

Productivity and Resilience in Poor Households through an Environmental and Gender Lens

Dr. Kulsum Ahmed
Dr. Sanval Nasim
Dr. Farah Said
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The last few years has seen a welcome shift by government to addressing the needs of poor and vulnerable households in Pakistan. In 2018-2019, it was estimated that 52% of the entire population of Pakistan was vulnerable to falling back into poverty (Jama 2021). To further understanding in this area, we conducted research on the needs of vulnerable households from both an environmental and a gender standpoint. What we found (and did not find) provides much insight for change.

This article briefly summarizes our main findings. The second and third articles will propose a way forward to address current issues in a way that benefits the poor and vulnerable, as well as the entire population, reaping multiple co-benefits. The main report is available on the IGC website at: <https://www.theigc.org/project/kamya-pakistan-programme-making-it-green-and-gender-inclusive/>

Health and the Environment

The Global Burden of Disease (GBD) study, conducted every 10 years, assesses the major

causes of disease that lead to early mortality and high morbidity. The burden of disease attributable to various risk factors is measured in terms of lost years of healthy life using the disability-adjusted life year (DALY) metric. DALY combines years of life lost because of premature death with years of unhealthy life due to illness and disability.

The GBD's approach is particularly instructive in terms of broader healthcare policy, as it moves away from single disease "silos" to take a wider perspective. Figures 1 and 2 below show the top ten causes of death and of death and disability combined in Pakistan, including the relative increase in these diseases between 2009 and 2019 (GBD 2021). Note the significant increase in ischemic heart disease and stroke, as well as diabetes and kidney diseases in Figure 2. This has shifted the health burden from mainly communicable diseases to a mixture of about 60% non-communicable diseases (NCDs) and 40% communicable diseases (CDs) in Pakistan. Unlike CDs, which can be cured, NCDs need to either be prevented or managed throughout a lifetime, resulting in increasing health costs.

1

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Figure 1. What causes the most deaths in Pakistan?

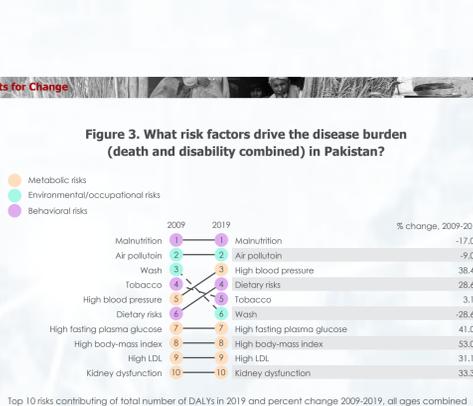


Figure 2. What causes the most death and disability combined in Pakistan?

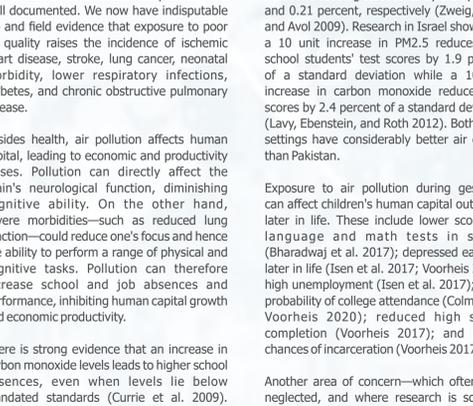


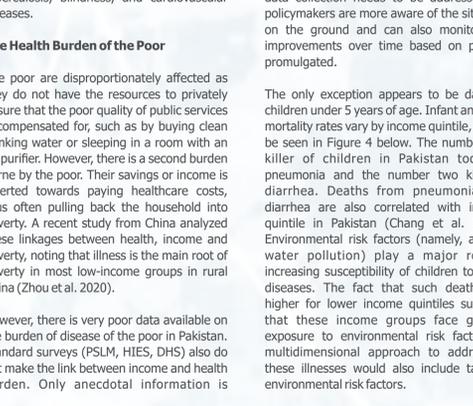
Figure 3 below shows the major risk factors that drive the most deaths and disability combined for Pakistan in 2019, before the Covid-19 pandemic, compared with 2009. As can be seen, malnutrition occupies the top

spot, with air pollution at number 2, consistently, during the 10-year period. Despite some reduction in water, sanitation, hygiene (WaSH) and tobacco related risk, both still appear in the top 10 risks.

2

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Figure 3. What risk factors drive the disease burden (death and disability combined) in Pakistan?



The direct health effects of air pollution are well documented. We now have indisputable lab and field evidence that exposure to poor air quality raises the incidence of ischemic heart disease, stroke, lung cancer, neonatal morbidity, lower respiratory infections, diabetes, and chronic obstructive pulmonary disease.

California has shown that a 10 percent decrease in PM2.5 raises school children's math and reading test scores by 0.14 percent and 0.21 percent, respectively (Zweig, Ham, and Avol 2009). Research in Israel shows that a 10 unit increase in PM2.5 reduces high school students' test scores by 1.9 percent of a standard deviation while a 10 unit increase in carbon monoxide reduces test scores by 2.4 percent of a standard deviation (Lavy, Ebenstein, and Roth 2012). Both these settings have considerably better air quality than Pakistan.

Exposure to air pollution during gestation can affect children's human capital outcomes later in life. These include lower scores on language and math tests in school (Bharadwaj et al. 2017); depressed earnings later in life (Isen et al. 2017; Voorheis 2017); high unemployment (Isen et al. 2017); lower probability of college attendance (Colmer and Voorheis 2020); reduced high school completion (Voorheis 2017); and higher chances of incarceration (Voorheis 2017).

Another area of concern—which often goes neglected, and which research is scant in Pakistan—is indoor air pollution (IAP), which results from cooking and heating with solid fuels on open fires and traditional cookstoves. Since women mostly carry the burden of cooking and their children often spend time with them, IAP disproportionately affects women and children. According to the

3

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Pakistan Social and Living Standards Measurement (PSLM) survey 2019-2020, only 37% of households have access to clean fuel technology for cooking and lighting. Burning solid fuels can lead to indoor pollution levels that are orders of magnitude higher than outdoor levels. Strong evidence links IAP to acute lower respiratory infections, chronic obstructive pulmonary disease, lung cancer, and increased risk of other morbidities including low birth weight, asthma, tuberculosis, blindness, and cardiovascular diseases.

available. For example, during the launch of the Kamyab Pakistan Program, the Prime Minister and Finance Minister both directly indicated that health impacts were a major drain on resources for poor and vulnerable households, hence putting in place a health insurance scheme, through the Sehat card, to help with management of health shocks in the short term.

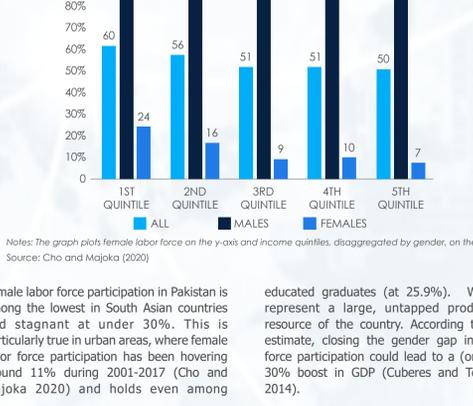
This very clear shortcoming with respect to data collection needs to be addressed, so policymakers are more aware of the situation on the ground and can also monitor any improvements over time based on policies promulgated.

The only exception appears to be data on children under 5 years of age. Infant and child mortality rates vary by income quintile, as can be seen in Figure 4 below. The number one killer of children in Pakistan today is pneumonia and the number two killer is diarrhea. Deaths from pneumonia and diarrhea are also correlated with income quintile in Pakistan (Chang et al. 2018). Environmental risk factors (namely, air and water pollution) play a major role in increasing susceptibility of children to these diseases. The fact that such deaths are higher for lower income quintiles suggests that these income groups face greater exposure to environmental risk factors. A multidimensional approach to addressing these illnesses would also include tackling environmental risk factors.

4

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Figure 4. Female Participation by Income Quintile



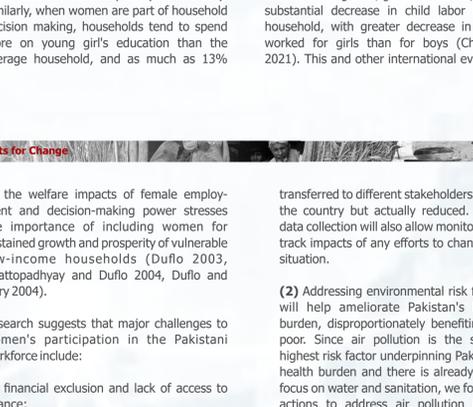
The children of the poor also suffer the most with respect to stunting and wasting: in Pakistan, 57% of children under the age of 5 years are physically stunted in the lowest income quintile compared with 22% in the highest income quintile. Stunting is typically the outcome of malnutrition. Some malnutrition arises from lack of food and some from the inability to fully benefit from the nutrients in food due to (lower)

respiratory infections or diarrhea, both often caused by exposure to polluted air and water. For higher income quintiles, one does not expect stunting due to lack of food, and therefore much of this stunting is probably due solely to environmental risk factors. Since the poor are even more exposed to these same environmental risk factors, one would expect the contribution from environmental risk factors to be even higher.

5

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Figure 5. GDP Losses Due to Inequal Gender Gaps in Selected Countries



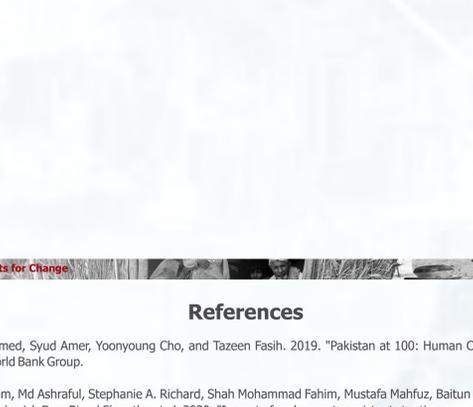
Female labor force participation in Pakistan is among the lowest in South Asian countries and stagnant at around 30%. This is particularly true in urban areas, where female labor force participation has been hovering around 11% during 2001-2017 (Cho and Majoka 2020) and holds even among

educated graduates (at 25.9%). Women represent a large, untapped productive resource of the country. According to one estimate, closing the gender gap in labor force participation could lead to an (one-off) 30% boost in GDP (Cuberes and Teignier 2014).

6

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Figure 6. Female Participation by Income Quintile



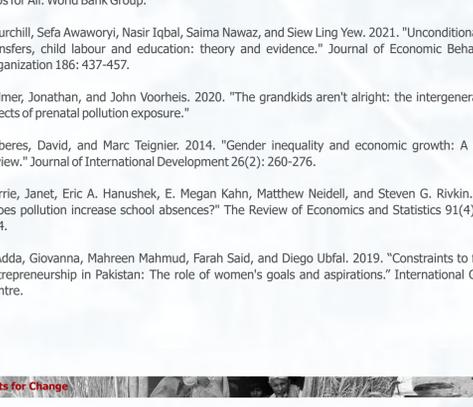
Female employment has proven welfare impacts, both for the women themselves and for their dependents. For instance, women who work in Pakistan are more likely to have a say in household consumption decisions and their own health decisions, including the decision to use contraception (Fatima 2014). Similarly, when women are part of household decision making, households tend to spend more on young girls' education than the average household, and as much as 13%

more than the expenditure on boys (Saleemi and Kofol 2022; Data from Pakistan Rural Household Surveys 2014, 2016, 2017). A recent evaluation of Benazir Income Support Program (BISP), the federal social safety net program, indicates that the periodic unconditional grants, given to women, led to substantial decreases in child labor in the household, with greater decrease in hours worked for girls than for boys (Churchill 2021). This and other international evidence

7

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Figure 7. GDP Losses Due to Inequal Gender Gaps in Selected Countries



on the welfare impacts of female employment and decision-making power stresses the importance of including women for sustained growth and prosperity of vulnerable low-income households (Duflo 2003, Chattopadhyay and Duflo 2004, Duflo and Udry 2004).

transferred to different stakeholders in the country but actually reduced. Better data collection will also allow monitoring to track impacts of any efforts to change the situation.

Research suggests that major challenges to women's participation in the Pakistani workforce include:

(2) Addressing environmental risk factors will help ameliorate Pakistan's health burden, disproportionately benefiting the poor. Since air pollution is the second highest risk factor underpinning Pakistan's health burden and there is already much focus on water and sanitation, we focus on actions to address air pollution in the second article in this series.

(i) financial exclusion and lack of access to finance;

(3) Increasing gender participation in the workforce across all income quintiles could have multiple benefits. These include an increase in overall GDP, welfare improvement for women and dependents including an increase in amounts spent on girls' education and potentially a shift in the nature of female employment in vulnerable households helping to increase their resiliency. Hence, in the third article, we focus on actions to increase women's participation in the workforce.

(ii) inadequate skills, including low digital literacy;

(iii) lack of safe transport options. The overriding constraint appears to be social norms. Women usually require permission to work from other household members (including to leave the home). Some work is also considered inappropriate or unsafe for women. Changing this mindset will require a concerted push to include women in the workforce at all income levels. The benefits will accrue both nationally, but also disproportionately for vulnerable households to increase their resiliency.

Policy Recommendations

In summary, our findings suggest:

(1) An understanding of the actual disease burden across the country broken down by income quintile is sorely lacking. Better information will lead to design of more effective public health and economic policies, so that health costs are just

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About the Authors

This article has been authored by a team comprising Dr. Kulsum Ahmed (Principal Investigator) Director, Integrated Learning Means (ILM), Fellow, CDPR and former World Bank Sector Manager, Dr. Sanval Nasim (Assistant Professor, Colby College), and Dr. Farah Said (Assistant Professor, Lahore University of Management Sciences (LUMS))