older adults.

Details of sampling for the World Health Survey and Wave 1 SAGE are provided elsewhere (World Health Organization 2011).

The analytical sample for this study was restricted to those who had visited outpatient services in the last 12 months ($n = 8458$). Home visits by a health care professional, visit to a pharmacist/druggist, observations with missing values on any of the outcomes or independent variables or a vignette were excluded, resulting in a final sample of 7616 individuals.

Variables

Outcome variables included the seven health system responsiveness domains: prompt attention (the amount of waiting time), dignity (experience of being treated respectfully), clarity of information (how clearly the health care providers explained things), autonomy (experience of being involved in making decisions for own treatment), confidentiality (being able to talk privately to providers), choice (being able to see a health care provider of own choice) and quality of basic amenities (cleanliness of health facility). Each was considered in relation to the respondent's last visit to an outpatient service in the past 12 months. Respondents were asked to rate their experience in each domain on a five-point Likert scale ranging from 'very bad' to 'very good'. The main independent variable was socio-economic status of the respondent measured through education (less than primary education, primary school education completed, secondary school education completed and high school and above) and wealth quintiles. The variable for wealth quintiles, already available in the dataset, was a derived variable based on possession of 20 household assets (Ferguson *et al*. 2003). The analysis was also adjusted for gender, age (continuous variable) and area of residence (urban, rural). The analysis used information from seven vignettes, one for each of the seven health system responsiveness domains. An example of the vignette used to assess the domain of prompt attention in the survey instrument was:

> *Vignette*: When the clinic is not busy, [NAME OF A HYPOTHETICAL PERSON] can choose which doctor he sees. But most often it is busy and then he gets sent to whoever is free.
> *Question*: How would you rate [NAME OF THE HYPOTHETICAL PERSON]'s freedom to choose his health care provider?

The response to each vignette was then rated by the respondents on a five-point scale from 'very bad to 'very good'.

Statistical analysis

Initial descriptive statistics were used to describe the analytical sample and the proportion of participants responding 'very good' on each of the seven domains, by education and wealth quintiles. An ordered probit model was used to assess the association of education and wealth with the seven domains, controlling for age, gender and area of residence. A hierarchical ordered probit (HOPIT) model was then used to assess the relationship of the independent variables with the seven domains, adjusting for potential reporting heterogeneity by using the vignette responses. The HOPIT model had two components: the vignette component and the self-reported component. The first component of the model (vignette component) used information from vignette ratings to model the cut-points as a function of individual characteristics:

$$Y_{ij}^{v*} = \alpha_j + \varepsilon_{ij}^{v}$$

where Y_{ij}^{v*} is the latent variable for the health system responsiveness domain perceived by the individual i for the vignette j. All systematic variations in vignette ratings were attributed to reporting behaviour. The second component of the model (self-reported component) defined the latent variable for self-reported health system responsiveness domain (Y_i^{s*}). The cut-points here were no longer constant but could vary across individuals, determined by the vignette component of the model. The equation was specified as:

$$Y_i^{s*} = Z_i\beta + \varepsilon_i^{s}$$

These two components were jointly estimated in the HOPIT model using maximum likelihood estimation (Jones *et al*. 2007; Bago d'Uva *et al*. 2008a; Bago d'Uva *et al*. 2008b).

Ideally, multiple vignettes for each model are needed to better estimate cut-point shifts across all response categories. However, the survey contained only one vignette for each responsiveness domain. To compensate for this limitation, we included vignettes from all seven domains in each HOPIT model. This was based on the assumption that respondents answered the vignettes for all domains in the same way. The assumption seemed reasonable as the seven responsiveness domains were found to represent a single latent theme [all domains were significantly correlated with each other ($P < 0.0001$), loaded highly on to a single factor (eigenvalue: 3.54) in a principal component analysis] and had high internal consistency reliability (Cronbach's alpha: 0.88).

Predicted probabilities for rating 'very good' in each domain were then computed from the HOPIT models for the lowest and highest educational status and wealth quintiles. A similar analysis was conducted for samples stratified by type of health facilities (public or private).

The entire analysis conducted using de-identified data was exempted from full review by the National University of Singapore Institutional Review Board.

Results

The age of the participants in the overall sample ranged from 18 to 105 years, with an average of 50.1 years. The majority were females (62.8%), from rural areas (73%), with less than primary education (55.7%) and had used the private health facilities (66.3%). Those who had used public health facilities were poorer and had lower levels of education compared with those who had accessed private facilities. Regarding the distribution of responses on each of the seven health system responsiveness domains, most rated their last visit as 'good' or 'very good'. The responsiveness of private health facilities was reported to be higher compared with public health facilities (Table 1). Further bivariate analysis showed that in the overall sample, a higher proportion of participants in the upper wealth quintiles compared with lower wealth quintiles rated health

Table 1 Socio-demographic status and health system responsiveness domains in the overall sample and among those attending public or private health systems*

Characteristic	Total sample ($n = 7616$)	Public health facilities ($n = 1928$)	Private health facilities ($n = 5051$)
Demographics			
Mean age ± S.D. (in years)	50.1 ± 16.5	51.4 ± 16.7	49.5 ± 16.5
Range	(18–105)	(18–105)	(18–103)
Gender			
Males	37.2	39.2	35.7
Females	62.8	60.8	64.3
Area of residence			
Urban	27.0	20.2	31.2
Rural	73.0	79.8	68.8
Type of health facility last used			
Public	25.3	–	–
Private	66.3	–	–
Other	8.4	–	–
Socio-economic status			
Wealth quintiles			
First (lowest)	16.7	19.3	13.9
Second	18.9	20.1	17.8
Third	19.7	20.6	19.3
Fourth	21.4	20.3	22.8
Fifth (highest)	23.3	19.7	26.2
Educational status			
Less than primary education	55.7	64.7	52.0
Primary completed	15.6	12.9	15.6
Secondary completed	12.0	9.6	13.1
High school and above	16.8	12.8	19.4
Health system responsiveness domains			
Prompt attention			
Very bad	0.5	0.7	0.4
Bad	5.2	9.3	3.5
Moderate	28.1	39.9	23.6
Good	52.5	40.0	57.9
Very good	13.7	10.1	14.7
Dignity			
Very bad	0.1	0.3	0.1
Bad	1.1	2.4	0.6
Moderate	21.5	33.4	17.1
Good	63.6	54.4	67.3
Very good	13.8	9.5	15.0
Clarity of information			
Very bad	0.1	0.3	0.02
Bad	1.9	3.3	1.3
Moderate	22.0	32.7	17.4
Good	60.9	53.4	64.3
Very good	15.1	10.3	17.0
Autonomy			
Very bad	0.1	0.2	0.04
Bad	2.6	4.1	1.9
Moderate	23.4	33.1	19.4
Good	59.8	52.3	63.0
Very good	14.1	10.3	15.8
Confidentiality			
Very bad	0.2	0.4	0.1
Bad	2.7	4.4	1.8
Moderate	23.3	34.3	18.9
Good	58.3	49.8	62.2
Very good	15.6	11.2	17.1
Choice			
Very bad	0.2	0.4	0.1
Bad	2.0	3.5	1.3
Moderate	21.2	32.5	16.9
Good	59.4	49.9	63.2
Very good	17.2	13.7	18.6
Quality of basic amenities			
Very bad	0.3	0.6	0.1
Bad	1.9	4.9	0.9
Moderate	21.4	35.0	16.3
Good	56.5	44.6	60.9
Very good	19.9	14.9	21.8

Notes: *'Other' health system composed of charitable organizations and traditional healers have not been included for stratified analysis. All numbers are column percentages except for age. S.D. = Standard Deviation.

system responsiveness domains to be 'very good' (results not shown). The same was true of participants with higher levels of education compared with those of lower education.

Table 2 presents both the ordered probit and HOPIT model coefficients for educational status and wealth quintiles on the seven domains in the overall sample. Both models found that those with lower educational status and with lower wealth were significantly less likely to give a better rating on the seven domains than those with at least high school education and in the highest wealth quintile, respectively. However, coefficients for most wealth and education categories from the HOPIT model were even more negative compared with those from the ordered probit model, suggesting that correcting for reporting heterogeneity widens socio-economic disparities.

Figures 1 and 2 show the mean predicted probabilities, obtained from HOPIT models, of responding 'very good' on each health system responsiveness domain by lowest and highest educational status and wealth quintiles, respectively. The marginal probabilities for those with high school education and above compared to those with less than primary education

Table 2 Ordered probit and HOPIT model coefficients for educational status and wealth quintile on health system responsiveness domains in the overall sample (1: very bad; 2: bad; 3: moderate; 4: good; 5: very good) ($n = 7616$)

	Educational status				**Wealth quintiles**				
	No/less than primary education	Primary completed	Secondary completed	High school and above (Reference category)	First (Lowest)	Second	Third	Fourth	Fifth (Highest) (Reference category)
Prompt attention									
Ordered probit	−0.15*	−0.14*	−0.09	–	−0.27*	−0.24*	−0.21*	−0.16*	–
HOPIT	−0.15*	−0.20*	−0.12	–	−0.36*	−0.28*	−0.24*	−0.17*	–
Dignity									
Ordered probit	−0.22*	−0.12*	−0.11*	–	−0.19*	−0.20*	−0.12*	−0.10*	–
HOPIT	−0.24*	−0.19*	−0.15*	–	−0.28*	−0.21*	−0.12*	−0.10*	–
Clarity of information									
Ordered probit	−0.21*	−0.18*	−0.16*	–	−0.28*	−0.24*	−0.17*	−0.13*	–
HOPIT	−0.23*	−0.23*	−0.20*	–	−0.37*	−0.26*	0.17*	−0.13*	–
Autonomy									
Ordered probit	−0.18*	−0.13*	−0.10*	–	−0.29*	−0.24*	−0.20*	−0.11*	–
HOPIT	−0.20*	−0.20*	−0.15*	–	−0.38*	−0.27*	−0.22*	−0.12*	–
Confidentiality									
Ordered probit	−0.18**	−0.15*	−0.11*	–	−0.33*	−0.32*	−0.19*	−0.12*	–
HOPIT	−0.19*	−0.23*	−0.15*	–	−0.43*	−0.35*	−0.21*	−0.12*	–
Choice									
Ordered probit	−0.21*	−0.21*	−0.14*	–	−0.26*	−0.22*	−0.18*	−0.12*	–
HOPIT	−0.23*	−0.29*	−0.19*	–	−0.34*	−0.23*	−0.20*	−0.12*	–
Quality of basic amenities									
Ordered probit	−0.23*	−0.13*	−0.13*	–	−0.25*	−0.21*	−0.18*	−0.18*	–
HOPIT	−0.25*	−0.18*	−0.17*	–	−0.32*	−0.21*	−0.19*	−0.17*	–

Notes: Presented coefficients of ordered probit have been obtained by multiplying the estimated coefficients by a scale factor in order to make them comparable to the coefficients from the corresponding HOPIT model.

All coefficients have $P < 0.05$. Those marked with * have $P < 0.01$.

All models adjust for age, gender and area of residence (urban, rural) of the respondent.

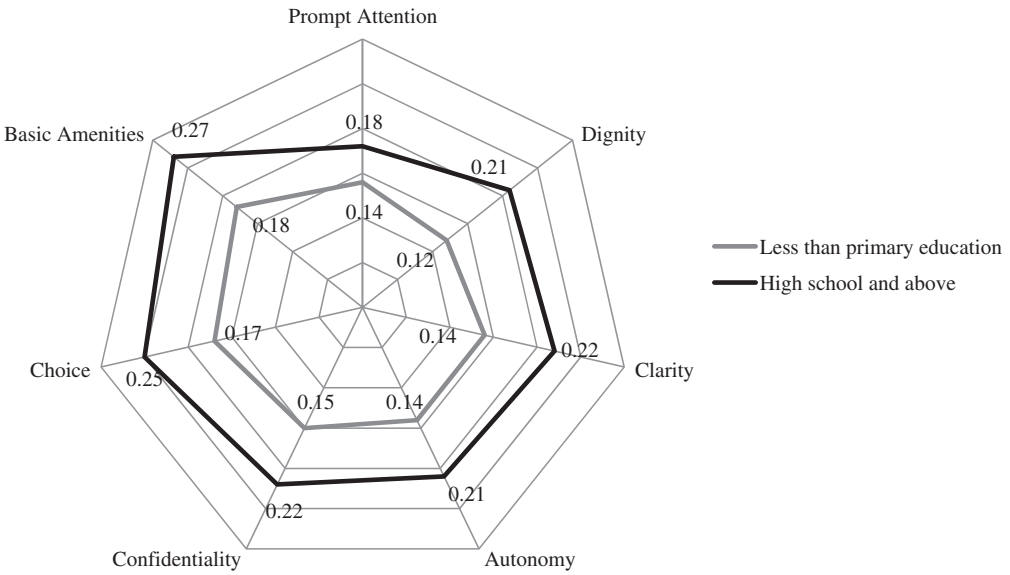

Figure 1 Predicted probabilities for responding 'very good' on the health system responsiveness domains among the lowest and highest educational status categories in the overall sample using the HOPIT model ($n = 7616$)

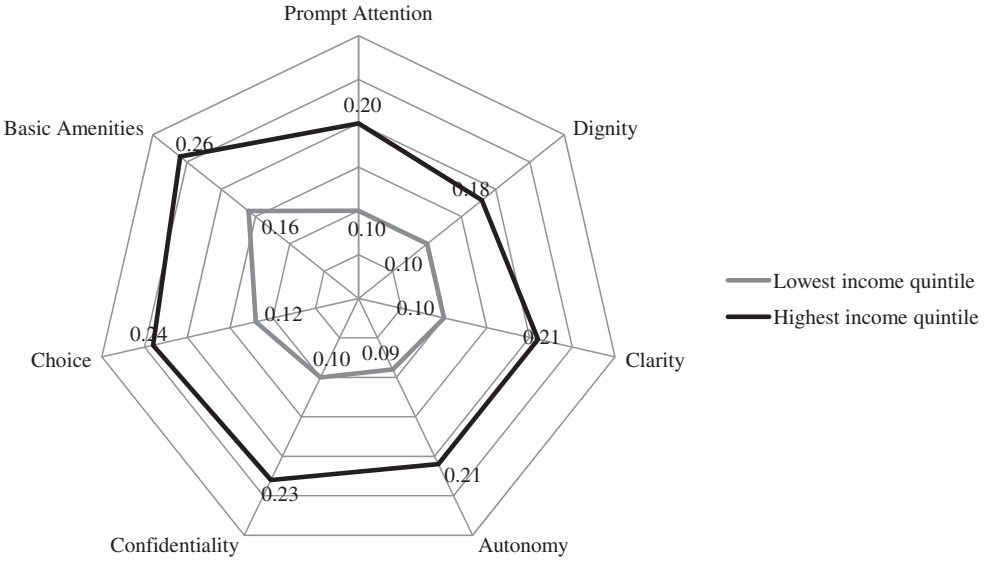

Figure 2 Predicted probabilities for responding 'very good' on the health system responsiveness domains among the lowest and highest wealth quintile in the overall sample using the HOPIT model ($n = 7616$)

for reporting 'very good' on prompt attention, dignity, clarity, autonomy, confidentiality, choice and quality of basic amenities were 0.04, 0.09, 0.08, 0.07, 0.07, 0.08 and 0.09, respectively. The corresponding figures for the highest and lowest wealth quintiles were 0.10, 0.08, 0.11, 0.12, 0.13, 0.12 and 0.10. On stratified analysis, we found that among users of both public ($n = 1928$) and private ($n = 5051$) facilities, the highest (vs lowest) education and wealth groups were more likely to report 'very good' on all responsiveness domains (Table 3). Further, socio-economic differences in responsiveness were greater in magnitude among users of private facilities compared to users of public facilities for the domains of prompt attention, clarity of information, confidentiality and quality of basic amenities.

Comparison of ordered probit and HOPIT models revealed several additional interesting findings. In ordered probit model, females reported lower responsiveness in four of the seven domains—prompt attention, dignity, clarity of information and autonomy. However, after adjusting for vignette responses in the HOPIT model, we found that females experienced lower responsiveness only on the domain for prompt attention. Similarly, in the ordered probit model, people living in rural areas reported lower responsiveness for all health system responsiveness domains. However, the HOPIT model revealed that those living in rural areas experienced lower responsiveness for domains of prompt attention, autonomy and quality of basic amenities (results not shown).

Discussion

The study, one of the few focusing on health system responsiveness in India, provides evidence of socio-economic disparities in outpatient care responsiveness. Our results reveal that the magnitude of socio-economic disparities increases after accounting for reporting heterogeneity by socio-economic status. Stratified analysis shows that these disparities exist among users of both public and private health facilities in the country. Moreover, the responsiveness was greater for private health facilities than for the public, in both the lowest and highest education and wealth groups.

There are three possible reasons for the socio-economic disparities observed: differential access to quality health services, patient-related factors and provider-related factors. Differential access to quality health services may result from: (1) poorer individuals using public health facilities more than richer individuals (selection in the overall sample) and (2) poorer individuals being limited to health facilities geographically accessible to them (differences in financial and geographic access even in stratified public and private subsamples), due to cost of transportation and opportunity costs of travelling (Ager and Pepper 2005). The current analysis, in line with previous studies (Levesque *et al*. 2007), shows that poorer (vs richer) individuals are more likely to access public health facilities compared to private health facilities due to the lower cost of care provided by the former. Public health facilities, in turn, have lower responsiveness than private health facilities, as shown by our study and previous reports (Bhatia and Cleland 2004). These reports have described that many smaller public health facilities function with less than optimum standards, while larger public health facilities are often over-crowded leading to long waiting times and limited consultation time per patient (Ministry of Health and Family Welfare and Government of India 2005; Ergler *et al*. 2010). On the other hand, private providers will need to build up a client base; hence, the quality of non-clinical care provided may be better than a comparable public health facility. This has possibly resulted in differential access to quality health care for the poor.

In addition, there is evidence of lower competence among public and private providers in poor neighbourhoods (Das and Hammer 2007). Thus, if poorer individuals access health facilities located only in their neighbourhoods, this will result in those of lower socio-economic status having a poor health

Table 3 Mean predicted probabilities from HOPIT models for responding 'very good' on the health system responsiveness domains among lowest and highest socio-economic groups attending public and private health facilities

	Prompt attention	Dignity	Clarity of information	Autonomy	Confidentiality	Choice	Quality of basic amenities
Public health facilities ($n = 1928$)							
Educational status							
No/less than primary education	0.10	0.09	0.10	0.10	0.10	0.13	0.13
High school and above	0.11	0.14	0.16	0.16	0.16	0.20	0.20
Marginal probability	−0.01	−0.05	−0.05	−0.06	−0.05	−0.06	−0.06
Wealth quintiles							
First (lowest)	0.07	0.06	0.06	0.06	0.06	0.08	0.11
Fifth (highest)	0.15	0.14	0.16	0.18	0.19	0.22	0.21
Marginal probability	−0.09	−0.09	−0.10	−0.12	−0.13	−0.14	−0.10
Private health facilities ($n = 5051$)							
Educational status							
No/less than primary education	0.15	0.13	0.16	0.15	0.17	0.17	0.20
High school and above	0.20	0.23	0.25	0.22	0.23	0.27	0.30
Marginal probability	−0.06	−0.10	−0.09	−0.06	−0.06	−0.10	−0.10
Wealth quintiles							
First (lowest)	0.10	0.10	0.11	0.10	0.10	0.13	0.15
Fifth (highest)	0.21	0.19	0.23	0.22	0.24	0.24	0.28
Marginal probability	−0.10	−0.09	−0.13	−0.12	−0.14	−0.11	−0.12

care experience, irrespective of whether they use public or private health facilities. The presence of socio-economic disparities due to differential access to quality public health facilities implies that simply expanding coverage of public health services for the poor may not be enough; instead equity in quality of public health services is needed.

Apart from differential access to quality health services, there is evidence of patient- and provider-related sources of socio-economic disparities in responsiveness from other countries. A systematic review of studies exploring the relationship between patient socio-economic status and doctor–patient communication found that poor patients were less involved in the decision-making process, asked fewer questions and had difficulty understanding the medical information provided by the physician (Willems *et al*. 2005). At the same time, it has been found that physicians tend to perceive patients of lower socio-economic status more negatively compared with those of higher socio-economic status (van Ryn and Burke 2000). Others have also shown that regardless of patient communicative behaviour, more educated patients received more information than those who are less educated (Street 1991). A qualitative study conducted in the South Indian city of Chennai reported that physicians are sceptical of poor people's ability to understand medical information, thus they provided them with less information (Ergler *et al*. 2010). Those less educated and unable to understand instructions may end up irritating the health care provider who, in turn, is likely to treat them with less understanding; a phenomenon known as the Matthew effect (Joseph 1989).

Efforts to reduce socio-economic disparities in health system responsiveness need to take into account the above reasons for these disparities. Socio-economic disparities in responsiveness due to poorer individuals using the low-cost low-quality public health facilities may be addressed by improving the responsiveness of these facilities. Improvement in domains such as quality of basic amenities and providing prompt attention may involve further development of public health facilities and have cost implications (World Health Organization 2000). For instance, provision of prompt attention through reduction of patient waiting time, especially in larger public facilities, may be accomplished through the initiation of an appointment system, the development of an efficient parallel system for performing ancillary functions and employing nurses to perform certain functions for evaluating patient status (Johnson and Rosenfeld 1968). The application of these strategies in the Indian context, however, needs to be carefully evaluated. Improving choice of private providers for poor people through cost subsidies and health insurance schemes is another strategy for reducing differential access to services.

Improving responsiveness in domains such as dignity, autonomy and confidentiality may need greater emphasis on provider–patient communication. Emphasizing the importance of these aspects to physicians during their basic and continuing medical education training, including engagement with patients with lower education and who are reluctant to ask questions, can be a possible first step. Some infrastructure development may still be needed, especially in smaller public health facilities, to ensure that there is a private space for patient examination and provider–patient communication to maintain patient confidentiality and dignity. Continuous monitoring of quality of care provided on these indicators and evaluating the data through an equity lens may also help improve these aspects of care for patients of low socio-economic status. Targeting the providers of the health

facilities serving poorer sections of society may be especially beneficial.

The main strength of our study is that we attempt to reduce the systematic reporting bias in health system responsiveness through the use of anchoring vignettes, giving a clearer picture of the extent of socio-economic disparities in responsiveness. However, the study is not without limitations. First, it is limited to outpatients only. Second, though the sample was restricted to those who had visited an outpatient clinic in the last 12 months, there is a possibility of recall bias. Third, while this paper broadly describes socio-economic disparity in the responsiveness of public and private health facilities, there is likely to be substantial variation among individual public and private facilities. Finally, our HOPIT models are based on the assumptions of response consistency (individuals rate vignettes in the same way that they would rate their own experience) and vignette equivalence (level of health system responsiveness represented by each vignette is perceived by all respondents in the same way, apart from the random measurement error) (Bago d'Uva *et al*. 2008a; Bago d'Uva *et al*. 2008b).

Despite these limitations, the study results imply that mere provision of health care to the marginalized sections of society does not guarantee provision of quality care to these groups. Socio-economic disparities may aggravate the existing boundaries in health care access, and contribute to the discontinuity of care and subsequent poor treatment outcomes among the underprivileged. Thus, as with other health care delivery strategies, health system responsiveness also needs to be viewed from an equity lens, which can be integrated into the implementation, monitoring and evaluation of all policies and programmes targeted at improving health system responsiveness. Concerted efforts to tackle the socio-economic disparities in responsiveness should thus be considered as a part of strengthening the national health system.

Conclusion

There is evidence of socio-economic disparity in the overall health system responsiveness in India. Socio-economic disparity is present even within the seven domains of responsiveness of the public health facilities. The study findings have implications for the provision of quality health care to individuals with low socio-economic status.

Acknowledgements

This paper used data from WHO SAGE version 1.1.0. These data are first release and subject to change with further cleaning and weighting. Mary Ann Bautista and Rahul Malhotra at Duke-NUS provided helpful comments and assistance.

Funding

SAGE was supported by the US National Institute on Aging, Division of Behavioral and Social Research through an Inter-Agency Agreement. The analysis for this paper was funded by an Agency for Science, Technology and Research (A*STAR) infrastructure grant to the Duke-National University of Singapore (Duke-NUS) Graduate Medical School Program in Health Services and Systems Research.

Conflict of interest

None declared.

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