

Depression, Poverty, and Economic Shocks: Evidence from India

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Abstract

This paper examines the correlations between socioeconomic status, economic shocks, and depression, and how these vary by gender, in a sample of adults from India. Poverty and the exposure to negative shocks are both associated with depression. However, the frequency of negative shocks varies only slightly by socioeconomic status and gender. Instead, poor people and women appear to be more vulnerable to negative shocks. These patterns suggest that social protection programs may foster mental health for these groups and reduce mental health disparities.

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Depression is a pervasive and costly illness that has a large impact on global health (Ferrari et al. 2013). The lifetime prevalence of major depression is between 15-20 percent worldwide (Moussavi et al. 2007, Hasin et al. 2018), and the COVID-19 pandemic has exacerbated rates of depression (Kupcova et al. 2023). Poverty and female gender are well-known risk factors for depression, and evidence suggests that poverty has a causal effect on depression (Patel et al. 2003, Ridley et al. 2020). However, the specific mechanisms through which depression varies by socioeconomic status and gender are not fully understood.

This paper explores the hypothesis that negative socioeconomic shocks may mediate depression disparities by socioeconomic status and gender. Poverty may both increase the incidence of shocks and the vulnerability to shocks. In addition, women may be more vulnerable to shocks due to gender discrimination, stigma, or poverty (Bhattacharya et al. 2019, Brown et al. 2021).

We examine the correlations between depression, socioeconomic status, and exposure to economic shocks within a random sample of adults from a peri-urban area near Bangalore, India. In 2018, we randomly sampled 1505 adults in Madhugiri Taluk and conducted a brief survey that screened for depression and elicited information about socioeconomic circumstances and recent negative economic shocks. We combine the available socioeconomic indicators into an SES index and compare patterns across SES quartiles.

Depression is correlated with both poverty and gender in our sample. 18 percent of people in the bottom SES quartile are depressed, compared to 5 percent of people in the top quartile ($p < 0.001$). 11 percent of women are depressed, compared to 7 percent of men ($p = 0.005$). Women are more likely to be poor than men (e.g., 31 percent of women and 17 percent of men are in the bottom SES quartile) and they also have higher depression risk conditional on SES. Negative shocks are associated with depression risk for both genders: depression risk rises by 5 percentage points ($p < 0.001$) with each additional shock.¹

Despite these patterns, differences in the exposure to shocks do not explain the SES or gender gaps for depression. People in the bottom SES quartile only experience 17 percent more shocks than those in the top SES quartile ($p = 0.07$), and women experience only

¹Depression may also lead people to be less careful, which could increase exposure to negative shocks (Angelucci and Bennett 2024). Our interpretation here is predicated on the idea that shocks are largely exogenous to depression.

1.5 percent more shocks than men ($p = 0.77$). Both of these differences are much smaller than the observed gaps for depression. Instead, poor people and women appear to be more *vulnerable* to shocks. Comparing the top and bottom SES quartiles, an additional shock increases depression risk by 9 percentage points for low-SES people and by 3 percentage points for high-SES people ($p = 0.06$ for this comparison). This effect is 7 percentage points for women and 2 percentage points for men ($p = 0.01$ for this comparison). A Blinder-Oaxaca decomposition confirms that differences in shock frequencies explain only a small share of SES and gender disparities for depression, while differences in shock vulnerabilities may contribute substantially.

These findings help to contextualize the links between poverty, gender, and depression. A literature in economics examines the way that negative economic shocks perpetuate poverty (e.g. Frankenberg et al. 2003, Premand and Vakis 2010). Depression is one possible pathway for this relationship. Our findings suggest that poverty and female gender may predispose people to depression by making them more vulnerable to negative events. These findings are also relevant for policymakers seeking to prevent psychological distress and limit mental health disparities. They underscore the importance of building resilience to economic shocks. Social protection programs may play a role in improving mental health by reducing vulnerability to shocks for the poor. They may also promote gender parity in mental health.

I Context and Data

This analysis is based on a random sample of 1505 adults living in Madhugiri Taluk near Bangalore, India. To obtain this sample, we randomly chose 120 localities within the taluk and then sampled households in a manner proportional to locality populations in the 2011 census. Surveyors made up to three attempts over several weeks to reach each respondent. A brief survey elicited demographic characteristics, depression symptoms, and exposure to recent negative economic shocks. Key socioeconomic characteristics include caste, literacy, education, individual and household savings, and number of bedrooms in the dwelling. We construct a socioeconomic status (SES) index by computing the first principal component of these variables and then divide the sample into SES quartiles. We measure depression

severity with the PHQ-9 depression severity scale (Kroenke et al. 2001). This nine-item scale ranges from 0 to 27 and has been widely validated throughout the world. Our primary measure of depression is an indicator for PHQ-9 scores of at least 10, which is the threshold consistent with major depression (Manea et al. 2015).

To examine the role of economic shocks, we measure whether the respondent or other household members have experienced any of the following events in the past 12 months: illness of more than one month, being unable to find a job for at least one month, business loss, incarceration, divorce, or other serious personal loss, and fire, flood, or other disaster. We also ask whether anyone in the household has died during this period. Our primary approach is to count the total number of shocks experienced without distinguishing between levels of severity or recency within the 12-month window. 44 percent of respondents have experienced zero shocks, 36 percent have experienced one shock, 16 percent have experienced two shocks, and 5 percent have experienced three or more shocks. Aggregating across shocks that occur to respondents and to others in their households, the most common shocks are a fire, flood, or other disaster (34 percent of households) and a spell of unemployment (17 percent of households), and illness (14 percent of households).

The population of Madhugiri is relatively poor and disadvantaged: 65 percent of respondents are literate, compared to the national average of 73 percent (Katiyar 2016). The literacy rate is 10 percentage points lower for women. 54 percent of respondents belong to scheduled castes or tribes, compared to the national average of 16-17 percent (Deshpande 2000). The prevalence of depression is also elevated in this area: 24 percent of respondents have at least mild depression (PHQ-9 scores of 5 or more) and 9 percent have symptoms of major depression, compared to the average of 4 percent of adults in Karnataka (Sagar et al. 2020). Depression risk is 4 percentage points higher for women than for men ($p = 0.005$).

Depression is negatively correlated with SES, which aligns with other studies in the literature (Lorant et al. 2003). Figure 1 shows that 18 percent of respondents in the bottom SES quartile are depressed, compared to 5 percent of those in the top quartile ($p = 0.001$ for this comparison).

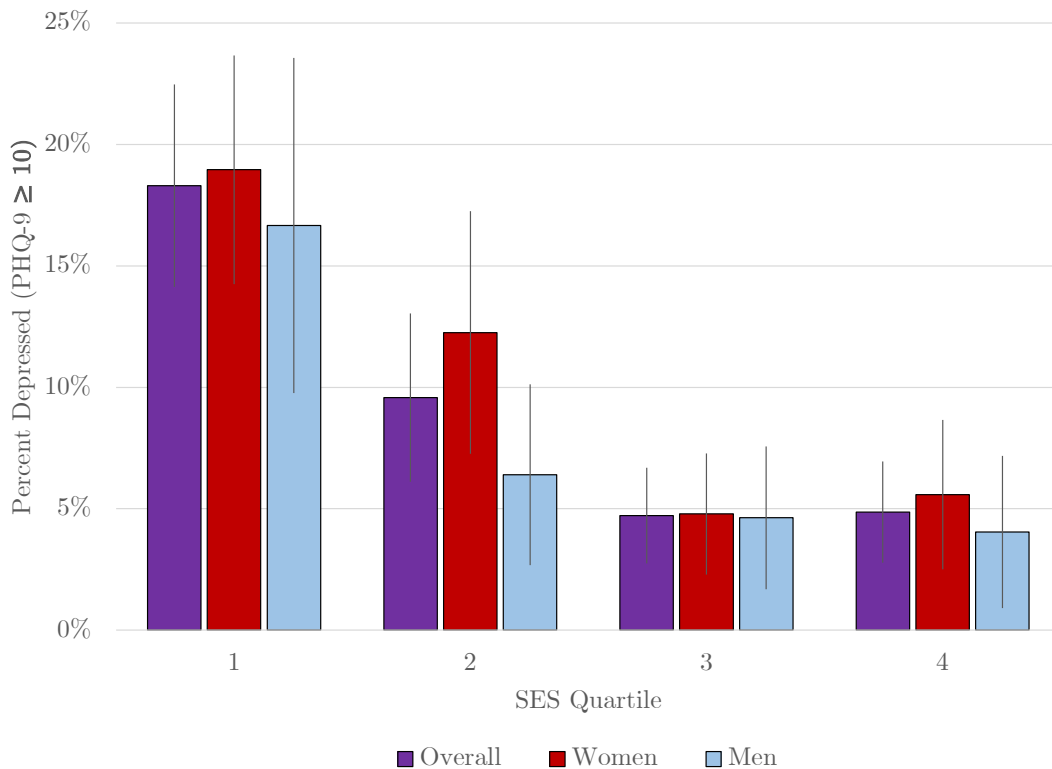


Figure 1: Prevalence of Depression ($PHQ-9 \geq 10$) by SES Quartile and Gender

Note: The figure shows the incidence of depression quartile of the SES distribution. Depression is defined as an indicator for PHQ-9 scores that are greater than 10. Error bars report 95% confidence intervals.

II What is the Role of Negative Economic Shocks?

Negative economic shocks may mediate the link between poverty and depression. Although the physiological mechanisms are not fully understood, negative economic shocks are a risk factor for depression, particularly among individuals who are vulnerable because of pre-existing traits and circumstances (e.g. Spinhoven et al. 2011). Poverty could be correlated with depression if the poor face more frequent negative economic shocks or are more vulnerable to shocks, and this relationship may vary by gender.

Figure 2 shows a positive correlation between depression risk and shock frequency. 25 percent of respondents with three or more shocks are depressed, compared to 6 percent of those with zero shocks ($p < 0.001$ for this comparison). Depression risk rises by 5 percentage points with each additional shock ($p < 0.001$). This pattern is stronger for women: 34

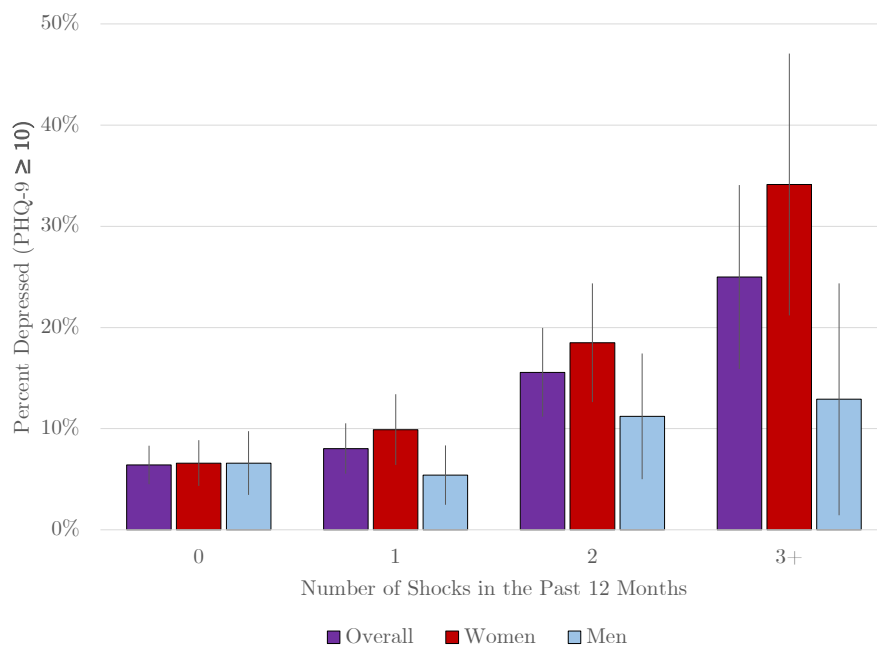


Figure 2: Prevalence of Depression ($PHQ-9 \geq 10$) by Incidence of Shocks and Gender

Note: The figure shows the prevalence of depression according to the number of shocks experienced within the past 12 months. Depression is defined as an indicator for PHQ-9 scores that are greater than 10. Error bars report 95% confidence intervals.

percent of women with three or more shocks are depressed, and depression risk rises by 7 percentage points with each additional shock ($p = 0.001$).²

Figure 3 shows that the frequency of shocks varies minimally by SES. Respondents in the top quartile experience 0.73 shocks on average, while those in the bottom quartile experience 0.86 shocks. While this difference is statistically significant ($p = 0.07$), the magnitude is small relative to the SES gradient for depression in Figure 1.³

Next, we explore the possibility that low-SES people and women may be more *vulnerable* to shocks by regressing depression risk on the number of shocks, interacted with SES quartile and gender. Figure 4 reports the shock coefficient for each group. Depression risk rises by 9 percentage points for each additional shock in the bottom SES quartile and by 3 percentage points in the top SES quartile ($p = 0.06$ for this comparison). Depression risk rises by 7

²In contrast, depression risk rises by 2 percentage points with each additional shock for men. This gender difference is statistically significant ($p = 0.01$).

³To investigate possible SES or gender differences in the composition of shocks, we also compute each shock's share of the total. There are no significant difference in these variables by SES and only one variable that differs significantly by gender.

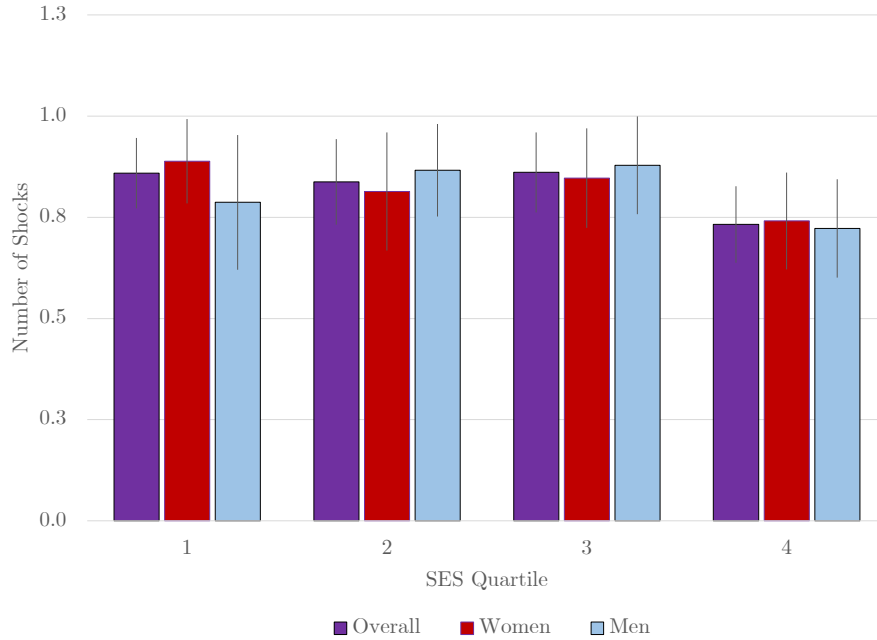


Figure 3: Incidence of Shocks by SES Quartile and Gender

Note: The figure shows the total number of shocks experienced in the past 12 months by SES quartile for both women, men, and overall. Error bars report 95 percent confidence intervals.

percentage points for each additional shock for women and by 2 percentage points for men ($p = 0.01$ for this comparison).⁴ Women have a stronger response to shocks within every SES quartile, although this difference is statistically significant only in the lowest quartile ($p = 0.09$). These patterns suggest that shocks may have a larger impact on depression risk among women and the poor.

Finally, a Blinder-Oaxaca decomposition distinguishes between the portions of the SES and gender disparities that are due to differences in the frequency of shocks, differences in shock vulnerabilities, and other differences. In a comparison of the top and bottom SES quartiles, differences in shock frequencies explain 6 percent of the gap, while 36 percent of the gap is due to differences in shock vulnerabilities, and 58 percent is due to other differences. For gender, 1 percent of the gap is due to differences in shock frequencies, 99 percent is due to differences in shock vulnerabilities, and 0 percent is due to other differences. This gender

⁴The effect for women is statistically significant ($p < 0.001$) and the effect for men is not statistically significant ($p = 0.14$).

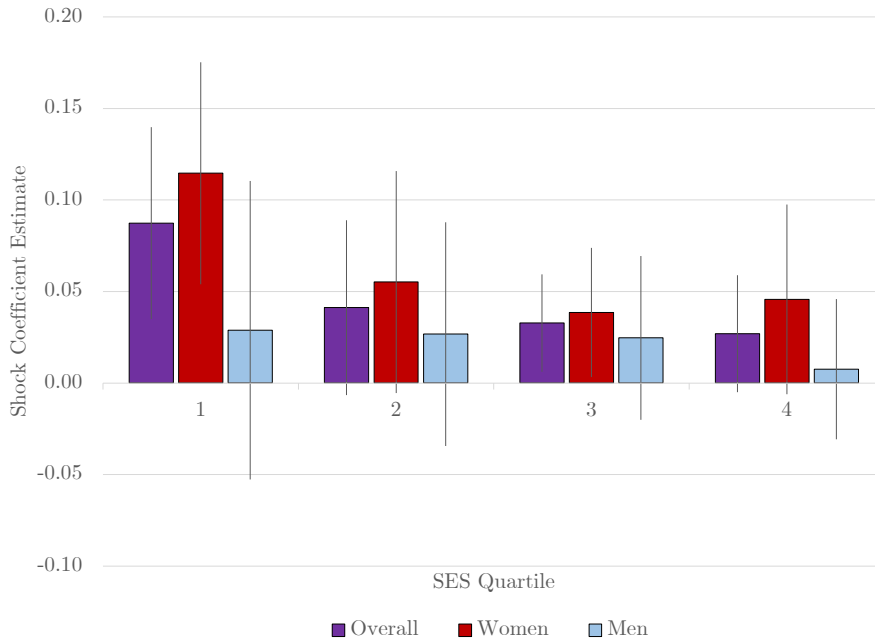


Figure 4: Association between Shocks and Depression by SES Quartile and Gender

Note: The figure reports the coefficient estimates from a regression of an indicator for depression on the number of shocks in the previous 12 months, interacted with gender and SES quartiles. We cluster standard errors by locality. Error bars report 95 percent confidence intervals.

decomposition reflects the pattern in our data (evident in Figure 2) that among people with zero shocks, men and women have nearly identical rates of depression.

III Discussion

A well-documented positive correlation between poverty and depression exists across many settings. Evidence suggests that there may be a bidirectional causal relationship, in which poverty increases depression risk and depression contributes to poverty (Ridley et al. 2020).

There are substantial depression disparities in our sample. Depression risk is nearly three times higher in the bottom SES quartile than in the top quartile, so that nearly half of depressed people belong to the bottom quartile. This gap is large relative to findings from similar studies (Lorant et al. 2003). The strong SES gradient in our sample is striking because the sample population is more homogeneous than India as a whole. It is consistent with an important role for *relative* social position as a depression determinant (Ladin et al. 2010), in

addition to the effect of absolute poverty. These pathways suggest that reducing inequality may help to ameliorate depression disparities (Filho et al. 2013).

Negative economic shocks may mediate the link between poverty and depression. We investigate this potential link by correlating depression risk, SES, and the frequency of negative economic shocks. In practice, there are only small differences by SES and gender in the frequency of shocks. Pradhan and Mukherjee (2018, Table 2) show a similar pattern using the ARIS/REDS representative sample of rural India.

Instead, our results suggest that the mental health of low-SES people may be more vulnerable to shocks. The practical impact of shocks on life circumstances may be larger for poor people, who have fewer buffer assets (Atake 2018). Living in poverty may also increase depression risk through psychological channels. Poverty creates additional stress (Haushofer and Fehr 2014), which may increase depression vulnerability cumulatively over time (Slopen et al. 2018). As a result, people who have lived in poverty in the past may be vulnerable to depression regardless of their present economic circumstances.

We find a similar pattern by gender. Women face greater depression risk and are also more vulnerable to negative shocks than men. In a distinction with the pattern for socioeconomic status, the gender gap in depression can be almost entirely explained by differential vulnerability to shocks. This pattern is consistent with Das et al. (2012), who find that gender differences in individual characteristics do not explain the gender gap in depression.

An understanding of the links between poverty and depression risk is directly relevant for policy. While treating mental illness is an obvious response to the current mental health crisis, protecting people from depression triggers is also useful. Interventions that increase resilience to shocks may reduce depression risk, especially for poor people and women. Social safety net programs may have this effect by reducing the disruption caused by negative shocks.

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