The effect of maternal education on gender bias in care-seeking for common childhood illnesses

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Abstract

This paper assessed gender bias within hospitalisation rates to ascertain whether differential care-seeking practices significantly contribute to excess female mortality. It then examined the impact of socio-economic factors, particularly maternal education and economic status, on gender bias. The results find both the clear and significant impact of gender on hospitalisation rates, as well as the simultaneous inability of rising education and economic status to alleviate this bias.

A secondary analysis was conducted within a uniquely large and ongoing randomised control trial that sought to measure the impact of Zinc supplementation on hospitalisations and deaths in low-income communities in New Delhi, India. During the course of the study, 85,633 children were enrolled and monitored over one year of follow-up. Of the 430 deaths that occurred, 230 were female (0.57% of total females), while 200 were male (0.43% of all males). Despite this higher mortality amongst females ($p < 0.02$), girls were hospitalised far less frequently than boys. Of the 4418 children who were hospitalised at least once, 2854 (64.6%) were males and only 1564 (35.4%) were females, indicating a significantly lower rate of care-seeking for females ($p < 0.001$).

Curiously, our results show that gender bias is highest amongst highly educated mothers, and decreases steadily for children of mothers with a middle school education, a primary school education, and is lowest amongst mothers with no formal education. Put differently, female children of mothers with no formal education were significantly more likely to be hospitalised than children of mothers with several years of formal education, even after adjusting for all other factors. Economic status was not found to affect the association of gender and hospitalisation, though overall odds of

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hospitalisation rose with increasing economic status. Paternal education was found not to be significantly related to hospitalisation.
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Introduction

Acute gender differences in infant and child mortality are well documented in South Asia, and have been shown to be considerably higher than in other parts of the developing world (Agnihotri, 2001; Claeson, Bos, Mawji, & Pathmanathan, 2000; Hill and Upchurch, 1995; Murthi, Guio, & Dreze, 1995; among others). What is termed as excess female mortality (Agnihotri, 2001) occurs due to a complex interplay of sex-related and gender-related factors. While sex refers to biological differences between males and females, gender encompasses socio-cultural codes of behaviour that place numerous negative, and often fatal, constraints on the health, value, and status of women and girl children (Ahmed, Adams, Chowdhury, & Bhuiya, 2000; Basu, 1992; Chen, Huq, & D’Souza, 1981; among others).

What remain unclear, however, are the mechanisms through which this excess mortality occurs. The most likely explanations centre on gender differences in child-rearing and/or care-seeking behaviour (Chen et al., 1981). Differences in child-rearing practices could indirectly affect mortality through better nutrition for males, leading to lower incidence and severity of infections, and arguably, lesser mortality. Gender differences in care-seeking, on the other hand, would directly impact mortality through differences in rates of preventive and curative health care and, in particular, in rates of hospitalisation for severe illnesses. Determining the relative importance of each of these factors; understanding the motivations behind them; and mapping their relationships with different socio-economic indicators is, therefore, a critical pre-cursor to formulating effective interventions and policies against such bias.

Though limited in number, studies on care-seeking behaviour in the Indian sub-continent have shown consistent bias towards males in terms of higher rates of physician consultation (Ahmed et al., 2000; Chen et al., 1981; Ganatra, & Hirve, 1994; Murthi et al., 1995), greater health expenditure on drugs and treatment for males (Das Gupta, 1987; Hossain, & Glass, 1988) and bias in protective care-seeking practices such as immunisation (Govindaswamy, & Ramesh, 1996; Kurz, & Johnson-Welch, 1997). One notable exception is a recent study in Kerela in South India (Pillai et al., 2003), which found gender not to be a factor in the decision to seek medical treatment. However, none of these studies distinguish between mere visits to primary care centres made mostly due to mild illnesses, and hospitalisations due to more severe illness. It is important to establish the effect of gender on hospitalisation rates, since hospitalisations represent the most direct and relevant proxy for death, given that they are associated with more severe, and potentially fatal, episodes of illness.

If the perceived low economic and socio-cultural worth of girl children does lead to inequities in care-seeking, then socio-economic development, measured primarily through income and years of education, is arguably the most effective tool with which to address these inequities. Indeed, development policies continue to rely on the unquestioned assumption that, beyond a certain level, education and rising income will effectively and automatically address gender differences. In India, literacy and empowerment programmes—even if not gender specific—are widely accepted as the staples of development and progressive health policies. Given the entrenched nature of gender biases, however, development alone may be a necessary, but far from sufficient, mechanism to alleviate bias.

Though rising income and education have been associated with significant reductions in mortality rates, and parallel improvements in other health indicators (Agnihotri, 2001; Bicego & Boerma, 1993; Bourne & Walker, 1991; Chen et al., 1981; Claeson et al., 1995; Cleland and Van Ginniken, 1988; Sandiford, Cassel, Montenegro, & Sanchez, 1995; among others), these effects are rarely disaggregated by gender, reflecting the assumptions that mortality declines are gender neutral. Existing literature further argues that the effect of income and education on gender bias remains uncertain. While some argue that maternal education has a direct and reductive impact on female disadvantage (Bourne & Walker, 1991; Sandiford et al., 1995; Murthi et al., 1995), many others have argued that gender bias worsens with rising socio-economic indicators as males benefit disproportionately (Ahmed et al., 2000; Das Gupta, 1987; Henry et al., 1993; Koenig, & D’Souza, 1986). Still others argue that the relationship cannot be determined (Chen et al., 1981). Ascertaining the impact of socio-economic indicators—measured using gender disaggregated data—is a critical first measure to explore the ability of education and income to create development without gender discrimination.

In this context, we conducted a secondary analysis within a uniquely large and ongoing randomised control...
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