with an 8.4% decrease (95% CI: −14.9% to −1.8%). Large-gathering bans saw the least change in mobility compared with other policy types. We, in turn, found a strong link between changes in mobility and changes in COVID-19 case growth. Overall, a 10% decrease in the average time spent away from places of residence was associated with 11.8% (95% CI: 3.8%, 19.1%) fewer new cases two weeks later. A more pronounced 50% decrease resulted in 46.6% fewer cases two weeks later (95% CI: 17.5%, 65.4%).

Conclusions: Social distancing policies had a significant but heterogeneous impact on mobility. Across countries studied, relative change in time spent away from home was positively associated with slowed covid-19 case growth.

Implications for Policy or Practice: Our findings begin to offer actionable insight into what types of early policies may have been most effective in decreasing aggregate mobility and, in turn, Covid-19 case growth. With a better understanding of policies' relative performance countries can more effectively invest in, and target, early non-pharmacological interventions.

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Heterogeneity in Response to India's Initial COVID-19 Nationwide-Lockdown: A Quasi-Experimental Study Using Aggregate Mobility Data

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Research Objective: India's March 2020 nationwide lockdown garnered early support from the World Health Organization, but has also been the subject of criticism due to strict enforcement and the inaccessibility of basic supplies for those under lockdown. Given the scale of the policy and relevant concerns, there is an urgent need to better understand the impact of this policy on its intended outcome: slowing covid case growth.

Study Design: We assessed state-level variation in response to the nation-wide lockdown. Using a public dataset of differentially privatized aggregate mobility data, we assessed the combined impact of the Janta Curfew and lockdown using a Single Interrupted Time Series (SITS) design. Our primary outcomes were change in relative mobility and change in state-level COVID-19 case growth. We first looked at variation in mobility between states and then used the results from state-level SITS to assess the relationship with COVID-19 case growth. To do so, we used a model with rate of increase in COVID-19 cases over time as our dependent variable and change in aggregate mobility as our predictor, controlling for population demographics, such as: size, urbanicity and poverty as well as known COVID-19 cases (cumulative as of March 25th). For COVID-19,

we used "Covid19India" which aggregated statistics from the Ministry of Health and Family Welfare (MoHFW), each state or union territory and the Indian Council of Medical Research (ICMR).

Population Studied: Our analytic sample included 10,512 state-day observations, representing 1.21 billion individuals across 36 states and union territories in India.

Principal Findings: We observed an immediate and pronounced decrease in mobility following the policy's implementation. Overall the lockdown was associated with an 86% decrease in mobility as compared to a location-specific pre-lockdown baseline. However, these effects were not homogeneous by mobility type, nor were they homogeneously sustained in the post-policy period. Visits to grocery stores and pharmacies (slope = 0.62% increase in visits per day) and transit stations (slope = 0.24%) began to recover relatively quickly whereas visits to retail and recreation (slope = −0.41%), and parks (slope − 0.47%) continued to decline during the post period. We observed significant state-level variation in mobility responses (71% to 95% decrease in visits to retail and recreation sites). States with the largest decreases in aggregate mobility to retail and recreational sites had a relatively slow (7.2%) rate of increase in COVID-19 case growth in contrast to states with the lowest decreases in mobility, who saw a 53% rate increase in COVID-19 cases (p = 0.03) over the same time period.

Conclusions: States that were most effective in responding to the lockdown policy, as measured by decreased mobility, were also most effective in slowing covid case growth (controlling for state wealth, size, and urbanicity).

Implications for Policy or Practice: While our findings suggest India's nationwide lockdown may have been effective in achieving its primary goal, we require a better understanding of what drives sub-national variation in policy adherence over time as well as careful tracking of unintended economic and wellbeing costs.

The Compounding Effect of Having HIV and a Disability on Child Mortality Among Mothers in South Africa

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Research Objective: Emerging studies suggest that people with disabilities are at a higher risk for HIV. However, less is known about impact of maternal disability and HIV on child mortality. We aimed to examine the potential compounding effect of maternal disability and HIV status on child mortality in South Africa.