EVIDENCE BASED PUBLIC HEALTH POLICY AND PRACTICE

Women's health in a rural community in Kerala, India: do caste and socioeconomic position matter?

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Objectives: To examine the social patterning of women's self-reported health status in India and the validity of the two hypotheses: (1) low caste and lower socioeconomic position is associated with worse reported health status, and (2) associations between socioeconomic position and reported health status vary across castes.

Design: Cross-sectional household survey, age-adjusted percentages and odds ratios, and multilevel multinomial logistic regression models were used for analysis.

Setting: A panchayat (territorial decentralised unit) in Kerala, India, in 2003.

Participants: 4196 non-elderly women.

Outcome measures: Self-perceived health status and reported limitations in activities in daily living.

Results: Women from lower castes (scheduled castes/scheduled tribes (SC/ST) and other backward castes (OBC) reported a higher prevalence of poor health than women from forward castes. Socioeconomic inequalities were observed in health regardless of the indicators, education, women's employment status or household landholdings. The multilevel multinomial models indicate that the associations between socioeconomic indicators and health vary across caste. Among SC/ST and OBC women, the influence of socioeconomic variables led to a "magnifying" effect, whereas among forward caste women, a "buffering" effect was found. Among lower caste women, the associations between socioeconomic factors and self-assessed health are graded; the associations are strongest when comparing the lowest and highest ratings of health.

Conclusions: Even in a relatively egalitarian state in India, there are caste and socioeconomic inequalities in women's health. Implementing interventions that concomitantly deal with caste and socioeconomic disparities will likely produce more equitable results than targeting either type of inequality in isolation.

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The emphasis on mortality and reproductive health has been criticised as an insufficient approach to assessing women's health in both rich and poor countries.^{1–2} Health perceptions and non-reproductive health needs also should be considered. These dimensions are especially relevant as life expectancy increases—chronic illness and disability have a more prominent role in women's lives, and morbidity becomes a critical marker of inequality.³ Poor self-assessed health tends to be concentrated among women who are poor and belong to deprived ethnic or racial groups.^{4–5} Social inequalities in health have been explored in numerous contexts, although less attention has been paid to health disparities in India and other low-income countries.⁶

Indian society is highly stratified by caste and by socioeconomic position. Caste is a hereditary, endogamous, usually localised group, having a traditional association with an occupation and a particular position in the hierarchy of castes. At the bottom of the hierarchy are the low-status castes (scheduled castes) and indigenous groups (scheduled tribes). Historically, low castes and tribes faced high exclusion and were exploited by higher castes. To correct this historical oppression, the government of India adopted a policy of positive discrimination. Caste and socioeconomic position are related but distinct concepts. Caste is a "closed" group, whereas socioeconomic position is "open", and therefore not immutable. Caste tends to overlap with socioeconomic position; upper castes have access to more and better resources and opportunities.⁷ In particular, caste and socioeconomic position are correlated among the highest and among the lowest castes, although this correlation is not perfect. Caste discrimination has decreased since the 19th century but it persists. Caste also continues to shape

practices, beliefs and social norms, including women's freedom and employment opportunities.⁸ Caste disparities exist today owing to both accumulated privileges and disabilities from the past and continued discrimination. Caste-related economic and social differences suggest that women from lower castes will carry a higher burden of ill health.⁹ The relationship between socioeconomic position and health status is widely accepted among epidemiologists and public health researchers.¹⁰ People who are socioeconomically better placed tend to be healthier; this relationship has been seen with measures of mortality, morbidity and self-assessed health.¹¹

This paper examines social patterning of women's health in the south Indian state of Kerala. Progressive public policies and historical particularities have contributed to population health indicators that are superior to the rest of India despite modest levels of income.^{12–13} Although the state domestic product per capita is comparable to India's average (Rs 12 328 rupees v Rs 11 799, based on 1993–4 prices),¹⁴ population health indicators of women in Kerala surpass national levels: women's life expectancy is 76 years in Kerala compared with 61 years in India, the maternal mortality is half the national rate (198 compared with 407 per 100 000 live births), and there is a favourable female:male ratio (1058 females per 1000 males in Kerala v 933 females per 1000 males in India).^{15–16}

Kerala has undergone its health transition, yet—beyond mortality—there is limited evidence on the health of its population in general and the health of women in particular.

Abbreviations: SC/ST, scheduled castes/scheduled tribes; OBC, other backward castes; ADL, activities in daily living

Table 1 Distribution of women by caste groups and socioeconomic level (%)

Socioeconomic indicators	Scheduled castes/scheduled tribes (n = 950)	Other backward castes (n = 1655)	Forward castes (n = 1591)	All women (n = 4196)
Education				
None	26.2	13.5	1.3	11.7
Primary	11.3	19.4	6.2	12.6
High school and above	62.5	67.1	92.5	75.7
Occupation				
Wage	17.7	8.9	4.3	9.2
Non-wage	10.1	6.5	10.9	9.0
Not engaged	72.2	84.7	84.8	81.9
Household land size (cents)				
<10	33.2	23.6	9.7	20.5
10–50	23.3	40.7	21.3	29.4
>50	43.6	35.7	69.0	50.1

To address this gap, we examine two hypotheses: (1) low caste and lower socioeconomic position is associated with worse reported health status, and (2) associations between socioeconomic position and reported health status vary across castes.

METHODS

Study setting

Our study was conducted in Kerala's northern district of Wayanad, which has the highest proportion (36%) of tribal populations, the most deprived social group. Literacy rates are relatively lower in Wayanad owing to lower literacy rates among tribal groups. The population is largely dependent on agriculture, with the main crops being coffee and paddy. Agricultural activities is the main occupation among the population actively engaged in the work force. The study site was a single panchayat (territorial decentralised unit) with a multireligious and multicasite population. The panchayat has a land area of 31.75 km² and a population of 16 110.

Data source and study population

Cross-sectional data were used from a household survey implemented by the Centre for Development Studies, Kerala, India, and the Université de Montréal, Québec, Canada, in 2003, as part of a larger action research project. The project obtained ethical approval by the Université de Montréal

Ethics Committee on 25 April 2003. All of the households identified in the panchayat were included in the census after receiving informed consent. All households agreed to participate. Universal participation in the survey was probably due to the close interactions between the community and our action research project. The questionnaire had several modules that included questions pertaining to demographics, socioeconomic characteristics and self-reported health status. Non-elderly adult women of marital age (18–59 years) were selected for the analyses.

The caste or tribe of each household was categorised using the conventional three-way classification system adopted in Kerala,¹⁷ which ranks Hindu castes and other religions. The first category, at the bottom of the caste hierarchy, includes both scheduled castes and scheduled tribes (SC/ST). Next is a residual category of lower castes and Muslims, known as other backward castes (OBC). The highest-ranking group is that of the upper or forward castes, including Christians. Our previous work identified heterogeneity among the ST; the Paniya tribe experienced greater levels of deprivation and were culturally distinct from other social groups living in the panchayat.¹⁸ This led to a perception bias, which may arise among people who lack the informational base to assess their own poor health status.¹⁹ Consequently, the Paniyas under-reported their poor health conditions and therefore Paniya women were not included in our analysis.

Table 2 Sample sizes, age standardised percentages and age-adjusted odd ratios with 95% confidence intervals for self-perceived bad health and limitations in activities in daily living across caste and socioeconomic indicators

	Age standardised percentages			Age-adjusted ORs*	
	No of women	Bad health†	Limitations in ADLs‡	Bad health†	Limitations in ADLs‡
Caste of household					
SC/ST	950	24.7	28.4	1.88 (1.5 to 2.3)	1.45 (1.2 to 1.8)
OBC	1 655	22.9	30.7	1.73 (1.4 to 2.1)	1.72 (1.4 to 2.1)
Forward	1 591	16.3	22.6	Reference	Reference
Education of woman					
None	493	33.8	43.5	2.14 (1.7 to 2.7)	2.14 (1.7 to 2.7)
Primary	527	24.2	28.8	1.50 (1.2 to 1.9)	1.35 (1.1 to 1.7)
High school and above	3 176	17.4	24.0	Reference	Reference
Occupation of woman					
Wage	384	22.7	24.8	1.07 (0.8 to 1.4)	0.87 (0.7 to 1.1)
Non-wage	376	13.2	21.3	0.53 (0.4 to 0.8)	0.64 (0.5 to 0.9)
Not engaged	3 436	21.0	27.6	Reference	Reference
Household land size (cents)					
<10	860	27.0	30.4	2.22 (1.8 to 2.8)	1.53 (1.2 to 1.9)
10–50	1 234	22.9	29.3	1.69 (1.4 to 2.1)	1.45 (1.2 to 1.7)
>50	2 102	16.7	23.9	Reference	Reference

ADL, activities in daily living; OBC, other backward castes; SC/ST, scheduled castes/schedule tribes.

*ORs were estimated by Mantel-Haenszel statistics.

†Perceived health was converted into a binary variable for these calculations, bad health versus the rest.

‡Limitations in ADLs was converted into a binary variables for these calculations, great and moderate limitations versus the rest.

Figure 1 Results of household survey. ADL, activities in daily living; FC, forward castes; OBC, other backward castes; SC/ST, scheduled castes/scheduled tribes.

Measuring socioeconomic position

A variety of socioeconomic measures are used to provide the most comprehensive approach to assessing health disparities.^{20, 21} We used three indicators that we believe are

pertinent for Indian agrarian societies: education, employment status and size of land holdings.

Woman's education was measured as the highest level of education pursued, whether or not it was achieved. There are

three categories: never attended school, primary, and high school and above. For the regression models, we collated "never attended school" and "primary education" into "low education" to ensure convergence of the models. For women's employment status, we adopted the individualistic approach, which uses a woman's current or previous occupation.²² It is pertinent to specify whether Indian women are engaged in wage labour, which is typically unstable, precarious work, and exposes them to various health risks.²³ The following three categories were used: not engaged, employed wage labourer (has no permanent employer or employment) and employed non-wage labourer (permanent work). As the study is in a rural area, we followed developmental experts in Kerala by using land as an indicator of economic status. We measured the size of household landholdings in cents (100 cents = 1 acre). The categories, relevant in the Kerala context, reflect three levels of ownership: 0–10 cents (limited agriculture activities), 10–50 cents (cultivation) and >50 cents (significant cultivation).

Measuring self-assessed health

Two outcome measures of self-reported health status were used. Respondents were asked to rate their overall self-perceived health based on a five-point Likert Scale: very bad, bad, good, very good and excellent. Owing to limited distribution at the extremes, this variable was collapsed into three categories: very bad/bad, good and very good/excellent (hereafter these categories are referred to as bad, good and excellent). The second indicator is limitations in activities of daily living (ADLs). Respondents were asked to rate their level of limitations for two different sets of activities, physically demanding activities and moderately demanding activities. A single indicator was computed by summing the responses for the two sets of activities. This indicator was then collapsed into three categories: great limitations, moderate limitations and no limitations.

Statistical analysis

A preliminary analysis examined the distribution of poor health across caste and socioeconomic variables. To adjust for age differences across caste and socioeconomic groups, we used the direct method of standardisation, using the average of the total sample of women as the standard population.²⁴ Age-adjusted odds ratios (ORs) were calculated using Mantel-Haenszel statistics. Then, three-level multilevel multinomial logistic regressions were carried out to determine whether perceived health and ADLs are associated with each of the socioeconomic variables, while controlling for age.

The interactions between caste and socioeconomic position were dealt with by stratifying the analysis by caste. Specifically, interactions examine whether the accumulated privileges of upper castes serves as a buffer (ie, to lower the effect of low socioeconomic position on health), whereas the accumulated deprivations and continued discrimination of lower castes or tribes serve to magnify (ie, to increase the effect of low socioeconomic position on health) inequalities in health. Unordered logistic regressions modelling techniques were used despite the ordinal nature of the dependent variables, because the critical assumption of parallel slopes was not met.²⁵ To account for the hierarchical structure of the data, a multilevel approach was adopted, the models were fitted with individual at level 1, household at level 2 and ward at level 3. This corrects the estimated standard errors, thereby dealing with the clustering of observations that occurs within units.²⁶ This permits us to test for statistical significance of the fixed effects of the woman-level variables, although accounting for unobserved effects at the household or ward levels. We used the software MLWin, V.2.02, and our

models were estimated using reweighted generalised least squares.²⁷ Separate models were run for each caste.

RESULTS

The household survey identified 4196 non-elderly women for this study (excluding the Paniya tribe). Socioeconomic position correlates with caste (table 1). The lower the caste, the more likely that a woman has never attended school or is from a household that owns <10 cents of land. The relationship between caste and employment status is more complex. SC/ST women are almost two times more likely to be engaged in paid employment than either OBC or forward caste women. Among employed women, SC/ST women are predominantly wage labourers, OBC women are slightly more likely to work as wage labourers and forward caste women tend to engage in non-wage activities. Table 2 provides the sample sizes, age-standardised percentages and age-adjusted ORs (with 95% confidence intervals (CIs)) of poor perceived health and limitations in ADLs. A higher prevalence of poor health outcomes was observed among SC/ST and OBC women than in the forward caste women. Poor health is also associated with lower levels of education and small household landholdings. The percentage of women reporting poor health outcomes is lowest among women who are engaged in non-wage activities. Little difference is observed between being a wage labourer and not engaging in paid employment. The ORs confirm these associations (the ORs are all statistically significant, except between wage labourer and not being engaged in paid employment). Figure 1 depicts these findings that are consistent across age groups.

Multilevel modelling Perceived health

Table 3 lists the results of multilevel multinomial models for perceived health by caste. The ORs and 95% CIs (fixed effects) were computed comparing the rankings of bad health and good health with the reference (excellent health).

As expected, poor health is associated with low socioeconomic position. Moreover, the ORs for bad health are higher than for good health, illustrating a progression between poorer ratings of perceived health and low socioeconomic position. The influence of socioeconomic variables varies across caste. Among SC/ST and OBC women, the influence of socioeconomic variables on health tends to have a magnifying effect, whereas among forward caste women, there is a buffering effect (with the exception of education). Among SC/ST women, all three socioeconomic variables are associated with perceived health. Not having a high-school education increases the likelihood that a woman will report being in less than excellent health. Being engaged in paid employment reduces the likelihood that a woman will report less than excellent health, especially among women engaged in non-wage labour. Women from a household owning <50 cents of land are more likely to report being in less than excellent health. Results for OBC women are similar to our findings for SC/ST women, although the associations are tempered and the ORs between employment status and perceived health are only statistically significant for bad health.

These trends diverge from the results for forward caste women. No statistically significant associations were found between perceived health and either household landholdings or employment status. Low education was, however, associated with poor perceived health. Surprisingly, there was a stronger relationship between education and poor health outcomes among forward caste women than in lower caste women. This could possibly be owing to the greater range in educational achievements among forward caste women.

Table 3 Odd ratios (with 95% confidence intervals) estimated by multilevel multinomial logistic regression models of perceived health status using excellent health as the reference*

	SC/ST		OBC		Forward caste	
	Bad health	Good health	Bad health	Good health	Bad health	Good health
Fixed effects						
Low education (ref=high school and above) OR (95% CI)	2.69 (1.8 to 4.0)	1.96 (1.4 to 2.8)	1.88 (1.4 to 2.6)	1.58 (1.2 to 2.1)	4.20 (2.7 to 6.4)	2.53 (1.6 to 3.9)
Wage labourer (ref=not engaged) OR (95% CI)	0.44 (0.3 to 0.7)	0.59 (0.4 to 0.9)	0.52 (0.3 to 0.8)	0.76 (0.5 to 1.1)	1.01 (0.6 to 1.8)	0.62 (0.4 to 1.1)
Non-wage activities (ref=not engaged) OR (95% CI)	0.30 (0.2 to 0.5)	0.46 (0.3 to 0.7)	0.50 (0.3 to 0.9)	0.83 (0.5 to 1.3)	0.62 (0.4 to 1.0)	1.02 (0.7 to 1.5)
<10 cents of land (ref=>50 cents) OR (95% CI)	2.99 (2.1 to 4.4)	1.70 (1.2 to 2.4)	2.13 (1.5 to 3.0)	1.01 (0.8 to 1.4)	1.13 (0.7 to 1.8)	0.73 (0.5 to 1.1)
10–50 cents of land (ref=>50 cents) OR (95% CI)	2.70 (1.8 to 4.1)	1.75 (1.2 to 2.6)	2.75 (2.1 to 3.7)	1.41 (1.1 to 1.8)	0.89 (0.6 to 1.2)	0.79 (0.6 to 1.1)
Random effects						
Ward (level 2)	0.41 (0.21)	0.68 (0.33)	0.18 (0.10)	0.50 (0.24)	0.06(0.05)	0.26 (0.13)
Household (level 1)	0.16 (0.09)	0.06 (0.08)	0.06 (0.10)	0.24 (0.09)	0.00 (0.00)	0.44 (0.09)

OBC, other backward castes; ref, reference; SC/ST, scheduled castes/scheduled tribes.

*Models are adjusted for age.

Limitations in ADLs

Table 4 shows the fixed results of the multilevel multinomial models for limitation in ADLs. No limitation in ADLs is the reference. The results are comparable to the ORs for perceived health, although the effects are attenuated and generally no longer statistically significant.

DISCUSSION

Self-perceived health status is consistently correlated with mortality and morbidity,²⁸ and it has been widely used in studies examining the socioeconomic inequalities in health.^{4–29} However, the use of self-perceived health, which is influenced by factors such as having regular contact with health professionals and individual's attitudes and perceptions,¹⁹ could be a limitation in such a study. Studies have found that in certain low-income settings, the poor reported better health than the better off. Amartya Sen showed that the incidence of reported morbidity was higher in Kerala than in Bihar, a poorer state with considerably higher mortality.¹⁹ Sen attributed this discrepancy to a perception bias; people from states with more education and greater access to health and medical facilities are in a better position to assess their own health than people from disadvantaged states. In our study, a perception bias was observed among one specific—previously enslaved and socially excluded

group—the Paniya tribe. The Paniyas have absorbed an inferior status and lack the capacity to aspire, which led to their reporting better health despite their high levels of deprivation and greater exposure to health risks. By excluding the Paniyas from our analysis and focusing on a relatively homogeneous population, we were able to assess social inequalities in health among a population less susceptible to such a bias. The pattern of being poor but reporting good health is particular to specific situations, notably among excluded populations and poor groups where there is a high level of resignation. But this resignation may be lifted and the poverty-poor health relationship clearly established by either excluding such groups from analysis (as we did with the Paniya tribe in our study) or through general economic development (as seen elsewhere among Korean women).³⁰

We complemented our analysis with reported limitations in ADLs, which is considered to be a fairly acceptable and valid measure of physical functioning in low-income countries.³¹ In our study, limitations in ADLs and self-perceived health provided similar results, thereby strengthening the confidence in our findings.

Two main patterns in women's health emerged in this study. Firstly, age standardised percentages and ORs showed that women's health varies across caste and socioeconomic position (fig 1 and table 2). A higher prevalence of poor

Table 4 Odd ratios (with 95% confidence intervals) estimated by multilevel multinomial logistic regression models of limitations in activities in daily living using no limitations as the reference*†

	SC/ST		OBC		Forward caste	
	Great limits	Moderate limits	Great limits	Moderate limits	Great limits	Moderate limits
Fixed effects						
Low education (ref=high school and above) OR (95% CI)	1.71 (0.9 to 3.2)	1.32 (0.9 to 2.0)	1.56 (1.0 to 2.4)	1.14 (0.8 to 1.6)	2.95 (1.6 to 5.4)	1.56 (1.0 to 2.4)
Wage labourer (ref = not engaged) OR (95% CI)	0.32† (0.2 to 0.7)	0.67† (0.5 to 1.0)	0.66 (0.4 to 1.2)	0.59 (0.4 to 0.9)	1.15 (0.4 to 3.0)	1.02 (0.5 to 1.9)
Non-wage activities (ref=not engaged) OR (95% CI)	†	†	0.54 (0.2 to 1.2)	0.66 (0.4 to 1.2)	0.42 (0.1 to 1.3)	0.77 (0.5 to 1.3)
<10 cents of land (ref=>50 cents) OR (95% CI)	2.95 (1.6 to 5.4)	1.39 (0.9 to 2.1)	2.15 (1.3 to 3.6)	1.18 (0.8 to 1.7)	1.86 (0.9 to 3.7)	1.07 (0.7 to 1.8)
10–50 cents of land (ref=>50 cents) OR (95% CI)	1.62 (0.8 to 3.3)	1.39 (0.9 to 2.2)	1.70 (1.1 to 2.6)	1.28 (1.0 to 1.7)	0.98 (0.5 to 1.8)	1.25 (0.9 to 1.8)
Random effects						
Ward (level 2)	0.46 (0.29)	0.29 (0.17)	0.36 (0.21)	0.32 (0.17)	0.56 (0.31)	0.28 (0.15)
Household (level 1)	0.00 (0.00)	0.27 (0.22)	0.40 (0.27)	0.10 (0.16)	0.04 (0.47)	0.30 (0.20)

OBC, other backward castes; ref, reference; SC/ST, scheduled castes/scheduled tribes.

*Models are adjusted for age.

†The original variable for labour status did not converge for SC/ST model owing to insufficient numbers; therefore labour status was collapsed into a binary variable (engaged v not engaged).

health outcomes was reported among lower caste women. Despite Kerala's superior performance in reducing caste discrimination, "intercaste disparity continues to underlie overall disparity".³² Poor health is associated with lower socioeconomic position regardless of the indicator. Disparities in education and low education were associated with poor health. Education is an inclusive measure of socioeconomic position because women are included regardless of their status in the labour market.²¹ Education can provide a woman with a broad set of cognitive resources, in addition to material gains and future financial security through better employment or marriage opportunities.¹⁰⁻³³ Also, there are inequalities in household landholdings, which, our study shows, are linked to poor health. There is a close correspondence between poverty and land ownership in South Asian agrarian societies. Land is both a key productive asset and can help to protect households against economic shocks.³⁴ Land reforms, undertaken over 40 years ago, helped to restructure the rural classes, ensuring that many rural labourer households had at least a small amount of land, yet disparities persist.¹³ Finally, better health is associated with being engaged in paid employment, especially in non-wage labour activities. Because we used cross-sectional data, the direction of the relationship between employment and health cannot be ascertained. On the one hand there could be a "healthy worker effect"—that is, healthy women volunteer themselves into the workforce.³⁵ On the other hand, employment can lead to positive effects on women's health by enhancing their autonomy and bargaining power, providing access to financial and social resources, producing greater emotional satisfaction, improving their social status and increasing the perceived value of women by household members and society.³⁶

Secondly, the relationships between caste, socioeconomic position and health are intertwined. Our regression models showed that the associations between socioeconomic factors and health vary across castes. There are socioeconomic disparities among lower caste women highlighting the need to consider the inter-relations among social inequalities. The burden of low socioeconomic position combined with lowness of caste can lead to "double deficits" in health (with the exception of education). Our findings suggest that caste interacts with socioeconomic variables on health by magnifying or buffering the effect. Small household landholdings, which are linked with poor health, yielded high ORs among SC/ST women, and to a lesser extent among OBC women (tables 2 and 3), showing a magnifying effect. Forward caste women are buffered from the negative effect of small household landholdings. Typically, being from a lower caste magnifies the influence of low socioeconomic position, suggesting that these groups of women are especially vulnerable.

CONCLUSION

Caste and socioeconomic position are two inter-related sources of inequality that can reinforce each other; being from an upper caste can buffer women from the poor health effects related to low socioeconomic status, whereas being from a lower caste can magnify these effects. This study shows that both being from a lower caste and of low socioeconomic status can trap people into poor health more than either inequality on its own.

Even in a relatively egalitarian state in India, there are caste and socioeconomic inequalities in women's health. We need to balance our quixotic view of Kerala with more critical and in-depth research on population health. The elevated status of women in Kerala, compared with women in other states, has shielded deeper probing of sex issues, including the investigation of potential inequalities among women. The

What is known on this topic

- Social inequalities in health are well documented in various industrialised countries.

What this paper adds

- This paper examines the social patterning of women's health in India—a society highly stratified by socioeconomic position and by caste. The paper shows that there are inequalities in health among women, which should be considered when implementing public health interventions.

Policy implications

- One possible approach to reducing social inequalities in health in India is through participation in poverty-alleviation strategies that have positive health effects ("pro-health" poverty-alleviation strategies).
- However, little research is available on this topic.
- Public health researchers should take it as a priority to inform Indian policy makers.

benefits of Kerala's progressive development have not been equally shared across the population.³⁷⁻³⁸ This study contributes to that body of knowledge by highlighting the caste and socioeconomic disparities in health among women. There is a need in Kerala for devising the appropriate social response to reducing inequalities in health. There are a range of health interventions that target the poor and socially disadvantaged groups within and outside the health sector.³⁹⁻⁴⁰ Implementing interventions that concomitantly deal with caste and socioeconomic disparities will likely produce more equitable results than targeting either type of inequality in isolation.

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